



## हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

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दूरभाष : 0788-2359400

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दुर्ग, दिनांक 04/07/2019

प्रति,

प्राचार्य,  
समस्त संबद्ध महाविद्यालय,  
हेमचंद यादव विश्वविद्यालय,  
दुर्ग (छ.ग.)

विषय:- स्नातक स्तर भाग-एक के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर भाग-एक के निम्नलिखित कक्षा/विषयों के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2019-20 से लागू किये जाते हैं:-

1. बी.ए. — आधार पाठ्यक्रम-हिन्दी भाषा, हिन्दी साहित्य, राजनीतिशास्त्र, अर्थशास्त्र, नृत्य, दर्शनशास्त्र, समाजशास्त्र, इतिहास, मानवविज्ञान, संस्कृत, सांख्यिकी, प्राचीन भारतीय इतिहास, भूगोल, मनोविज्ञान, लाईब्रेरी साईंस
2. बी.एस-सी. — आधार पाठ्यक्रम-हिन्दी भाषा, जीव विज्ञान, मानवविज्ञान, बायोटेक्नोलॉजी, कम्प्यूटर साईंस, गणित, भौतिक शास्त्र, प्राणीशास्त्र, सूक्ष्मजीव विज्ञान, वनस्पतिशास्त्र, भूविज्ञान, इलेक्ट्रॉनिक्स, रसायन शास्त्र, सांख्यिकी, भूगोल।
3. बी.एस.सी- (गृह विज्ञान) — आधार पाठ्यक्रम — हिन्दी भाषा एवं गृह विज्ञान।
4. विधि — एल.एल.बी.
5. प्रबंध — बी.बी.ए.

उपरोक्त विषयों को शिक्षा सत्र 2019-20 से संशोधित रूप में स्नातक स्तर भाग-एक के लिए लागू किया जाता है स्नातक स्तर भाग दो एवं तीन के पाठ्यक्रम यथावत रहेंगे।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र-छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार।

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**REVISED ORDINANCE NO.11**  
**(As per State U.G.C. Scheme)**  
**BACHELOR OF ARTS**

1. The three year course has been broken up in to three Parts.  
Part-I Examination: at the end of the first year.  
Part-II Examination: at the end of the second year and  
Part-III Examination: at the end of the third year.
2. A candidate who after passing (10+2) or intermediate examination of C.G. Board of Secondary Education, C.G. or any other examination recognized by the University or C.G. Board of Secondary Education as equivalent thereto, has attended regular course of study in an affiliated college or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.A. Part-I examination.
3. A candidate who after passing B.A. Part-I examination of the University or any other examination recognized by the University as equivalent thereto has attended regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.A. Part II Examination.
4. A candidate who after passing B.A. Part II examination of the University has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.A. Part-III examination.
5. Besides regular students, subject to their compliance with this ordinance, ex-students and non-college students shall be eligible for admission to other examination as per provisions of Ordinance N. 6 relating to Examinations (General). Provided that non-college students can be admitted at such subjects/papers as are taught to the regular students at any of the University Teaching Department or College.
6. Every candidate for the Bachelor of arts examination shall be examined in:
  - A Foundation Course:
    - (i) Group A - Hindi Language
    - (ii) Group B - English Language
  - B Three course subjects: One subject from any three group out of the following six groups:
    - 1 Sociology / Ancient Indian History/Anthropology
    - 2 Political Science/Home Science / Drawing & Painting / Vocational Course.
    - 3 Hindi Literature/ Sanskrit Literature/Urdu Literature/Mathematics.
    - 4 Economics/Music/Defense Studies/Linguistics/ Urdu;
    - 5 Philosophy/Psychology/ Geography/ Education/Management.
    - 6 History/English Literature/Statistics.
    - 7 Practicals (If Necessary) for each core subject.

- 7 Any candidate who has passed the B.A. examination of the University shall be allowed to present himself for examination in any of additional subject prescribed for the B.A. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.A. Part I examination in the subject which he proposes to offer and then the B.A. Part II and Part III examination in the same subject. Successful candidate will be given a certificate to that effect.
- 8 In order to pass any part of the three year degree course examination, an examinee must obtain not less than 33% of the total marks in each subject/group of subjects. In subject /group of subjects, where both theory and practical examination are provided, an examinee must pass in both the ory and practical part so the examination separately.
- 9 Candidate will have to pass separately at the Part-I, Part II and part-III examination. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the Final examination, total marks obtained by the examinees, in their Part-I, Part-II and Part-III examination in the aggregate shall be taken into account. Candidate will not be allowed to change subjects after passing Part I Examination.  
Provided in case of candidate who has passed the examination through the supplementary examination having failed in one subject only the total aggregate marks being carried over for determining the division shall include the actual mark so obtained in the subject in which he appeared at the supplementary examination.
- 10 Successful examinee at the Part-III examination obtaining 60% or more marks shall be placed in the First division, those obtaining less than 60% but not less than 45% marks in the Second division and other successful examinees in the third division.



## SCHEME OF EXAMINATION

Subject		Paper	Max. Marks	Min. Marks	
A.	i)	Environmental Studies	75	33	
		Fild Work	25		
	Foundation Course				
B.	i)	Hindi Language - I	75	26	
	ii)	English Language - II	75	26	
	Three Core Subject :				
	1.	Hindi Literature	I	75	50
			II	75	
	2.	Sanskrit Literature	I	75	50
			II	75	
	3.	English Literature	I	75	50
			II	75	
	4.	Philosophy	I	75	50
			II	75	
	5.	Economics	I	75	50
II			75		
6.	Political Science	I	75	50	
		II	75		
7.	History	I	75	50	
		II	75		
8.	Ancient Indian History	I	75	50	
		II	75		
9.	Sociology	II	75	50	
		I	75		
10.	Geography	II	75	33	
		I	50		
11.	Mathematics	II	50	17	
		Practical	50		
		I	50	50	
		II	50		
12.	Statistics	III	50	33	
		I	50		
		II	50		
		Practical	50	17	

	<b>Subject</b>	<b>Paper</b>	<b>Max. Marks</b>	<b>Min. Marks</b>
13.	Anthropology	I	50	33
		II	50	
		Practical	50	17
14.	Linguistics	I	75	50
		II	75	
15.	Music	I	50	33
		II	50	
		Practical	50	17
16.	Home Science	I	50	33
		II	50	
		Practical	50	17
17.	Education	I	75	50
		II	75	
18.	Psychology	I	50	33
		II	50	
		Practical	50	17
19.	Management	I	75	50
		II	75	
20.	Defence Studies	I	50	
		II	50	33
		Practical	50	17
21.	Urdu	I	75	50
		II	75	
22.	Dance	I	50	33
		II	50	
		Practical	50	17

## Part - I

### SYLLABUS FORENVIRONMENTAL STUDIES AND HUMAN RIGHTS

(Papercode-0828)

MM. 75

इन्वारमेंटल साईंसे के पाठ्यक्रम को स्नातक स्तर भाग—एक की कक्षाओं में विश्वविद्यालय अनुदान आयोग के निर्देशानुसार अनिवार्य रूप से शिक्षा सत्र 2003—2004 (परीक्षा 2004) से प्रभावशील किया गया है। स्वशासी महाविद्यालयों द्वारा भी अनिवार्य रूप से अंगीकृत किया जाएगा।

भाग 1, 2 एवं 3 में से किसी भी वर्ष में पर्यावरण प्रश्न—पत्र उत्तीर्ण करना अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।

पाठ्यक्रम 100 अंकों का होगा, जिसमें से 75 अंक सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंकक्षेत्रीय कार्य (Field Work) पर्यावरण पर होंगे।

**सैद्धांतिक प्रश्नों पर अंक — 75** (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें विकल्प रहेगा)

- |                      |   |        |
|----------------------|---|--------|
| (अ) लघु प्रश्नोंत्तर | — | 25 अंक |
| (ब) निबंधात्मक       | — | 50 अंक |

**Field Work—** 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रायोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेंगे।

उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा।

पर्यावरण विज्ञान विषय अनिवार्य विषय है, जिसमें अनुत्तीर्ण होने पर स्नातक स्तर भाग—एक के छात्र/छात्राओं को एक अन्य विषय के साथ पूरक की पात्रता होगी। पर्यावरण विज्ञान के

सैद्धांतिक एवं फील्ड वर्क के संयुक्त रूप से 33: (तीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।

स्नातक स्तर भाग—एक के समस्त नियमित/भूतपूर्व/अमहाविद्यालयीन छात्र/छात्राओं को अपना फील्ड वर्क सैद्धांतिक परीक्षा की समाप्ति के पश्चात् 10 (दस) दिनों के भीतर संबंधित महाविद्यालय/परीक्षा केन्द्र में जमा करेंगे एवं महाविद्यालय के प्राचार्य/केन्द्र अधीक्षक, परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।

## **UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES**

### **Definition, Scope and**

### **Importance Natural Resources:**

### **Renewable and Nonrenewable Resources**

- (a) Forest resources: Use and over-exploitation, deforestation, Timber extraction, mining, dams and their effects on forests and tribal people and relevant forest Act.
- (b) Water resources: Use and over-utilization of surface and ground water, floods drought, conflicts over water, dam's benefits and problems and relevant Act.
- (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- (f) Land resources: Land as a resource, land degradation, man induced landslides soil erosion and desertification.

**(12 Lecture)**

## **UNIT-II ECOSYSTEM**

### **(a) Concept, Structure and Function of an ecosystem**

- Producers, consumers and decomposers.
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, Types, Characteristics Features, Structure and Function of Forest, Grass, Desert and Aquatic Ecosystem.

### **(b) Biodiversity and its Conservation**

- Introduction - Definition: genetic, species and ecosystem diversity
- Bio-geographical classification of India.
- Value of biodiversity: Consumptive use, productive use, social ethics, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega-diversity nation.
- Hot spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wild life conflict.
- Endangered and endemic species of India.
- Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity.

### UNIT- III

**(a) Causes, effect and control measures of**

- Air water, soil, marine, noise, nuclear pollution and Human population.
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Disaster Management: floods, earthquake, cyclone and landslides.

(12Lecture)

**(b) Environmental Management**

- From Unsustainable to sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.
- Wasteland reclamation
- Environment protection Act: Issues involved in enforcement of environmental legislation.
- Role of Information Technology in Environment and Human Health.

## UNIT- IV

General background and historical perspective- Historical development and concept of Human Rights, Meaning and definition of Human Rights, Kind and Classification of Human Rights.

Protection of Human Rights under the UNO Charter, protection of Human Rights under the Universal Declaration of Human Rights, 1948.

Convention on the Elimination of all forms of Discrimination against women.

Convention on the Rights of the Child, 1989.

## UNIT-V

Impact of Human Rights norms in India, Human Rights under the Constitution of India, Fundamental Rights under the Constitution of India, Directive Principles of State policy under the Constitution of India, Enforcement of Human Rights in India.

Protection of Human Rights under the Human Rights Act, 1993- National Human Rights Commission, State Human Rights Commission and Human Rights court in India. Fundamental Duties under the Constitution of India.

## Reference/ Books Recommended

1. SK Kapoor- Human rights under International Law and Indian Law.
2. HO Agrawal- International Law and Human Rights
3. एस.के. कपूर –मानव अधिकार
4. जे.एन. पान्डेय – भारत का संविधान
5. एम.डी. चतुर्वेदी – भारत का संविधान
6. J.N.Pandey - Constitutional Law of India
7. Agarwal K.C. 2001 Environmental Biology, Nidi pub. Ltd. Bikaner
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10. Clark R.S. Marine pollution, Clanderson press Oxford (TB)
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13. Down to Earth, Center for Science and Environment (R)
14. Gloick, H.P. 1993 Water in crisis. Pacific Institute for Studies in Development, Environment & Security. Stockholm Eng. Institute. Oxford University, Press. m473p.
15. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R)
16. Heywood, V.H. & Watson, T.T. 1995 Global Biodiversity Assessment, Cambridge Univ. Press 1140p
17. Jadhav H. & Bhosale, V.H. 1995 Environmental Protection and Law. Himalaya pub. House, Delhi 284p
18. McKinney M.L. & School R.M. 1996, Environmental Science systems & solutions, web enhanced edition, 639p
19. Mhadkar A.K. Matter Hazardous, Techno-Science publication (TB)
20. Miller T.G. Jr. Environment Science, Wadsworth publication co. (TB)
21. Odum E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p
22. Rao M.N. & Datta, A.K. 1987, Waste water treatment. Oxford & IBH pub. co. pvt. Ltd 345p
23. Sharma B.K. 2001, Environmental chemistry, Goel pub. House, Meerut
24. Survey of the Environment, The Hindu (M)
25. Townsend C. Harper J. And Michael Begon, Essentials of Ecology, Blackwell Science (TB)
26. Trivedi R.K. Handbook of Environment Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Environment Media (R)
27. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science publication (TB)
28. Wanger K.D. 1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p

**संशोधित पाठ्यक्रम**  
बी.ए./ बी.एस-सी./ बी.कॉम./ बी.एच.एस.-सी.  
भाग - एक (आधार पाठ्यक्रम)  
प्रश्न पत्र- प्रथम (हिन्दी भाषा)  
(पेपर कोड -0101)

पूर्णांक- 75

नोट :-

1. प्रश्न पत्र 75 अंक का होगा।
2. प्रश्न पत्र अनिवार्य होगा।
3. इसके अंक श्रेणी निर्धारण के लिए जोड़े जायेंगे।
4. प्रत्येक इकाई के अंक समान होंगे।

**पाठ्य विषय :-**

**इकाई-1**

- क. पल्लवन, पत्राचार, अनुवाद, पारिभाषिक शब्दावली एवं हिंदी में पदनाम  
ख. ईदगाह (कहानी) - मुंशी प्रेमचंद

**इकाई-2**

- क. शब्द शुद्धि, वाक्य शुद्धि, शब्द ज्ञान-पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेक शब्दों के लिए एक शब्द एवं मुहावरे-लोकोक्तियाँ  
ख. भारत वंदना (कविता)- सूर्यकान्त त्रिपाठी निराला

**इकाई-3**

- क. देवनागरी लिपि - नामकरण, स्वरूप एवं देवनागरी लिपि की विशेषताएँ, हिंदी अपठित गद्यांश, संक्षेपण, हिंदी में संक्षिप्तीकरण  
ख. भोलाराम का जीव (व्यंग्य) - हरिशंकर परसाई

**इकाई-4**

- क. कम्प्यूटर का परिचय एवं कम्प्यूटर में हिंदी का अनुप्रयोग  
ख. शिकागो से स्वामी विवेकानंद का पत्र

**इकाई-5**

- क. मानक हिन्दी भाषा का अर्थ, स्वरूप, विशेषताएँ, मानक, उपमानक, अमानक भाषा  
ख. सामाजिक गतिशीलता - प्राचीन काल, मध्यकाल, आधुनिक काल

**मूल्यांकन योजना :-**

प्रत्येक इकाई से एक-एक प्रश्न पूछा जाएगा। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमशः 8 एवं 7 होंगे। प्रश्न-पत्र का पूर्णांक 75 निर्धारित है।

### पाठ्यक्रम संशोधन का औचित्य :-

व्याकरण के बुनियादी ज्ञान, संप्रेषण, कौशल, सामाजिक संदेश एवं भाषायी दक्षता को ध्यान में रखते हुए यह पाठ्यक्रम प्रस्तावित है।



## FOUNDATION COURSE

### PAPER - II

#### ENGLISH LANGUAGE (Paper Code-0102)

M.M. 75

**UNIT-1** Basic Language skills : Grammar and Usage.

Grammar and Vocabulary based on the prescribed text. To be assessed by objective / multiple choice tests.

(Grammar - 20 Marks  
Vocabulary - 15 Marks)

**UNIT-2** Comprehension of an unseen passage.

05

This should simply not only (a) an understanding of the passage in question, but also

(b) a grasp of general language skills and issues with reference to words and usage

within the passage and (c) the Power of short independent composition based on themes and issues raised in the passage.

To be assessed by both objective multiple choice and short answer type tests.

**UNIT-3** Composition : Paragraph writing

10

**UNIT-4** Letter writing (The formal and one Informal)

10

Two letters to be attempted of 5 marks each. One formal and one informal.

**UNIT-5** Texts :

15

Short prose pieces (Fiction and not fiction) short poems, the pieces should cover a range of authors, subjects and contexts. With poetry if may sometimes be advisable to include pieces from earlier periods, which are often simpler than modern examples. In all cases, the language should be accessible (with a minimum of explanation and reference to standard dictionaries) to the general body of students schooled in the medium of an Indian language.

Students should be able to grasp the contents of each place; explain specific words, phrases and allusions; and comment on general points of narrative or argument. Formal Principles of Literary criticism should not be taken up at this stage.

To be assessed by five short answers of three marks each.

### BOOKS PRESCRIBED -

English Language and Indian Culture - Published by M.P. Hindi Grant Academy Bhopal.

Dr. M. Chakraborty - Dr. S. Gupta - DR. MERILY ROY

संशोधित पाठ्यक्रम

बी. ए. भाग-1

हिन्दी साहित्य

प्रथम- प्रश्न पत्र

(प्राचीन हिन्दी काव्य)

पूर्णांक 75

(पेपर कोड- 0103)

उद्देश्य एवं प्रस्तावना-

प्राचीन से तात्पर्य है- आधुनिक काल से पूर्व का काल। सही अर्थ में हिन्दी भाषा और साहित्य का विकास आदिकाल से शुरू होता है। इसमें धार्मिक तथा ऐतिहासिक दो प्रकार का साहित्य मिलता है, जो प्रबंध, मुक्तक, रासो, फागु, चरित, सुभाषित आदि विविध काव्यरूपों में अभिव्यंजित है। मध्यकालीन साहित्य की पृष्ठभूमि के रूप में इसे प्रतिष्ठापित किया जाता है।

मध्यकालीन काव्य में भक्तिकाव्य, जहां लोक जागरण को स्वर देने वाला है, वहीं रीतिकाल अपने लौकिक- श्रृंगारिका, परिदृश्य में तत्कालीन सामाजिक, सांस्कृतिक, राजनीतिक स्थितियों को बेलौस अभिव्यंजित करता है। अतः भाषा, संस्कृति, विचार, मानवता, काव्यरूपता, लौकिकता- पारलौकिकता, आदि दृष्टियों से इसका अध्ययन अत्यावश्यक है।

पाठ्य विषय-


1. कबीर (कबीर- कांतिकुमार जैन, प्रारंभिक 50 साखियाँ)
2. जायसी- (संक्षिप्त पद्यावत- श्यामसुंदर दास, नागमती वियोग वर्णन)
3. सूर (भ्रमर गीत सार- सं. आचार्य रामचन्द्र शुक्ल, प्रारंभिक 25 पद)
4. तुलसी - "रामचरित मानस" के सुंदरकाण्ड से प्रारंभिक 30 दोहे चौपाई छंद सहित
5. घनानन्द (घनानन्द- सं. विश्वनाथ प्रसाद मिश्र, प्रारंभिक 25 छंद)

द्रुत पाठ हेतु निम्नांकित तीन कवियों का अध्ययन किया जावेगा- जिसमें से किन्हीं दो पर लघुउत्तरीय प्रश्न पूछे जायेंगे-

1. विद्यापति
2. रहीम
3. रसखान

अंक विभाजन-

1. व्याख्याएँ (3) - 21 अंक
2. आलोचनात्मक प्रश्न (2) - 24 अंक
3. लघुउत्तरीय प्रश्न (5) - 15 अंक
4. वस्तुनिष्ठ प्रश्न (15) - 15 अंक

 24/9/20

संशोधित  
बी. ए. भाग-1  
हिन्दी साहित्य  
द्वितीय- प्रश्न पत्र  
हिन्दी कथा साहित्य  
(पेपर कोड- 0104)

पूर्णांक 75

उद्देश्य एवं प्रस्तावना-

गद्य की प्रमुख विधाओं का इतना द्रुत विकास इनकी लोकप्रियता का प्रमाण प्रस्तुत करता है। इसमें आधुनिक जीवन, अपनी विविध कमियों के साथ यथार्थ रूप में अभिव्यजित हुआ है। जीवन की अनुभूतियाँ, संवेदनाओं तथा विविध परिस्थितियों के साक्षात्कार के लिए इनका अध्ययन सर्वथा अपेक्षित है।

पाठ्य विषय-

व्याख्या एवं आलोचनात्मक प्रश्नों के लिए एक उपन्यास एवं आठ कहानीकारों की एक- एक प्रतिनिधि कहानी का अध्ययन आवश्यक है।

उपन्यास 1. प्रेमचंद — गबन

कहानी 1.	प्रेमचंद	—	कफन
2.	जयशंकर प्रसाद	—	आकाश दीप
3.	यशपाल	—	परदा
4.	फणीश्वनाथ रेणु	—	ठेस
5.	मोहन राकेश	—	मलबे का मालिक
6.	भीष्म साहनी	—	चीफ की दावत
7.	गुलशेर खाँ शानी	—	जली हुई रस्सी
8.	रांगेय राघव	—	गदल

द्रुत पाठ के लिए निम्नांकित तीन कथाकारों का अध्ययन अपेक्षित है, जिनमें से किन्हीं दो पर लघुउत्तरीय प्रश्न पूछे जावेंगे-

1. उपेन्द्रनाथ अशक, 2. बाल शौरि रेड्डी 3. शिवानी

अंक विभाजन-	व्याख्या (3)	21 अंक
	आलोचनात्मक प्रश्न (2)	24 अंक
	लघुउत्तरीय प्रश्न (6)	15 अंक
	वस्तुनिष्ठ प्रश्न (15)	15 अंक



**B.A. Part-I**  
**ENGLISH LITERATURE**

There will be two literatures in English-1550-1750 Papers, each carrying

**Maximum marks-75.**

Nine questions are to be attempted in each paper. Each question carries the marks according to the scheme mentioned in each paper.

**ENGLISH LITERATURE**  
**PAPER - I**

**LITERATURE IN ENGLISH - 1550-1750 (Paper Code-0105)**

**M.M.75**

(i) Unit-1 of annotation is compulsory, and passages to be set from Units (II to V), at least one from each unit, 3 to be attempted.

3x5 = 15

(ii) Multiple choice/objective type questions to be set unit vii, 15 to be set 10 be attempted.

1x1 = 10

(iii) From Unit-II to VI-8 questions to be set at least one from each unit-5 to be attempted.

10x5 = 50

Word Limit for each answer 300 to 400 words.

**UNIT-1 ANNOTATIONS.**

**UNIT-2 POETRY**

- a) Shakespeare-Sonnet No. 1 From Fairest Creatures, Sonnet No. 154., The little Love God.
- b) Milton-How Soon Hath Time the Subtle Thief of Youth...
- c) John Donne - Sweetest Love I Don't go, This is my play's Last Scene.

**UNIT-3 POETRY**

- a) John Dryden - Portrait of Shadwell.
- b) Alexander-Pope-From An Essay on Criticism (True case in writing....) and the world's Victor stood subdued by sound.

**UNIT-4 PROSE**

- a) Bacon Of Studies, Of Health, Of Friendship
- b) Addison-Sir Roger at Home
- c) Steele Of the Club.

**UNIT-5 DRAMA**

Shakespeare - The Merchant of Venice

**UNIT-6 Fiction - Swift - The Battle of the Books.**

**UNIT-7 Historical and Literary Topics**

- i. The Renaissance.
- ii. Humanism.
- iii. Reformation.
- iv. The Restoration.
- v. The Earlier Drama
- vi. Petrarchism and the Sonnet Cycle.
- vii. The Influence of Seneca and Classical Dramatic Theory
- viii. The Elizabethan and Jacobean stage.
- ix. Restoration Drama
- x. The Rise of Periodical Essay

**BOOKS RECOMMENDED for Unit VII in Papers I and II**

Edward Albert	-	A History of English Literature.
Ifor Evans	-	A short History of English Literature.
Hudson	-	An Outline History of English Literature.

Both the papers of B.A.Part-I are included in the anthologies prescribed in the previous syllabus for B.A.Part-I and B.A.Part-II

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**ENGLISH LITERATURE  
PAPER - II**

**LITERATURE IN ENGLISH FROM 1750-1900 (Paper Code-0106)**

**Note-**

- i. Unit-1. of annotation is compulsory, 6 passages be set from Units (II to IV) at least one from each unit, 3 to be attempted.  
3x5 = 15
- ii. Multiple Choice/objective type questions to be set from unit-VII, 25 to be set 10 to be attempted.  
1x10 = 10
- iii. From Units I to VI-8 questions to be set at least one from each Unit-5 to be attempted.  
10x5 = 50

Word Limit for each answer 300 to 400 words.

**UNIT-1 ANNOTATIONS**

**UNIT-2 POETRY -**

- a) Blake-Tiger, Tiger Burning Bright.
- b) Wordsworth - Daffodils and Solitary Reaper.
- c) Coleridge-Frost at Midnight.

**UNIT-3 POETRY-**

- a) Shelley - Ode to a Skylark.
- b) Keats - Ode to Autumn.
- c) Tennyson - Crossing the Bar.
- d) Browning - Prospice.

**UNIT-4 PROSE**

- a) Lamb - Dream Children : A Reverie
- b) Hazlitt - On Actors and Acting

**UNIT-5 Fiction Jane Austen - Pride and Prejudice.**

**UNIT-6 Fiction Charles Dickens - David Copperfield**

**UNIT-7 Historical and Literary Topics.**

- i. The Reform Acts.
- ii. The Impact of Industrialization.
- iii. Colonialism And Imperialism.
- iv. Scientific thoughts and discoveries.
- v. Faith and Doubt.
- vi. Classical and Romantic Concepts of Imagination.
- vii. Varieties of Romantic and Victorian Poetry.
- viii. The Victorian Novel.
- ix. Realism and the Novel.
- x. Aestheticism.

*Dr. M. C. Chakrabarty* *Dr. S. Gupta* *DR. MERILY ROY*

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)

## B.A. – I P S Y C H O L O G Y

Paper	Name of the Paper	Max. Marks	Duration
I	Basic Psychological Processes	50	3 hrs.
II.	Psychopathology	50	3 hrs.
III.	Practicum	50	4 Hrs.

### PAPER - I

#### BASIC PSYCHOLOGICAL PROCESSES (Paper Code-0119)

M.M.:50

**Note:** This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

**UNIT-1** Introduction: Definition and Goals of Psychology; Behaviouristic, Cognitive and Humanistic; Cross-cultural Perspectives. Methods: Experimental, Observational, Interview, Questionnaire, and Case study.

**UNIT-2** Biological Basis of Behaviour: Genes and Behaviour, The Nervous System: The Central Nervous System (C.N.S.), The Autonomic Nervous System (A.N.S.) and The Peripheral Nervous System (P.N.S.); Glands and Hormones; Emotions- Types and Bodily changes (internal and external).

**UNIT-3** Sensory and Perceptual Processes: Nature and Types of Sensation, Perception and Attention: Process, Definition, Types and Determinants; Principles of Perceptual Organization; Illusion: Nature and Types.

**UNIT-4** Learning and Memory: Classical and Operant Conditioning- Basic Processes; Verbal and Observational Learning; Memory: Sensory (S.M.), Short-term (S.T.M.) and Long-term (L.T.M.); Forgetting: Process and Theories.

**UNIT-5** Cognitive and Non-Cognitive Processes: Intelligence: Nature and Types; Motivation: Biogenic and Sociogenic Motives; Thinking Process: Nature and Types. Personality: Nature and Determinants; Approaches to study Personality: Trait and Type Approaches; Assessment of Personality.

### References

1. सिंह अरुण कुमार सामान्य मनोविज्ञान। मोतीलाल बनारसीदास
2. वर्मा, आधुनिक, सामान्य मनोविज्ञान।
3. Baron, R.A. & Byrne, D.A. Understanding Behavior. Tokyo: Holt Sounders.
4. Zimbardo, P.G. Psychology. New York: Harper Collings College publishers.
5. Lefton, L. A. (1985). Psychology. Boston-Allyn Publishers.
6. Walser, A.L. (1997).

Unacademy  
22.06.19

22.06.2019



**B.A. – I**

**PSYCHOLOGY**

**PAPER- II**

**PSYCHOPATHOLOGY (Paper Code-0120)**

**M.M.:50**

**Note:** This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

**UNIT-1** Introduction: The concept of Normality and Abnormality; Models of Psychopathology: Psychodynamic, Behavioral and Cognitive.

**UNIT-2** Assessment of Psychopathology: Diagnostic Tests, Rating Scales, Clinical Interview, and Projective Tests.

**UNIT-3** Anxiety Disorders: Panic Disorder, Phobias, Obsessive Compulsive Disorder (OCD), and Generalized Anxiety Disorder (GAD).

**UNIT-4** Mood Disorders: Manic-Depressive Episode and Dysthemia; Personality Disorders: Paranoid, Schizoid, and Dependent Personality Disorder, Dissociative disorder and Obesity.

**UNIT-5** Management of Psychopathology: Stress Management; Medico and Psychosocial Therapy: Shock Therapy, Psychoanalysis, Group therapy and Behavior therapy.

**References**

1. Lamm, A. (1997). Introduction to Psychopathology. NY: Sage.
2. Buss, A. H. (1999). Psychopathology. NY: John Wiley.
3. सिंह तथा तिवारी। अस्नामान्य मनविज्ञान। आगरा विनाद पुस्तकालय द्वारा।
4. कपिल, एच. क.। अस्नामान्य मनविज्ञान। आगरा हरप्रसाद शर्मा।

Unnabhi  
22.6.19

  
22.06.2019



**B.A. – I**  
**PSYCHOLOGY**  
**PAPER- III**  
**PRACTICUM**

**M.M.:50**

**Note:** This paper consists of two parts:

**Part-A**

- (a) Comprises of Laboratory **Experiments**.
- (b) Comprises of Psychological **Testing** and understanding of self and others.

(a) **Experiments-** (Any five of the following) :-

- (i) Effect of Set on Perception
- (ii) Effect of Frustration on Performance.
- (iii) Division of Attention.
- (iv) Learning Curve/ Serial Position Curve.
- (v) Retroactive Inhibition (RI).
- (vi) S.T.M.
- (vii) Concept Formation.
- (viii) Judgment of Emotions through Facial Expressions.
- (ix) Personality Test

(b) **Psychological Tests** (Any four of the following)

- (i) Verbal/ Nonverbal Intelligence Test/ Performance Tests.
- (ii) E.P.I./ Personality
- (iii) Anxiety test.
- (iv) Depression Scale
- (v) Adjustment Inventory.
- (vi) Achievement motivation.
- (vii) Stress Tolerance Test.

**Part-B**

**Anecdotal Record:** Each student will be required to observe the behaviour of pupil in different setting and select an anecdote to understand, judge and narrate it as objectively as possible, so as to reveal his/her psychological insight existing in that anecdotal behavior. This record constitutes a part of psychological assessment of the students. Introduction to the measures of central tendency and graphical presentation of the ungrouped data.

**Distribution of Marks**

A. Conduction of Psychological Experiment and Reporting	-	15 Marks
B. Administration of one Psychological Test and Reporting	-	15 Marks
C. Evaluation of Practical notebook and Anecdotal record	-	10 Marks
D. Viva-voce	-	10 Marks

**Note :** No candidate will be allowed to appear in the practical examination unless his/her day-to-day practical work and the report are found satisfactory.

**References** Choubey, A. (2015). Psycho-lab- Experiment and Test. Raipur: Vaibhav Prak

*Unnabhi*  
22.6.19

*[Signature]*  
22.06.2019

# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

बी.ए. प्रथम वर्ष

इतिहास

प्रश्न पत्र –प्रथम

भारत का इतिहास, प्रारंभ से 1206 ई. तक

इकाई-1

1. भारत की भौगोलिक संरचना
2. भारतीय इतिहास के स्रोतों का सर्वेक्षण
3. पूर्ण पाषाण काल एवं उत्तर पाषाण काल
4. हड़प्पा सभ्यता— निर्माता, प्रसार, नगर योजना, राजनीतिक, सामाजिक, आर्थिक संरचना

इकाई-2

5. ऋग्वैदिक काल — राजनीतिक, सामाजिक, आर्थिक
6. ईसा पूर्व छठवीं शताब्दी का भारत —महाजनपद काल
7. जैन एवं बौद्ध धर्म
8. सिकंदर का आक्रमण और उसका प्रभाव

इकाई-3

9. चंद्रगुप्त मौर्य एवं अशोक
10. मौर्य प्रशासन, कला एवं संस्कृति, अशोक का धम्म
11. मौर्योत्तरकाल — शुंग, कुषाण एवं सातवाहन
12. संगमयुग— साहित्य, संस्कृति, चोल एवं पाण्ड्य

इकाई-4

13. गुप्तयुग— समुद्रगुप्त की विजयें एवं चंद्रगुप्त द्वितीय, प्रशासन, आर्थिक, सामाजिक, सांस्कृतिक दशा
14. राजपूतों की उत्पत्ति एवं प्रशासनिक तथा सामाजिक विशेषताएं
15. पल्लव, चालुक्य, वर्धन, पाल, राष्ट्रकुट
16. भारत का दक्षिण पूर्व एशिया एवं श्रीलंका से संबंध
17. मोहम्मद बिन कासिम, महमूद गजनवी एवं मुहम्मद गोरी का आक्रमण

इकाई-5

18. छत्तीसगढ़ का परिचय— नामकरण एवं भौगोलिक स्थिति
19. छत्तीसगढ़ के प्रमुख क्षेत्रीय राजवंश—पाण्डुवंश, शरभपुरीय,
20. छत्तीसगढ़ के प्रमुख राजवंश— नलवंश, छिन्दक नागवंश,
21. दक्षिण कोसल के कलचुरी वंश, राजनीतिक एवं प्रशासनिक व्यवस्था

(24)  
31/05/19  
Prasanna  
31/05/19

Rashmi  
31-5-19

RA-8  
31.5.19

### संदर्भ ग्रन्थ सूची:-

- |                                    |  |
|------------------------------------|--|
| 1. रतिभानु सिंह नाहर               | प्राचीन भारतीय इतिहास एवं संस्कृति                   |
| 2. शांता शुक्ला                    | भारत का राजनीतिक इतिहास                              |
| 3. द्विजेन्द्र नारायण एवं श्रीमाली | प्राचीन भारत   |
| 4. ओम प्रकाश                       | प्राचीन भारत   |
| 5. बी.एन. लूनिया                   | प्राचीन भारतीय संस्कृति                              |
| 6. एस.आर. शर्मा                    | प्राचीन भारत— प्रगैतिहासिक युग से 1200 ई. तक         |
| 7. K.L. Khurana                    | Ancient India from Earliest Time to 1206 A.D.        |
| 8. K.L. Khurana                    | History of India from Earliest Time to 1526 A.D      |
| 9. Vincent Smith                   | Oxford History of India                              |
| 10. भार्गव                         | प्राचीन भारत   |
| 11. L. Prasad                      | Ancient India- Indus Valley Civilization to 1200 A.D |
| 12. भगवान सिंह वर्मा               | छत्तीसगढ़ का इतिहास प्रारंभ से 1947ई. तक             |
| 13. राम कुमार बेहार                | छत्तीसगढ़ का इतिहास                                  |
| 14. ऋषिराज पांडे                   | दक्षिण कौशल के कल्चुरी                               |
| 15. व्ही.व्ही. मिराशी              | कल्चुरी नरेश और उनका काल                             |
| 16. सुरेश चंद्र शुक्ला             | छत्तीसगढ़ का समग्र अध्ययन                            |
| 17. किशोर अग्रवाल                  | बीसवीं शताब्दी का छत्तीसगढ़                          |
| 18. सुरेश चंद्र शुक्ला             | छत्तीसगढ़ की रियासतों का विलीनीकरण एवं अर्चना शुक्ला |
| 19. लाला जगदलपुरी                  | बस्तर इतिहास एवं संस्कृति                            |
| 20. प्यारेलाल गुप्त                | प्राचीन छत्तीसगढ़                                    |
| 21. सी.एल. शर्मा                   | छत्तीसगढ़ की रियासतें                                |
| 22. हीरालाल शुक्ल                  | छत्तीसगढ़ का जनजातीय इतिहास                          |
| 23. पी.एल. मिश्र                   | मुगलकालीन छत्तीसगढ़                                  |

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# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

बी.ए. प्रथम वर्ष

इतिहास

प्रश्न पत्र — द्वितीय

विश्व का इतिहास—1453 ई. से 1890 ई. तक

इकाई—1

1. यूरोप में आधुनिक युग की विशेषतायें, पुनर्जागरण
2. धर्म सुधार एवं प्रति धर्म सुधार आंदोलन
3. राष्ट्रीय राज्यों का उदय स्पेन, फ्रांस
4. राष्ट्रीय राज्यों का उदय इंग्लैण्ड, रूस

इकाई—2

1. वाणिज्यवाद, उपनिवेशवाद
2. औद्योगिक क्रान्ति
3. इंग्लैण्ड में गृह युद्ध : घटनाएँ, कारण एवं परिणाम
4. गौरव पूर्ण क्रांति (1688)

इकाई—3

1. अमेरिका का स्वतंत्रता संग्राम
2. फ्रांस की क्रान्ति के कारण एवं प्रभाव
3. नेपोलियन युग
4. विएना कांग्रेस

इकाई—4

1. अनुदारवाद— मैटरनिक, आंतरिक एवं विदेश नीति
2. यूरोप में 1830 ई. एवं 1848 ई. की क्रान्ति
3. इंग्लैण्ड में उदारवाद 1832 एवं 1867 ई. का सुधार अधिनियम
4. पूर्वी समस्या— कारण, क्रीमिया युद्ध, बर्लिन सम्मेलन

इकाई—5

1. इटली का एकीकरण
2. जर्मनी का एकीकरण
3. बिस्मार्क की गृह नीति
4. बिस्मार्क की विदेश नीति

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## संदर्भ ग्रन्थ सूची:-

- बी. एन. मेहता
- K.L. Khurana
- Khurana And Sharma
- जैन एवं माथुर
- कौलेश्वर राय
- मथुरा लाल शर्मा
- वी.एस. माथुर
- बी.एन. लूणिया
- एल.पी. शर्मा
- वी.डी. महाजन
- जे.आर. काम्बले
- A.C. Gupta
- विपिन बिहारी सिन्हा

अर्वाचीन यूरोप  
History of Modern World  
Modern Europe 1453- 1789 A.D.  
आधुनिक विश्व  
आधुनिक यूरोप  
संयुक्त राज्य अमेरिका का इतिहास  
संयुक्त राज्य अमेरिका का इतिहास  
आधुनिक पाश्चात्य इतिहास की प्रमुख धाराएं  
इंग्लैंड का इतिहास  
इंग्लैंड का इतिहास  
अमेरिका का इतिहास  
A History of China  
आधुनिक ग्रेटब्रिटेन

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# **HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

## **REVISED SYLLBUS**

### **B. A. Part- I (Economics)**

#### **Subject : Micro Economics, Paper-I (Code: 0111)**

##### **UNIT 1**

Introduction - Definitions Nature and scope of Economics, Methodology in Economics, Utility - Cardinal and Ordinal approaches, Indifference curve, Consumer's equilibrium, Giffin goods, Demand - Law of Demand, Elasticity of demand Consumer's surplus

##### **UNIT 2**

Theory of production and cost, Production decision, Production function, Iso-quant, Factor substitution, Law of variable proportions, Returns to scale, Economies of scale, Different concepts of cost and their interrelation, Equilibrium of the firm.

##### **UNIT 3**

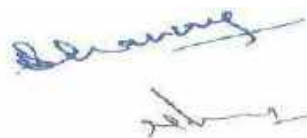
Market structure-perfect and imperfect markets, Equilibrium of a firm-Perfect competition, Monopoly and price discrimination, Monopolistic competition, Duopoly, Oligopoly, controlled and administered prices

##### **UNIT 4**

Factor pricing-Marginal productivity theory of distribution, Euler's theorem, Theories of wage determination, wages and collective bargaining, wage differentials, Rent - Scarcity Rent, differential rent, Quasi rent, Modern Rent Theory, Interest Classical and Keynesian Theories, Modern Theory, Profits - Innovation, Risk bearing and uncertainty theories

##### **UNIT 5**

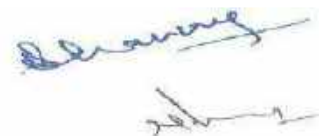
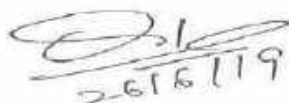
Welfare economics: , What welfare economics is about ?, Role of value judgments in welfare economics, Pigou's contribution in the field of welfare economics, Concept and condition of Pareto optimality, New welfare economics: Kaldor-Hicks welfare criterion, Scitovsky paradox, Social welfare function and social choice: Bergson-



Samuelson social welfare function, Prof. Amartya Sen's critique, Arrow impossibility theorem.

**References:**

1. Bach, G. L. (1977) "Economics," Prentice Hall of India, New Delhi.
2. Gauld, J.P. and Edward P. L. (1996), "Microeconomic Theory," Richard Irwin, Homewood.
3. Henderson J. and R. E. Quandt (1980), "Microeconomic Theory : A Mathematical Approach", McGraw Hill, New Delhi.
4. Heathfield and Wibe (1987), " An Introduction to Cost and Production Functions", Macmillan. London.
5. Koutsoyiannis, A. (1990), " Modern Microeconomics" , Macmillan.
6. Lipsey, R. G. and K. A. Chrystal (1999) "Principles of Economics ", (9th Edition), Oxford University Press, Oxford. B.A.-Part-I (21) P



# **HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

## **REVISED SYLLBUS**

### **B. A. Part- I (Economics)**

#### **Subject : Indian Economy , Paper-II (Code: 0112)**

##### **UNIT 1**

Pre and post independent Indian economy: A short introduction of economic policies of British India, State of economy at the time of independence, Planning exercise in India-Planning in India through different five Year Plans, The planning commission and NITI Aayog, Growth and development in pre-reform period, New Economic Reforms: Liberalization, Privatization and Globalization, Growth, development and structural change in post-reform period.

##### **UNIT 2**

Population and human development: Demographic trends and issues of education, health, malnutrition and migration. Growth and distribution: Trends and policies in poverty, inequality, unemployment and occupational distribution, International comparison in human development and poverty reduction

##### **UNIT 3**

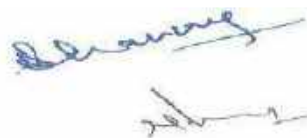
Agriculture: Nature and importance, Trends in agriculture production and productivity, factors determining productivity, Land reforms, new agriculture strategies and green revolution, rural credit, Agricultural marketing, natural resources and infra-structure development: Performance, problems and policies, MUDRA Yojana.

##### **UNIT 4**

Industry: Growth and productivity, Industrial policy and reforms, Growth and problems of small and cottage scale industries, Role of public sector enterprises in India's industrialization. Trends and performance in services.

##### **UNIT 5**

External Sector - Role of foreign trade, Trends in exports and imports, Composition and direction of India's foreign trade, Export promotion measures and the new

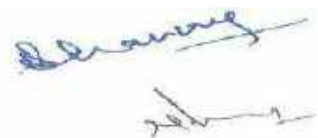
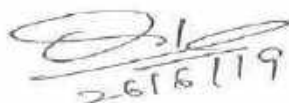




trade policies, Recent macroeconomic scenario: National Income, investment, saving and inflation, Current macroeconomic policies and their impact, fiscal policies and monetary policy.

#### References

1. Uma Kapila "Indian Economy: Performance and Policies," published by Academic Foundation.
2. Dutta and Sundram, "Indian Economy", S. Chand Publications.
3. Mishra and Puri, "Indian Economy," Himalaya Publishing House.
4. Economic Survey of India: various Issues, Published by Government of India.



# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

नवीन संशोधित पाठ्यक्रम

सत्र 2019-20

दर्शन शास्त्र

बी.ए. भाग-एक, दर्शन शास्त्र में दो प्रश्न पत्र (75 अंक) के होंगे।

1. भारतीय दर्शन की रूपरेखा

2. पाश्चात्य दर्शन का इतिहास

प्रत्येक प्रश्न पत्र पांच इकाईयों में विभाजित है । प्रत्येक इकाई में से एक प्रश्न हल करना अनिवार्य होगा ।

बी.ए. भाग – एक

दर्शन शास्त्र

प्रथम – प्रश्न पत्र

भारतीय दर्शन की रूपरेखा

- इकाई-1
1. भारतीय दर्शन – परिचय एवं मुख्य विशेषताएं
  2. वेद एवं उपनिषद— ब्रह्म , आत्मा
  3. चार्वाक दर्शन – तत्त्व मीमांसा
- इकाई-2
1. जैन दर्शन – स्यादवाद, जीव, बंधन एवं मोक्ष
  2. बौद्ध दर्शन— चार आर्यसत्य, अनात्मवाद
- इकाई-3
1. न्याय दर्शन – प्रमाण (प्रत्यक्ष एवं अनुमान), ईश्वर
  2. वैशेषिक दर्शन— परमाणुवाद, सप्त पदार्थ
- इकाई-4
1. सांख्य दर्शन – प्रकृति , पुरुष, विकासवाद
  2. योग दर्शन – अष्टांग योग, ईश्वर
- इकाई-5
1. शंकराचार्य का अद्वैत दर्शन— ब्रह्म, आत्मा, माया
  2. रामानुज का विशिष्टाद्वैत – ब्रह्म, जीव, मोक्ष

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

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# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

## नवीन संशोधित पाठ्यक्रम

बी.ए. भाग – एक

दर्शन शास्त्र

द्वितीय – प्रश्न पत्र

पाश्चात्य दर्शन का इतिहास

- इकाई—1      1. पाश्चात्य दर्शन – परिचय  
                    2. प्लेटो— प्रत्ययों का सिद्धांत  
                    3. अरस्तू— कारणता का सिद्धांत
- इकाई—2      1. थामस एक्वीनास— ईश्वर के अस्तित्व के प्रमाण  
                    2. डेकार्ट— संदेह पद्धति, आत्मा का अस्तित्व, ईश्वर का अस्तित्व
- इकाई 3.      1. स्पिनोजा – द्रव्य, गुण, पर्याय  
                    2. लाइबनिट्ज— चिद्बिन्दुवाद
- इकाई—4      1. जॉन लॉक— सहज प्रत्ययों का खंडन, मूलगुण एवं उपगुण  
                    2. जॉन बर्कले – मूलगुण एवं उपगुण का खंडन, विज्ञानवाद
- इकाई—5      1. ह्यूम— संस्कार और प्रत्यय, संदेहवाद, आत्मा का खंडन  
                    2. कांट – समीक्षावाद

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

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बी.ए. प्रथम वर्ष  
संस्कृत साहित्य  
प्रथम प्रश्नपत्र

टीप – बी.ए. प्रथम वर्ष में संस्कृत साहित्य के दो प्रश्न-पत्र होंगे एवं दोनों प्रश्न-पत्र 75- 75 अंकों के होंगे ।

नाटक, व्याकरण और अनुवाद

पूर्णांक – 75

- इकाई –1 स्वप्नवासवदत्तम् – व्याख्या अंक – 15  
इकाई –2 स्वप्नवासवदत्तम् – समीक्षात्मक प्रश्न अंक – 15  
इकाई –3 1. सुबन्त (शब्दरूप) – अंक – 15  
राम, मुनि, भानु, पितृ, करिन्, कर्तृ, आत्मन्, लता, मति, नदी,  
धेनु, मातृ, फल, वारि, सर्व, तद्, एतद्, यद्, इदम्, अस्मद्, युष्मद् ।  
2. तिङन्त (धातुरूप) –  
भ्वादि, दिवादि, तुदादि, चुरादि गण के अतिरिक्त अस् एवं कृ  
धातुओं के लट्, लृट्, लङ्, लोट् एवं विधिलिङ् लकारों के रूप  
3. अपठित गद्यांश पर आधारित प्रश्न
- नोट– शब्द रूप एवं धातु रूप के विकल्प के रूप में अपठित गद्यांश पर आधारित प्रश्न भी पूछे जा सकते हैं ।
- इकाई –4 प्रत्याहार, संज्ञा, सन्धि और विभक्त्यर्थ अंक – 15  
इकाई –5 हिन्दी से संस्कृत में अनुवाद अंक – 15

अनुशासित ग्रन्थ –

1. रचनानुवाद कौमुदी – डा. कपिलदेव द्विवेदी
2. संस्कृतस्य व्यावहारिकस्वरूपम् – डा. नरैन्द्र, श्री अरविन्द आश्रम
3. संस्कृतव्याकरण – श्रीधर वसिष्ठ
4. संस्कृत में अनुवाद कैसे करें – उमाकान्त मिश्र शास्त्री, प्रकाशक – भारती भवन
5. लघु सिद्धान्त कौमुदी – श्री महेश सिंह कुशवाहा, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी

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बी.ए. प्रथम वर्ष  
संस्कृत साहित्य  
द्वितीय प्रश्नपत्र  
गद्य, कथा एवं साहित्येतिहास

पूर्णांक — 75

- |         |  |          |
|---------|--|----------|
| इकाई -1 | शुकनासोपदेश: — व्याख्या  | अंक — 15 |
| इकाई -2 | हितोपदेश: (मित्रलाभ:) — व्याख्या   | अंक — 15 |
| इकाई -3 | शुकनासोपदेश एवं हितोपदेश के समीक्षात्मक प्रश्न   | अंक — 15 |
| इकाई -4 | वैदिक एवं पौराणिक साहित्य का सामान्य परिचय<br>(वेद, ब्राह्मण, आरण्यक, उपनिषद्, वेदांगों एवं पुराणों का संक्षिप्त परिचय)  | अंक — 15 |
| इकाई -5 | निम्नलिखित कवियों का परिचय —<br>महाकवि कालिदास, भारवि, माघ, श्रीहर्ष, विशाखदत्त, बाणभट्ट,<br>शूद्रक, विशाखदत्त, भवभूति । | अंक — 15 |

अनुशंसित ग्रन्थ —

1. शुकनासोपदेश — प्रकाशक — मोतीलाल बनारसीदास, वाराणसी
2. हितोपदेश (मित्रलाभ) — प्रकाशक — मोतीलाल बनारसीदास, वाराणसी
3. वैदिक साहित्य और संस्कृति — आचार्य बलदेव उपाध्याय
4. संस्कृत साहित्य का इतिहास — आचार्य बलदेव उपाध्याय
5. संस्कृत साहित्य का अभिनव इतिहास — डा. राधावल्लभ त्रिपाठी, वि.वि. प्रकाशन, सागर, म.प्र.

31/05/19

# **Syllabus of Geography**

**(B.A./B. Sc. I Year)**

**Session**

**2019-2020**

**2020-2021**

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(Dr. S. K. Das)

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DR. P. Chandra

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24/05/19

## Brief Summary

### 3 Year Integrated UG Courses (B.A./ B.Sc.) in Geography

#### B.A. /B.Sc. Part I

The B.A. /B.Sc. Part-I Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows:

- |             |                     |
|-------------|---------------------|
| Paper - I   | Physical Geography  |
| Paper - II  | Human Geography.    |
| Paper - III | Practical Geography |

#### B.A. /B.Sc. Part-II

The B.A./B.Sc. Part-II Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows:

- |           |                                  |
|-----------|----------------------------------|
| Paper-I   | Economic and Resources Geography |
| Paper-II  | Regional Geography of India      |
| Paper-III | Practical Geography              |

#### B.A. /B.Sc. Part III

The B.A. /B.Sc. Part III Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows

- |             |                           |
|-------------|---------------------------|
| Paper – I   | Remote Sensing and GIS    |
| Paper - II  | Geography of Chhattisgarh |
| Paper - III | Practical Geography       |

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**B.A. /B.Sc. Part I**

**PAPER - I**

**PHYSICAL GEOGRAPHY**

**Max. Marks: 50**

**(Paper Code-0117)**

- Unit I** The Nature and Scope of Physical Geography. Origin of the Earth, Geological Time Scale, Earth's Interior, Continental Drift Theory (Wegner), Plate Tectonics, Isostasy.
- Unit II** Earth movements: Earthquakes and Volcanoes. Rocks, Weathering, Erosion, and Normal cycle of erosion, Evaluation of landscapes- Fluvial, Arid, Glacial, Karts and Coastal landscape.
- Unit III** Elements of Weather and Climate, Composition and Structure of the Atmosphere. World patterns of Atmospheric Temperature, Pressure, and Wind.
- Unit IV** Atmospheric Moisture, and Disturbances, Climatic Classification (Koppen and Thornthwait ) types, characteristics and World patterns.
- Unit V** Surface relief of Pacific Ocean, Atlantic Ocean, and Indian Ocean. Distribution of Temperature and Salinity of oceans and seas, Currents and Tides, Ocean Deposits and Coral Reefs, and Oceanic Resources.

**Books Recommended:**

1. Barry, R. G. and Chorley, R. J. (1998): Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company. New Delhi
3. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd.
4. Garrison, T. (1998): Oceanography, Wordsworth Company., Belmont.
5. Lake, P. (1979): Physical Geography (English and Hindi editions), Cambridge University Press, Cambridge.
6. Lal, D.S. 1993 : Climatology, 3rd edition, Chaitanya Pub. House, New Delhi
7. Leong Goh Cheng (2003): Certificate Physical and Human Geography, Oxford University Press, New Delhi.
8. Monkhouse, F.J. (1979): Physical Geography. Methuen, London
9. Singh, S. (2003): Physical Geography. (English and Hindi editions.). Prayag Pustak Bhawan, Allahabad;
10. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1976/1990): Fundamentals of Physical Geography, 3rd edition. MacGraw-Hill, New York.
11. Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi
12. Strahler, A.N. and Stahler, A.M. (1992): Modern Physical Geography. John Wiley and Sons, New York.

*(Dr. S. K. Das)* 27.5.19  
*Ashtadhar* 27.5.19  
*VS* 24/05/19  
*DR. R. S. Das* 27.5.19



**B.A. /B.Sc. Part I**

**PAPER - II  
HUMAN GEOGRAPHY**

**Max. Marks: 50**

**(Paper Code-0118)**

- Unit I** Definition and Scope of Human Geography. Man - environment relationship; Determinism, Possibilism, and Probabilism; Human Development Index (HDI).
- Unit II** Classification of Human Races – their Characteristics and Distribution; Human adaptation to environment: Eskimos, Bushman, Pigmy, Gond, Masai, and Naga.
- Unit III** Growth, Density and Distribution of World Population and factors influencing Spatial distribution; Over , Under, and Optimum Population; Migration of Population. .
- Unit IV** Settlements – Urban Settlements: Urbanization, Evolution and Classification, Trends of Urbanization.  
Rural settlements: Characteristics, Types and Regional Pattern, Rural Houses in India - Types, Classification and Regional Pattern.
- Unit V** Issues – Global Warming, Climate Change, Deforestation, Desertification, Air, Water and Soil Pollution.

**Books Recommended:**

1. Chisholm, M. (1985): Human Geography, 2nd edition, Penguin Books, London.
2. De Blij, H.J.(1996): Human Geography: Culture, Society and Space,. 2nd edition. John Wiley and Sons, New York,
3. Fellman, J. D., Arthur, G., Judith, G., Hopkins, J. and Dan, S. (2007): Human Geography: Landscapes of Human Activities. McGraw-Hill, New York. 10<sup>th</sup> edition.
4. Haggett, P. (2004): Geography: A Modern Synthesis. 8th edition, Harper and Row, New York.
5. Huggett, R. J. (1998): Fundamentals of Biogeography, Routledge, London.
6. Hussain, M. (1994): Human Geography, Rawat Publications, Jaipur.
7. Johnston, R. J., Gregory, D., Pratt, G. and Watts, M. (2009): The Dictionary of Human Geography. 5th edition, Basil Blackwell Publishers, Oxford.
8. Kaushik, S.D. and Sharma, A.K. (1996): Principles of Human Geography (in Hindi), Rastogi Publication, Meerut.
9. Norton, W. (2008): Human Geography, Oxford University Press, New York. 5<sup>th</sup> ed.
10. Saxena, H. M. (2000): Environmental Management. Rawat Publications., Jaipur and New Delhi.
11. Singh, K. N. and Singh, J. (2001): *Manav Bhugol*. Gyanodaya Prakashan, Gorakhpur. 2<sup>nd</sup> edition.
12. Singh, L.R. (2005): Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad
13. Smith, D. M.(1977): Human Geography- A Welfare Approach, Edward Arnold (Publishers) Ltd.,London
14. Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986): Human Geography. Prentice-Hall, Englewood Cliffs, New Jersey.

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**B.A. /B.Sc. Part I**  
**PAPER - III**  
**PRACTICAL GEOGRAPHY**  
**Max. Marks: 50**

**SECTION A**

**CARTOGRAPHY AND STATISTICAL METHODS** (M.M. 25)

**Unit I** Scale: Statement Scale, Representative Fraction (R.F.), Linear scale – Simple, Diagonal, Comparative, and Time Scales.

**Unit II** Contour: Methods of showing relief; Hachures, Contours; Representation of different landforms by contours.

**Unit III** Graph and Diagram: Line graph, Bar Diagram (Simple and Compound), Circle Diagram, Pie Diagram

**Unit IV** Statistical Technique: Mean, Median and Mode

**SECTION B**

**SURVEYING -** (M.M. 15)

**Unit V** Chain and Tape Survey. Triangulation method, Open Traverse and Closed Traverse

**PRACTICAL RECORD AND VIVA VOCE** (M.M. 10)

**Books Recommended:**

1. Davis, R.E. and Foote, F.S. (1953): Surveying, 4<sup>th</sup> edition, McGraw Hill Publication, New York
2. Jones, P.A. (1968): Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London
3. Monkhouse, F. J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai
5. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Publication.
6. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5<sup>th</sup> edition.
7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
8. Sharma, J. P. (2001): *Prayogik Bhugol*, Rastogi Publication, Meerut 3<sup>rd</sup> edition.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.,
10. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
11. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

*(Dr. S. K. Das)* 27.5.19  
*Asish Das* 27.5.19  
*DR. R. S. Das* 27.5.19

बी.ए./बी.एस.सी. – प्रथम वर्ष  
प्रश्न पत्र—प्रथम  
भौतिक भूगोल

अधिकतम अंक : 50

(कोड क्रमांक 0117)

**इकाई –1.** भौतिक भूगोल की प्रकृति एवं विषय क्षेत्र, पृथ्वी की उत्पत्ति, भूगर्भिक समय मापनी, पृथ्वी की आंतरिक संरचना, वेगनर का महाद्वीपीय प्रवाह सिद्धांत, पट्ट विवर्तन, भूसंतुलन ।

**इकाई –2.** पृथ्वी की हलचल—भूकंप, ज्वालामुखी, चट्टान अपक्षय, अपरदन, सामान्य अपरदन चक्र, वायु, हिम बहता जल, भूमिगत जल और सागरीय जल से निर्मित भूदृश्य ।

**इकाई –3.** मौसम और जलवायु के तत्व, वायुमंडल की संरचना एवं संघटन, वायुमंडलीय ताप, दाब तथा हवाएं ।

**इकाई –4.** वायुमंडलीय आर्द्रता विक्षोभ, जलवायु वर्गीकरण कोपेन और थार्नथ्वेट के आधार पर वैश्विक जलवायु की विशेषताएँ और विश्व प्रतिरूप ।

**इकाई –5.** महासागरीय उच्चावच प्रशांत महासागर, आंध्रमहासागर एवं हिन्द महासागर । सामुद्रिक तापमान लवणता जलधाराएँ एवं, ज्वारभाटा, सामुद्रिक निक्षेप एवं प्रवाल भित्ति, सामुद्रिक संसाधन ।

**Books Recommended:**

1. Barry, R. G. and Chorley, R. J. (1998): Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company. New Delhi
3. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd.
4. Garrison, T. (1998): Oceanography, Wordsworth Company., Belmont.
5. Lake, P. (1979): Physical Geography (English and Hindi editions), Cambridge University Press, Cambridge.
6. Lal, D.S. 1993: Climatology, 3rd edition, Chaitanya Pub. House, New Delhi
7. Leong Goh Cheng (2003): Certificate Physical and Human Geography, Oxford University Press, New Delhi.
8. Monkhouse, F.J. (1979): Physical Geography. Methuen, London
9. Singh, S. (2003): Physical Geography. (English and Hindi editions.). Prayag Pustak Bhawan, Allahabad;
10. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1976/1990): Fundamentals of Physical Geography, 3rd edition. MacGraw-Hill, New York.
11. Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi
12. Strahler, A.N. and Stahler, A.M. (1992): Modern Physical Geography. John Wiley and Sons, New York.

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बी.ए./बी.एस.सी. – प्रथम वर्ष  
प्रश्न पत्र-द्वितीय  
मानव भूगोल

अधिकतम अंक : 50

(कोड क्रमांक 0118)

- इकाई –1.** मानव भूगोल की परिभाषा एवं विषय क्षेत्र मानव वातावरण संबंध, निश्चयवाद, संभववाद प्रसम्भववाद, मानव विकास सूचकांक ।
- इकाई –2.** मानव प्रजाति उद्भव प्रकार विशेषताएँ एवं वितरण, मानव द्वारा वातावरण से अनुकूलन एस्किमो, बुशमेन, पिग्मी, गोंड, मसाई, और नागा ।
- इकाई –3.** वैश्विक जनसंख्या- वृद्धि, घनत्व, जनसंख्या के वितरण को प्रभावित करने वाले स्थानिक कारक, जनाधिक्य, न्यूनतम जनसंख्या और अनूकूलतम आदर्श जनसंख्या, जनसंख्या एवं प्रवास ।
- इकाई –4.** अधिवास- नगरीय अधिवास: नगरीयकरण उद्भव, प्रकार एवं नगरीकरण के प्रतिरूप ।  
ग्रामीण अधिवास : विशेषताएँ, प्रकार और क्षेत्रीय प्रतिरूप, भारत में ग्रामीण अधिवास, प्रकार, वर्गीकरण और क्षेत्रीय प्रतिरूप ।
- इकाई –5.** उभरते पर्यावरणीय मुद्दे- ग्लोबल वार्मिंग, जलवायु परिवर्तन निर्वन्निकरण, मरुस्थलीकरण प्रदूषण – जल, वायु और मृदा प्रदूषण ।

**Books Recommended:**

1. Chisholm, M. (1985): Human Geography, 2nd edition, Penguin Books, London.
2. De Blij, H.J.(1996): Human Geography: Culture, Society and Space,. 2nd edition. John Wiley and Sons, New York,
3. Fellman, J. D., Arthur, G., Judith, G., Hopkins, J. and Dan, S. (2007): Human Geography: Landscapes of Human Activities. McGraw-Hill, New York. 10<sup>th</sup> edition.
4. Haggett, P. (2004): Geography: A Modern Synthesis. 8th edition, Harper and Row, New York.
5. Huggett, R. J. (1998): Fundamentals of Biogeography, Routledge, London.
6. Hussain, M. (1994): Human Geography, Rawat Publications, Jaipur.
7. Johnston, R. J., Gregory, D., Pratt, G. and Watts, M. (2009): The Dictionary of Human Geography. 5th edition, Basil Blackwell Publishers, Oxford.
8. Kaushik, S.D. and Sharma, A.K. (1996): Principles of Human Geography (in Hindi), Rastogi Publication, Meerut.
9. Norton, W. (2008): Human Geography, Oxford University Press, New York. 5<sup>th</sup> ed.
10. Saxena, H. M. (2000): Environmental Management. Rawat Publications., Jaipur and New Delhi.
11. Singh, K. N. and Singh, J. (2001): *Manav Bhugol*. Gyanodaya Prakashan, Gorakhpur. 2<sup>nd</sup> edition.
12. Singh, L.R. (2005): Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad
13. Smith, D. M.(1977): Human Geography- A Welfare Approach, Edward Arnold (Publishers) Ltd., London
14. Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986): Human Geography. Prentice-Hall, Englewood Cliffs, New Jersey.

*(Dr. S. K. Das)* 27.5.19  
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बी.ए./बी.एस.सी.—प्रथम वर्ष  
प्रश्न पत्र—तृतीय  
प्रायोगिक भूगोल

अधिकतम अंक : 50

भाग— अ मानचित्र तकनीक एवं सांख्यिकी विधियां (25)

इकाई —1 मपनी— कथनात्मक मापन, प्रतिनिधि भिन्न सामान्य रैखिक मापनी विकर्ण तुलनात्मक एवं समय मापनी.

इकाई —2 उच्चावच प्रदर्शन की विधियां — हैश्यूर समोच्च रेखा, तथा विविध स्थलाकृतियों की प्रदर्शन.

इकाई —3 रैखिक आरेख, दंड आरेख, (सामान्य एवं मिश्रित) चक्र आरेख — समानुपातिक वृत्त आरेख विभाजित वृत्तारेख

इकाई —4 सांख्यिकी विधियां : औसत, माध्यिका , बहुलक

भाग— ब सर्वेक्षण (15)

इकाई —5 चैन और फीता सर्वेक्षण—त्रिभुजीकरण, खुला एवं बंद मार्ग मापन,

प्रायोगिक पुस्तिका और मौखिक परिक्षण परीक्षा (10)

**Books Recommended:**

1. Davis, R.E. and Foote, F.S. (1953): Surveying, 4<sup>th</sup> edition, McGraw Hill Publication, New York
2. Jones, P.A.(1968): Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London
3. Monkhouse, F. J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai
5. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Publication.
6. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5<sup>th</sup> edition.
7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
8. Sharma, J. P. (2001): *Prayogik Bhugol*, Rastogi Publication, Meerut 3<sup>rd</sup>. edition.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.,
10. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
11. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

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**Revised syllabus**  
**SOCIOLOGY**      **2019 - 2020**

**B.A. PART-I**

**Paper - I**

**INTRODUCTION TO SOCIOLOGY (Paper Code - 0115)**

- UNIT-I**    **Sociology** : Meaning, Nature, scope, Subject matter and significance.  
             **Basic concepts** : Society, Community, institution, Association, group, Status and role.
- UNIT-II**    **Social Institutions**: Marriage, Family and kinship.  
             **Culture and society**: Culture, socialization, The individual and society, social control, norms and values.
- UNIT-III**    **Social Stratification**: Meaning, forms and theories.  
             **Social Mobility**: Meaning, forms and theories.
- UNIT-IV**    **Social change**: Meaning and patterns, types, factors, evolution and progress.
- UNIT-V**    **Social System and process**: Social System- meaning, characteristics and elements.  
             Social process- Meaning, elements, characteristics and types.

**ESSENTIAL READINGS :-**

- 1 Bottomore T.B., Sociology- A guide to Problems and Literature, Bombay. George Allen and unwin(India) 1972.
- 2 Inkeles, Alex, What is Sociology ? New Delhi, Prentice Hall of India 1987.
- 3 Jayram, N., Introductory Sociology, Madras Maomillan India 1988.
- 4 Johnson Harry, M., Sociology of systematic Introduction New Delhi Allied Publishers 1995.

Shobhash  
10/6/2019

Azath  
10.06.2019

M. S. S. S.  
10-6-19



**Revised syllabus**  
**SOCIOLOGY -2019-2020**

**B.A. PART-I**

**Paper –II**

**CONTEMPORARY INDIAN SOCIETY (Paper Code-0116)**

- UNIT-I Classical View about Indian Society:** Varna, Ashram, Karma, Dharma and Purusharth.
- UNIT-II The Structure and composition of Indian society.**  
**Structure ;** Village , Towns, Cities and Rural – Urban Linkage,  
**Compositions:** Tribes, Dalits, Women and Minorities.
- UNIT-III Basic Institutions of Indian Society:**  
Caste system, Joint Family, Marriage and Changing dimensions.
- UNIT-IV Familial Problems:**  
Dowry, Domestic violence, Divorce, Intra-intergenerational conflict, problem of elderly.
- UNIT-V Social Problems:**  
Surrogate Motherhood, Live in Relationship, Regionalism, Communalism, Corruption, Youth unrest.

**ESSENTIAL READINGS :-**

- 1 Dube, S. C. 1995. Society in India, New Delhi: National Book Trust.
- 2 Mandelbaum, D.G. 1970. Society in India, Bombay: Poular Prakashan.
- 3 Shrinivas, M.N. 1973. Social Change in Modern India, California: University of California Press.
- 4 Shrinivas, M.N. 1990. Social Change Structure, New Delhi: Hindustan Publishing Corporation.
- 5 Uberoi Patricia, 1993. Family and Marriage In India, New Delhi: Oxford University Press.

*Shobhash*  
20/6/2019

*Asmita*  
10.06.2019

*Madhavi*  
10-6-19

## बी. ए.. भाग एक B.A. Part I

### राजनीति विज्ञान Political Science

#### प्रथम प्रश्न पत्र : राजनीतिक सिद्धान्त Paper I : Political Theory

- इकाई 1 : राजनीति विज्ञान का अर्थ, परिभाषा ( आधुनिक अवधारणा सहित ) । राजनीति एक विशिष्ट मानवीय व्यवहार के रूप में । शक्ति, सत्ता, प्रभाव : अर्थ, विशेषताएं, प्रकार । राजनीति विज्ञान की अध्ययन पद्धतियां : परम्परागत एवं व्यवहारवाद एवं उत्तर व्यवहारवाद ।
- Unit I : Meaning and Definition of Political Science ( with modern concept ). Politics as a specific human behaviour. Power, Authority and Influence : meaning, features and kinds. Method of Study to Political Science : Traditional , Behaviouralism and Post Behaviouralism.
- इकाई 2 : राज्य एवं उसके आवश्यक तत्व । राज्योत्पत्ति के विभिन्न सिद्धान्त, मार्क्सवादी सिद्धान्त । सावयविक सिद्धान्त ।
- Unit 2 : State and its essential elements. Various theories of the origin of the State, Marxist theory . Organismic Theory.
- इकाई 3 : सम्प्रभुता एवं उसकी बहुलवादी आलोचना । अधिकार: अर्थ, प्रकार , सिद्धान्त । कर्तव्य । स्वतन्त्रता : अर्थ , प्रकार, संरक्षण । समानता : अर्थ , प्रकार एवं स्वतन्त्रता से सम्बंध । प्रजातन्त्र : परिभाषा, व्यापक अर्थ, चुनौतियां, सफलता के लिए आवश्यक शर्तें , गुण-दोष । प्रत्यक्ष प्रजातन्त्र ।
- Unit 3: Sovereignty and its pluralistic criticism. Rights : meaning, kinds and theories. Duties. Liberty : meaning, kinds , safeguards. Equality : meaning, kinds and relations with Liberty. Democracy : meaning, comprehensive meaning, challenges, conditions for its success, merits and demerits. Direct Democracy.
- इकाई 4 : शासन के प्रकार : एकात्मक व संघात्मक , संसदीय व अध्यक्षीय, निरंकुशतन्त्र । शासन के अंग : कार्यपालिका, व्यवस्थापिका, न्यायपालिका । शक्ति पृथक्करण का सिद्धान्त व नियंत्रण –संतुलन का सिद्धान्त । संविधान : अर्थ , प्रकार । प्रतिनिधित्व के सिद्धान्त एवं निर्वाचन प्रणालियां ।
- Unit 4 : Kinds of Government : Unitary and Federal, Parliamentary and Presidential. Dictatorship. Organs of Government : Executive, Legislature and Judiciary. Theory of Separation of Powers and Checks and Balances. Constitution : meaning and kinds. Theories of representation and Electoral Process.
- इकाई 5 : लोककल्याणकारी राज्य । दल पद्धति : अर्थ , प्रकार, पद्धति । दबाव समूह : अर्थ, प्रकार, तकनीक । सामाजिक परिवर्तन : अर्थ, विशेषताएं , सिद्धान्त । नारीवाद, राष्ट्रवाद ।
- Unit 5 : Public Welfare State. Party System : meaning , kinds , process. Pressure Groups : meaning, kinds and technique. Social Change : meaning, characteristics, theories. Feminism. Nationalism.

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बी.ए. प्रथम  
प्रथम प्रश्न पत्र

राजनीतिक सिद्धान्त

1. ओ.पी. गाबा, समकालीन राजनीतिक सिद्धान्त, मयूर पेपर बैक्स नोएडा।
2. ओ.पी. गाबा, राजनीति सिद्धान्त की रूपरेखा, मयूर पेपर बैक्स नोएडा।
3. जे.सी. जौहरी व सीमा जौहरी, आधुनिक राजनीति विज्ञान के सिद्धान्त, स्टर्लिंग पब्लिकेशन।
4. पंत गुप्ता जैन, राजनीति शास्त्र के आधार, सेंट्रल पब्लिकेशिंग हाऊस इलाहाबाद।
5. प्रो. आनंद प्रकाश अवस्थी, भारतीय शासन एवं राजनीति, लक्ष्मीनारायण अग्रवाल, आगरा।
6. Andrew Haywood Political Theory, An Introduction.
7. O.P. Gaba An Introduction to Political Theory, Macmillan India Ltd.

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बी. ए. भाग एक B. A. Part I

राजनीति विज्ञान Political Science

द्वितीय प्रश्न पत्र : भारतीय शासन एवं राजनीति Paper II : Indian Government and Politics

इकाई 1 : भारतीय राष्ट्रीय आन्दोलन : 1858 का प्रथम स्वतन्त्रता संग्राम, असहयोग आन्दोलन, सविनय अवज्ञा आन्दोलन, भारत छोड़ो आन्दोलन । भारत का संविधानिक विकास : 1858, 1909, 1919 और 1935 का भारत शासन अधिनियम ।

Unit 1 : Indian National Movement : First Independence Movement 1858, Non cooperation Movement, Civil Disobedience Movement and Quit India Movement. Constitutional Development of India : Govt. of India Act of 1858, 1909, 1919 and 1935.

इकाई 2 : भारतीय संविधान : विशेषताएं , प्रस्तावना, स्रोत, । संघीय व्यवस्था , मौलिक अधिकार, मूल कर्तव्य, नीति निर्देशक तत्व । संविधान संशोधन प्रक्रिया ।

Unit 2 : Constitution of India : Characteristics, Preamble, Sources. Federal System. Fundamental Rights and Duties, Directive Principles of State Policy. Constitution Amendment Process.

इकाई 3 : संघीय कार्यपालिका : राष्ट्रपति, उपराष्ट्रपति, मन्त्रिपरिषद् और प्रधानमंत्री । संघीय व्यवस्थापिका : संसद : लोकसभा और राज्यसभा । संसदीय प्रक्रिया ।

Unit 3 : Union Executive : President , Vice President, Council of Ministers and Prime Minister. Union Legislature : Parliament: Lok Sabha and Rajya Sabha. Parliamentary Procedure.

इकाई 4 : संघीय न्यायपालिका : सर्वोच्च न्यायालय : गठन, क्षेत्राधिकार, न्यायिक पुनरावलोकन, न्यायिक सक्रियतावाद । राज्य कार्यपालिका : राज्यपाल , मन्त्रिपरिषद् और मुख्यमंत्री ।

Unit 4 : Union Judiciary : Supreme Court : Organisation, Jurisdiction, Judicial Review, Judicial Activism. State Executive : Governor, Council of Ministers and Chief Minister.

इकाई 5 : राज्य व्यवस्थापिका : विधानसभा एवं विधानपरिषद् । निर्वाचन आयोग व चुनाव सुधार । राष्ट्रीय व क्षेत्रीय दल । भारतीय राजनीति के प्रमुख मुद्दे : जाति, धर्म, भाषा और क्षेत्र । पंचायती राज व्यवस्था ।

Unit 5 : State Legislature : Legislative Assembly and Legislative Council. Election Commission and Election Reforms. National and Regional Parties. Major issues of Indian Politics : Caste, Religion, Language and Region. Panchayati Raj System.

संदर्भ पुस्तक (Reference Books)

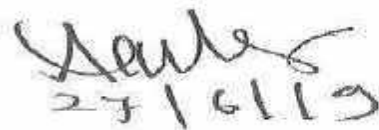
8. डॉ. सुभाष कश्यप, भारत का संवैधानिक विकास और संविधान, हिन्दी माध्यम कार्यान्वयन निदेशालय दिल्ली विश्वविद्यालय ।

डॉ. सुभाष कश्यप, हमारी संसद, भारत की संसद एक परिचय, राष्ट्रीय पुस्तक न्यास ।

10. डॉ. रूपा मंगलानी, भारतीय शासन एवं राजनीति, राजस्थान हिन्दी ग्रंथ अकादमी जयपुर ।

11- M.V. Pylee , Constitutional History of India , S.Chand.

12- D.D. Basu Indian Constitution

  
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**B.A. – 1st Year**  
**MUSIC**  
**Session- 2019-20**

**Note :-** 1. B. A.(General) three year degree course with the relative weight of practical and theory being in the proportion 50 and 50 respectively (Model curriculum, page No.21A) courses. Hence the Central Board of Studies divide the ratio as :-

1st paper	40 marks (written or Theory) Revised as 50
2nd paper	40 marks (written or Theory) Revised as 50

Practical of 10 marks from which 10 marks are for the internal sessional work.  
B.A. General (as one of the optional objects).  
Hindustain Music (Vocal +Instrumental..)

**THEORY**  
**PAPER - I**  
**THEORY OF INDIAN MUSIC- VOCAL \INSTRUMENTAL** **M.M. : 50**  
**(Paper Code-0131)**

- 1. Definition and Illustrations :-** Naad, Shruti, Swara, Saptak, Purvang, Uttarang, Vadi, Samvadi, Vivadi, Anuvadi, Alankar, That, Mind, Soota, Bol Alap, Tan, Tihai, pakad.
- 2. General knowledge of the Musical Styles:-**  
Dhrupad, Dhamar, khyal, Thumari, Tarana, Tappa, Hori, Chaturang, Geet, Bhajan, Ghazal,
- 3. General Knowledge of the biographies and the contributions of the following Musicians** Ameer khusro, Swami Haridas, Tansen, Nayak Baiju, Nayak Gopal, Tyagraja.
- 4. Merits and Demerits of Musicians according to the Shastras.**
- 5. Study of the Theoretical details of prescribed Ragas for Practical Course as follows :-** Yaman, Bhupali, Allhaiya Bilawal, Bhairav, Kafi, Khamaj, Brindavani - sarang, Durga (Bilawal That).

  
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# THEORY

## PAPER - II

### THEORY OF INDIAN MUSIC- VOCAL /INSTRUMENTAL

M.M. : 50

(Paper Code-0132)

SESSION – 2019-20

1. Hindustani Music and Karnatak Music, short history, similarities and Differences.
2. Study of Notation Systems - Bhatkhande and Paluskar Notation system.
3. Time Theory of the Ragas, Purva Raga, Uttar Raga, Sandhi Prakash Raga, Parmel Praveshak Ragas.
4. Formation of Ragas, Sampurna, Shadav, Audawa, Jati. That or Mel Theory.
5. Definition of Tala, Matra, Avartan, Bol, Vibhag, Khali, Bhari, Vilambit, Madhya and Drutlaya. Writing of the Talas in Notation with Dugan

# PRACTICAL

M.M. : 50

1. Alankar (Palta)
2. Study of the following Ragas :- Yaman, Bhupali, Allahaiya Bilawal, Bhairav, Kafi, Khamaj, Brindavani Sarang, Durga (Bilawal That)
3. Two Vilambit Khyalas or Masitkhani Gat in any two of the above mentioned Ragas.
4. Madhya Laya Khyalas or Razakhani Gat with Alap, Tan, Tora Jhala, in any five of the above Ragas.
5. Lakshan Geet, Saragam Geet in all the above Ragas.
6. Ability to demonstrate (orally by giving Tali and Khali of on hand) Talas Prescribed in course as follows :- Dadra, Kaharva, Teen Tal, Ektal, Chautal, Jhaptal.
7. One Dhrupad or Dhamar / one Gat other than teen Tal (Composition only)
8. One Bhajan, Ghazal, Geet, Patrioteec song and prayer.

  
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## INTERNAL SCSSIONAL WORK -

1. Ten Descriptions of Music Programmes (Radio and T. V. personally attended)

## RECOMMENDED BOOK -

1. Kramik Pustak Malika (Part I to Part IV) By pt. V.N. Bhatkhande.
2. Sangitanjali Part I to VI By Pt. Onkar Nath Thakur.
3. Sangeet Visharad (Hathras) By Vasant
4. Sangeet Bodh, By Dr. Sharad Chandra Paranjape
5. Dhawani aur Sangeet, by Prof. L. K. Sing
6. Tan Malika, by Raja Bhaiya Puchhwale
7. Hamare Sangeet Ratna, by Lakshmi Narayan Garg.
8. Rag Parichaya Part I to IV By Harish Chandra Shrivastava
9. All Journals and Magazenes of Music
10. Sitar Malika, (Hathras)
11. Tabla Vigyan, by Dr. Lalmani Misra
12. Swar aur Ragon ke Vikas me Vadyon ka Yogdan, By Prof. Indrani Chakrawarty.
13. Sangeet Manjusha By Prof. Indrani Chakrawarty.
14. Music - its methods and technique and teaching in Higher Education. By Prof. Indrani Chakrawarty.
15. Sangeetanjali Part I to V By Pt. Ramashraya Jha.



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**M A N A G E M E N T**  
**Paper - I**  
**PRINCIPLE OF MANAGEMENT**  
**(Paper Code-0135)**

**Time : 3 HoursMax.**

**Marks : 75**

**UNIT-I** Evolution of Modern Industrial Organisation and Management Thought.

- Industrial Revolution - Impact on society
- Contribution - Frederic Winslow Taylor Eiton Moyo
- Douglas Mc. Gregor

The nature and scope of Management process definition of Management and Management process important characteristics of the process. The eight prepositions for effective organisation Philosophy, Urwick's Ten Principles, Different Schools of Thought.

- UNIT-II** Coordination - Definition and Meaning, Need and importance principles and Techni-ques.  
Definition, Nature and purpose nature and process of
- Planning - forecasting.
- Basic objective & - Objectives long and short range criteria of sound objectives.
- Types of Plan
- Types of Plans Decision making Meaning and basis
- for selecting alternatives.
  - Strategies : Policies and Procedure.
  - Qualities of Planning Process.

**ORGANISATION**

- UNIT-III** Nature, Importance, Components of Organisation,
- Departmentation - Methods.
  - Span of Control - Wide and Narrow Spans.
  - Authority - Line and Staff, Decentralization, delegation, types of staff authority, factors determining the degree of decentralization.
- Staffing : Nature and Importance.
- Factors determining the selection of Managerial personnel.
- Management Appraisals.
- Development and Training of Managers.

- UNIT-IV** Deirection : Nature and importance of Communication.
- Methods of building a communication net work.
- Personal communication and use of orders.
- Changing patterns of supervisory responsibility.
- Factors of effective supervision
- Selection and training of supervisors.



T.W.I. Programmes.

Nature and Importance of discipline.

Causes of Indiscipline.

Means of effective discipline.

**UNIT-V** Basic steps in control process.

Importance of Control.

Requirements for an effective control.

Purpose of Budgeting.

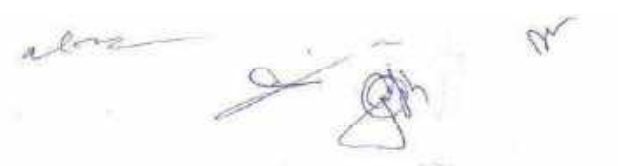
Types of budgets.

Elements of costs and types of costing.

Role of cost accounting.

**BOOKS RECOMMENDED:**

1. Koontz, Harold : Principles of Management
2. Chatterjee, S. S. : An Introduction to Management
3. Kast, Fremont E. : Organisation Management
4. Asthena G. P. : The Ground Work of Management.
5. डॉ. गुप्ता : व्यवसाय प्रशासन एवं प्रबंध
6. डॉ. आर. सी. सक्सेना : व्यवसाय प्रशासन एवं प्रबंध
7. Dr. K. N. Dinesh : Structure of Medium Scale Industries.



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**Paper-II**  
**COMMERCIAL ACCOUNTANCY**  
**(Paper Code-0136)**

**Max. Marks : 75**

**UNIT-1** Definition and objects of book-keeping, principle of Double Entry, its object and advantages.

Journal Simple journal entries, compound journal entries rules for recording journal.

**UNIT-2** Ledger & ledger account, posting of journal entries, types of ledger accounts  
Balancing of ledger accounts Cash book: Cash book with cash and discount columns three column or cash book, petty cash book.

**UNIT-3** Bank reconciliation statement.

Bill Transaction.

Endorsement of Bill

Dishonourment of Bill

Accommodation Bill

**UNIT-4** 1. Trial Balance.  
2. Rectification of errors  
3. Capital

and revenue expenditure. **UNIT-5 Final**

**Accounts:**

1. Manufacturing account trading
2. Profit and loss account
3. Balance Sheet.

**BOOKS RECOMMENDED:**

1. M.M.Shah : Double entry Bookkeeping
2. R.R.Gupta : Book keeping & Accounts.
3. T.S.Grewal : Introduction to accountancy.
4. Juneja, Chawla & Saksena: Elementary Book-keeping.
5. Karim & Khanuja : Financial Accounting

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## **B.A./B.Sc. – First Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- First  
Name of the Paper :- FOUNDATION OF ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I Meaning and scope of Anthropology. History of Anthropology. Branches of Anthropology -
- (a) Socio-cultural Anthropology
  - (b) Physical Biological Anthropology
  - (c) Archaeological Anthropology
  - (d) Linguistic Anthropology
- UNIT – II Relationship of Anthropology with other disciplines: Life Sciences, Medical Sciences, Social Sciences: History, Economics, Sociology, Psychology, Political Science
- UNIT – III Foundation in Biological Anthropology
- (a) Human Evolution with respect to Hominid fossils
  - (b) Human Variation: Types and causes
  - (c) Human Genetics: Concept, scope and branches
  - (d) Human growth and development: Definition, scope, methods and factors effecting human growth and development
- UNIT – IV Fundamentals in Social-Cultural Anthropology.
- (a) Culture, Society, Community, Group, Institution
  - (b) Human Institution:-
    - Family: Definiton, types and function of family
    - Marriage: Definition, forms of marriage and its functions
    - Kinship: Definition, types and functions
    - Religion: Theories on the origin of religion
  - (c) Basic techniques of data collection :
    - Observation , Schedule, Questionnaire, Geneology
- UNIT – V Fundamentals in Archaeological Anthropology.
- (a) Tool typology & Technology: Paleolithic, Mesolithic & Neolithic
  - (b) Cultural evolution: Broad outlines of cultures (Stone age to metal age)
  - (c) Dating techniques in archaeology

  
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## **B.A. /B.Sc. – First Year**

**Session: 2019-20**

Name of the Subject :- Anthropology  
Paper :- Second  
Name of the Paper :- PHYSICAL/ BIOLOGICAL ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I      Meaning, scope, History of Physical Anthropology & its applied aspects  
Theories of organic evolution: Lamarckism, Neo-lamarckism, Darwinism, Neo-darwinism & Synthetic theory of evolution
- UNIT – II      Position of Man in animal kingdom, Classification of living primates, Comparative anatomy of Man and Apes (with special reference to skull, pelvis, dentition and long bones)
- UNIT – III      Fossil evidence of human evolution: Ramapithecus, Australopithecus, Pithecanthropus, Sinanthropus, Neanderthal, Cromagnon, Grimaldi man, Chancelade man.
- UNIT – IV      Concept of Race: Race formation and Criteria of racial classification, UNESCO Statement, Racial element in India, Major races of the world.
- UNIT – V      Human Genetics:  
a.      Structure of Chromosome, DNA & RNA  
b.      Mendelian principle.  
c.      Types of Inheritance in Human

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**B.A./B.Sc. – First Year**

**Session : 2018-19**

Name of the Subject :- Anthropology  
Paper :- Practical  
Name of the Paper :- OSTEOLOGY AND CRANIOMETRY

Total Marks : 50

Pass Marks : 17

- I. Identification of bones of human Skeleton. Sketching and labeling of various norms of skull, Overview of Pectoral & Pelvic girdles, Femur & Humerus bone
- II. Craniometry :-
  1. Maximum Cranial length.
  2. Maximum Cranial Breadth.
  3. Maximum frontal Breadth.
  4. Bizygomatic Breadth.
  5. Nasal Height.
  6. Nasal Breadth
  7. Minimum frontal breadth
  8. Bimaxillary Breadth.
  9. Maximum Biorbital Breadth
  10. Length of magnum foramen.
- III. Craniometric indices :
  1. Cranial Index
  2. Nasal Index

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## MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

### **B.A. Part-I MATHEMATICS**

#### **PAPER - I**

#### **ALGEBRA AND TRIGONOMETRY**

- UNIT-I** Elementary operations on matrices, Inverse of a matrix. Linear independence of row and column matrices, Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equations of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.
- UNIT-II** Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations. Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descartes's rule of signs. Solutions of cubic equations (Cardan's method), Biquadratic equation.
- UNIT-III** Mappings, Equivalence relations and partitions. Congruence modulo  $n$ . Definition of a group with examples and simple properties. Subgroups, generation of groups, cyclic groups, coset decomposition, Lagrange's theorem and its consequences. Fermat's and Euler's theorems. Normal subgroups. Quotient group, Permutation groups. Even and odd permutations. The alternating groups  $A_n$ . Cayley's theorem.
- UNIT-IV** Homomorphism and Isomorphism of groups. The fundamental theorems of homomorphism. Introduction, properties and examples of rings, Subrings, Integral domain and fields Characteristic of a ring and Field.
- TRIGONOMETRY :**
- UNIT-V** De-Moivre's theorem and its applications. Direct and inverse circular and hyperbolic functions. Logarithm of a complex quantity. Expansion of trigonometrical functions. Gregory's series. Summation of series.

#### **TEXT BOOK :**

1. I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd. New Delhi, 2000.
3. Chandrika Prasad, Text-Book on Algebra and Theory of equations, Pothishala Private Ltd., Allahabad.
4. S.L. Loney, Plane Trigonometry Part II, Macmillan and Company, London.

#### **REFERENCES :**

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, First Course in linear Algebra, Wiley Eastern, New Delhi, 1983.
2. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, Basic Abstract Algebra (2 edition), Cambridge University Press, Indian Edition, 1997.
3. S.K. Jain, A. Gunawardena and P.B. Bhattacharya, Basic linear Algebra with MATLAB, Key College Publishing (Springer-Verlag), 2001.
4. H.S. Hall and S.R. Knight, Higher Algebra, H.M. Publications, 1994.
5. R.S. Verma and K.S. Shukla, Text Book on Trigonometry, Pothishala Pvt. Ltd., Allahabad.



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**B.A. Part-I**  
**MATHEMATICS**  
**PAPER - II**  
**CALCULUS**

**DIFFERENTIAL CALCULUS:**

**UNIT-I**  $\varepsilon - \delta$  definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

**UNIT-II** Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates.

**INTEGRAL CALCULUS:**

**UNIT-III** Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution.

**ORDINARY DIFFERENTIAL EQUATIONS:**

**UNIT-IV** Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations.

**UNIT-V** Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

**TEXT BOOK :**

1. Gorakh Prasad, Differential Calculus, Pothishala Private Ltd. Allahabad.
2. Gorakh Prasad, Integral Calculus, Pothishala Private Ltd. Allahabad.
3. D.A. Murray Introductory Course in Differential Equations, Orient Longman (India), 1976.

**REFERENCES :**

1. Gabriel Klambauer, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum's outline series, Schaum Publishing Co. New York.
3. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
4. P.K. Jain and S.K. Kaushik, An Introduction to Real Analysis, S. Chand & Co. New Delhi, 2000.
5. G.F. Simmons, Differential Equations, Tata Mc Graw Hill, 1972.
6. E.A. Codington, An Introduction to Ordinary Differential Equations, Prentics Hall of India, 1961.
7. H.T.H. Piaggio, Elementary Treatise on Differential Equations and their Applications, C.B.S. Publishe & Distributors, Dehli, 1985.
8. W.E. Boyce and P.O. Dprima, Elementary Differential Equations and Boundary Value Problems, John Wiley, 1986.
12. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons, 1999.

**B.A. Part-I**  
**MATHEMATICS**  
**PAPER - III**  
**VECTOR ANALYSIS AND GEOMETRY**

**VECTOR ANALYSIS:**

- UNIT-I**      Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient, divergence and curl.
- UNIT-II**      Vector integration. Theorems of Gauss, Green, Stokes and problems based on these.
- UNIT-III**     General equation of second degree. Tracing of conics. System of conics. Confocal conics. Polar equation of a conic.
- UNIT-IV**      Sphere. Cone. Cylinder.
- UNIT-V**      Central Conicoids. Paraboloids. Plane sections of conicoids. Generating lines. Confocal Conicoids. Reduction of second degree equations.

**TEXT BOOKS:**

1. N. Saran and S.N. Nigam, Introduction to vector Analysis, Pothishala Pvt. Ltd. Allahabad.
2. Gorakh Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Pvt. Ltd., Allahabad.
3. R.J.T. Bell, Elementary Treatise on Coordinate Geometry of three dimensions, Machmillan India Ltd. 1994.

**REFERENCES:**

1. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murray R. Spiegel, Vector Analysis, Schaum Publishing Company, New York.
3. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 1999.
4. Shanti Narayan, A Text Book of Vector Calculus, S. Chand & Co., New Delhi.
5. S.L. Loney, The Elements of Coordinate Geometry, Macmillan and Company, London.
6. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of two Dimensions, Wiley Eastern Ltd., 1994.
7. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of three Dimensions, Wiley Eastern Ltd., 1999.
8. N. Saran and R.S. Gupta, Analytical Geometry of three Dimensions, Pothishala Pvt. Ltd. Allahabad.



Three handwritten signatures in blue ink are visible at the bottom of the page. The first signature is on the left, the second is in the middle, and the third is on the right with the date '30/5/19' written below it.

**भाषाविज्ञान**  
**प्रथम प्रश्न पत्र**  
**भाषा की प्रकृति**  
**(पेपर कोड – 0107)**

1. भाषा—मानव एवं मानवेत्तर, संप्रेषण, परिभाषा, विशेषताएं, भाषा विज्ञान की उपयोगिता, भाषा विज्ञान की विभिन्न शाखाएं, भाषा विज्ञान का अन्य विषयों के साथ संबंध ।
2. भाषा सीखने की प्रक्रिया — मौखिक एवं लिखित भाषा के विविध रूप, भाषा बोली के भाषा बन जाने के कारण, भाषाई परिवर्तन के प्रकार एवं कारण ।
3. मनोभाषाविज्ञान —भाषा एवं मस्तिष्क, मस्तिष्क में भाषा के अवयव, स्थानीयकरण, भाषित व्यक्तिक्रम अस्पष्टार्थकता, अनकार्थकता ।
4. भाषा एवं विचार — भाषा — सामर्थ्य एवं भाषा—व्यवहार, सहजात परिकल्पना, निश्चयवाद — अनुभववाद ।
5. हिन्दी भाषा का उद्भव और विकास, हिन्दी की उपभाषाएं तथा विविध बोलियां छत्तीसगढ़ी की विशेषताएं ।

**निर्धारित पुस्तकें —**

1. सैद्धांतिक भाषाविज्ञान — जे. लियांस (अनवाद— सत्यकाम वर्मा)
2. सामान्य भाषाविज्ञान — रॉबिंस
3. सामान्य भाषाविज्ञान — बाबूराम सक्सेना
4. भाषाविज्ञान — भोलानाथ तिवारी
5. भाषा , विचार और वास्तविकता — बेंजामिन ली होर्फ
6. भाषाविज्ञान — राजमल बोरा
7. भाषा विज्ञान सैद्धांतिक चिंतन — रविन्द्रनाथ श्रीवास्तव
- 8- Philosophy of Language and – S. Chopman, Routledge, London.
- 9- An Introduction to Language and – A. Akimajian (etal.)
- 10- Communication – Met Press Massachusetts, 1990/1996

(Indian Reprint] Prentice Hall] 1996)

**द्वितीय प्रश्न पत्र**  
**ध्वनि और शब्द अभिरचना**  
**(पेपर कोड – 0108)**

1. ध्वनि विज्ञान –स्वरूप एवं शाखाएं, वाग्यंत्र की संरचना एवं कार्य, स्वर तथा व्यंजन की परिभाषा एवं अंतर ।
2. स्वर – वर्गीकरण के विभिन्न आधार, मान स्वर – त्रिकोण, प्रधान एवं गौण मान संध्यक्षर (संयुक्त स्वर)
3. व्यंजन– वर्गीकरण के विभिन्न आधार, संयुक्त व्यंजन, अंतर्राष्ट्रीय ध्वन्मात्मक प्रतिलिपि चिह्न (आई.पी.ए.)
4. अक्षर एवं ध्वनि गुण – मात्रा, बलाघात, सुर अनुतान (सुर लहर), संग्रम, व्यतिरेकी विवरण, परिपूरक विवरण सह स्वरों का निर्धारण ।
5. शब्द परिभाषा, वर्गीकरण, हिन्दी में आगत शब्दावली, शब्द समूह में परिवर्तन –कारण एवं दिशाएं (प्रकार)

**निर्धारित पुस्तकें –**

- |                                  |  |
|----------------------------------|--|
| 1. ध्वनि विज्ञान                 | – गोलोक बिहारी धल  |
| 2. स्वन विज्ञान                  | – चतुर्भुज सहाय  |
| 3. भाषा विज्ञान                  | – भोलानाथ तिवारी   |
| 4. शब्दों का अध्ययन              | – भोलानाथ तिवारी   |
| 5. हिन्दी का नवीनतम बीज –व्याकरण | – रमेश चंद्र महरोत्रा एवं चित्तरंजन कर                     |
| 6. Linguistics : An Introduction | – A. Radford (ed al.), Cambridge University Press, 1999    |
| 7. A Course in Phonetics         | – P. Lodefoged, Hardcourt Brace Jovanovich New York, 1993. |



# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

संशोधित पाठ्यक्रम – बी.ए. प्रथम वर्ष के अंतर्गत

सत्र 2019 – 20

विषय – नृत्य (भरत नाट्यम)

बी.ए. भाग (1) के लिये इस विषय में प्रायोगिक और सैद्धांतिक दो भाग होंगे। प्रायोगिक 50 अंक एवं सैद्धांतिक 100 अंक का होगा। इस हेतु 50-50 अंक के दो प्रश्नपत्र होंगे। प्रत्येक वर्ष के पूर्णांक कुल मिलाकर 150 अंक के होंगे।

क्र	विवरण	पूर्णांक	उत्तीर्णांक
1	सैद्धांतिक प्रथम प्रश्न पत्र	50	17
2	सैद्धांतिक द्वितीय प्रश्न पत्र	50	17
3	प्रायोगिक	50	17
योग		150	51

## सैद्धांतिक (विस्तृत पाठ्यक्रम)

प्रथम प्रश्न पत्र

शीर्षक – नृत्य का इतिहास एवं सामान्य अध्ययन

पेपर कोड (0153)

- नृत्य का इतिहास – सिंधु सभ्यता, वैदिक काल, रामायण एवं महाभारत काल में नृत्य की स्थिति।
- पुराणों के आधार पर – उमाशंकर एवं नटवर श्री कृष्ण की नृत्य संबंधी कथाएँ – त्रिपुरडाह, उमा तांडव, मोहिनी-भस्मासुर, माखन लीला, कालिया दमन, रासलीला।
- नृत्य का अन्य ललित कलाओं से संबंध – संगीत, साहित्य, चित्रकला एवं मूर्तिकला से संबंध।
- नाट्य की उत्पत्ति कथा – भरत के नाट्यशास्त्र के प्रथम अध्याय में वर्णित।
- लोकधर्मी नाट्य परंपरा – निम्न की संक्षिप्त जानकारी –
  1. रामलीला
  2. रासलीला
  3. भवाई
  4. माच

  
14/06/19

  
14/06/19

  
14/06/19

# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

सैद्धांतिक (विस्तृत पाठ्यक्रम)

सत्र 2019 – 20

द्वितीय प्रश्न पत्र

शीर्षक – शास्त्रीय नृत्य सिद्धान्त

पेपर कोड (0154)

- |  |   |                                     |              |
|--|---|-------------------------------------|--------------|
| 1. ताल की प्रारंभिक जानकारी                    | – | 1. ताल के दस प्राण।                 |              |
|  |   | 2. लय – विलंबित, मध्य एवं द्रुत लय। |              |
| 2. संक्षिप्त जीवन परिचय                        | – | भरत मुनि, आचार्य नंदिकेश्वर।        |              |
| 3. नृत्य के अभ्यास से शारीरिक एवं मानसिक लाभ।  |   |                                     |              |
| 4. भारतीय नाट्य परंपरा में गुरुवंदना का महत्व। |   |                                     |              |
| 5. छत्तीसगढ़ी नृत्यों का सामान्य परिचय         | – | 1. करमा                             | 2. ददरिया    |
|  |   | 3. सुवा                             | 4. रीना, परब |

## प्रायोगिक

- |                          |   |   |
|--------------------------|---|---|
| 1. मौखिक मुद्रा प्रदर्शन | – | (अभिनय दर्पण के अनुसार)<br>(1) शिवस्तुति (2) शिरोभेद (3) ग्रीवाभेद<br>(4) दृष्टिभेद (5) असंयुक्त हस्त (6) संयुक्त हस्त          |
| 2. कार्यक्रम विभाग       | – | (1) शारीरिक अभ्यास<br>(2) आरंभिक – 05 अड़ऊ भेद<br>(पद + हस्त संचालन तीन काल में)<br>(3) पूजा नृत्य<br>(4) अलारिपु (तिस्त्रजाति) |

  
14/06/19

  
14/06/19

  
14/06/19

**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**Syllabus for B.A. / B.Sc. Course, 2019-20**  
**Subject: Statistics**

Each year of B.A. /B.Sc. I, II, III shall have two theories and one practical course. All the Theory as well as Practical Examinations will be of 3 hours duration. In each practical examination 10% marks shall be fixed for viva –voce and 20% marks for practical record.

**Scheme of Examination**

	<b>Title of the paper</b>	<b>MAX. Marks</b>
<b>B.A./B.Sc. I</b>	<b>Paper-I</b> (Code No. 0803): <b>Probability I</b>	50
	<b>Paper-II</b> (Code No. 0804): <b>Descriptive Statistics I</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. II</b>	<b>Paper-I</b> (Code No. 0853): <b>Statistical Methods</b>	50
	<b>Paper-II</b> (Code No. 0854): <b>Sampling Theory and Design of Experiments</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. III</b>	<b>Paper I</b> (Code No. 0907): <b>Applied Statistics</b>	50
	<b>Paper II</b> ( Code No. 0908): <b>Statistical Quality Control and Computational Techniques</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>

**B.A. /B.Sc. –I**  
**Subject-Statistics**  
**Paper – I ( Paper Code-0803)**  
**PROBABILITY THEORY**

**Unit-I**

Important concepts in probability: Random experiment: trial, sample point and sample space, event, Operations of events, concepts of mutually exclusive and exhaustive events. Definition of probability: classical and relative frequency approach. Richard Von Misses, Cramer and Kolmogrove approaches to probability, merits and demerits to these approaches, any general idea to be given. Discrete probability space, Properties of probability based on axiomatic approaches, Independence of events, Conditional probability, total and compound probability rules, Baye's theorem and its applications.

**Unit-II**

Random variables: Definition of discrete random variable (rv); probability mass function (pmf) and cumulative distribution function (cdf). Joint pmf of several discrete rvs. Marginal and conditional pmfs. Independence of rvs. Idea of continuous random variables, probability density function, illustration of random variables and its properties. Expectation of a random variable and its properties -moments, measures of location and dispersion, skewness and kurtosis, Moment generating function, raw and central moments, Probability generating function (pgf) and, their properties and uses.

**Unit-III**

Standard univariate discrete distributions: degenerate, discrete uniform, hypergeometric, Poisson, geometric and negative binomial distributions. Marginal and conditional distributions, Distributions of functions of discrete rvs, reproductive property of standard distributions.

**Unit-IV**

Univariate continuous distributions and their properties: Uniform, Beta, Gamma, Exponential, Normal, Cauchy, Lognormal. Moment generating function (mgf) : its properties and applications. Tchebycheff's inequality and applications, statements and applications of weak law of large numbers and central limit theorems.

**Unit-V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Bhat B.R., Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2. Chung, K.L. (1979). Elementary Probability Theory with Stochastic Processes, Springer International Student Edition.
3. Edward P.J., Ford J.S. and Lin (1974): Probability for Statistical Decision-Marketing. Prentice Hall
4. Goon A.M., Gupta M.K. and Dasgupta B.(1999): Fundamentals of Statistics, Vol. I , World Press, Calcutta
5. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, Mc. Graw Hall.

### **ADDITIONAL REFERENCES:**

6. Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. David Stirzaker (1994). Elementary Probability, Cambridge University Press.
8. Feller, W. (1968). An Introduction to Probability Theory and its Applications, Wiley.
9. Hoel P.G. (1971): Introduction to Mathematical Statistics
10. Mayer P.L. (1970): Introductory Probability and Statistical Applications, Addition Wesley
11. Mukhopadhyay, P. (1996). Mathematical Statistics, New Central Book Agency, Calcutta.
12. Parzen, E. (1960). Modern Probability Theory and its Applications, Wiley Eastern.
13. Pitman, Jim (1993). Probability, Narosa Publishing House.

**Paper – II( Paper Code-0804)**  
**DESCRIPTIVE STATISTICS**

**Unit - I**

Origin and Development of statistical importance, uses and limitations of Statistics. Types of Data: Concepts of a statistics population and sample from a population; qualitative and quantitative data; nominal and ordinal data; cross sectional and time series data; discrete and continuous data; frequency and non-frequency data.

Collection and Scrutiny of Data; Primary data – designing a questionnaire and a schedule; checking their consistency. Secondary data – their major sources including some government publications. Complete enumeration, controlled experiments, observational studies and sample surveys. Scrutiny of data for internal consistency and detection of errors of recording. Ideas of cross-validation.

Presentation of Data: Construction of tables with one or more factors of classification. Diagrammatic and graphical representation of non-frequency data. Frequency distributions, cumulative frequency distributions and their graphical and diagrammatic representation – column diagram, histogram, frequency polygon and ogives. Stem and leaf chart. Box plot.

**Unit -II**

Analysis of Quantitative Data: Univariate data: Concepts of central tendency or location, and their measures; arithmetic, geometric and harmonic mean, median and mode.

**Unit -III**

Dispersion and relative measures of dispersion, skewness and kurtosis, and their measures including those based on quartiles and moments. Sheppard's corrections for moments for grouped data (without deviation).

**Unit -IV**

Bivariate data: Scatter diagram. Product moment correlation coefficient and its properties. Coefficient of determination. Correlation ratio. Concepts of regression. intra - class correlation coefficient with equal and unequal group sizes. Rank correlation – Spearman's and Kendall's measures. Correlation index. Principle of least squares. Fitting of linear and quadratic regression and related results. Fitting of curves reducible to polynomials by log and inverse transformation. Multivariate data: Multiple regression, multiple correlation and partial correlation in 3 variables. Their measures and related results.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
- 2.Croxtan FE, Cowden DJ and Klein S: Applied General Statistics (1973): Prentice Hall of India.
- 3.Goon A.M., Gupta M.K., Dasgupta B. Fundamentals of Statistics, Vol. 1(1991) & Vol. 2(2001). World Press, Calcutta.
- 5.Gupta V.K. and Kapor S.C. : Fundamentals of Mathematical Statistics S. Chand and Sons.

**ADDITIONAI REFERENCES:**

- 6.Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, McGraw Hill.
- 8.Snedecor GW and Cochran WG: Statistical Methods (1967) : Lowa State University Press.
- 9.Spiegel, MR (1967): Theory & Problems of Statistics (1967): Schaum's Publishing Series.

## **Paper III**

### **Practical: Practical Based on Paper I & II**

1. Presentation of data by Frequency tables, diagrams and graphs.
2. Calculation of Measures of Central Tendency, dispersion , skewness and kurtosis
3. Product Moment Correlation and Correlation Ratio
4. Fitting of Curves by the least square method
5. Regression of two variables
6. Spearman's Rank correlation Coefficient
7. Multiple regression of three variables
8. Multiple correlation and partial correlation
9. Evaluation of probabilities using addition and multiplication theorems, conditional probabilities and Bayes theorems
10. Exercises on mathematical expectations and finding measures of central tendency, dispersion, skewness and kurtosis of univariate probability distributions
11. Fitting of univariate and conditional distributions

प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व  
Ancient India History, Culture and Archaeology

बी.ए. प्रथम वर्ष

B.A. Part I Year

पाठ्यक्रम  
Syllabus

सत्र : 2019–20

Session 2019-20

Dr. 31/05/19  
31/05/19

31-5-19

RA 31.5.19



**बी.ए. प्रथम वर्ष**  
प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व  
प्रथम : प्रश्न-पत्र  
**B.A. Part I Paper I**  
भारत का राजनीतिक इतिहास (पेपर कोड 0133)  
(हड़प्पा संस्कृति से 319 ई. तक)  
Political History of India (Harappa Culture to 319 A.D.)

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य छात्रों को संबंधित कालखण्ड के राजनीतिक इतिहास की समुचित जानकारी देना है।

- इकाई— 1 (1) प्राचीन भारतीय इतिहास के स्रोत (Sources of Ancient Indian History)  
(2) हड़प्पा तथा समकालीन ताम्रश्रम संस्कृतियाँ (Harappa and Contemporary Chalcolithic Culture)  
(3) वैदिक युग (Vedic Age)
- इकाई— 2 (1) महाजन पद युग (Mahajanpada Age)  
(2) मगध साम्राज्य का उत्कर्ष (Rise of Magadha Kingdom)
- इकाई— 3 (1) सिकन्दर का आक्रमण और उसके प्रभाव (Alexander's Invasion and its impact)  
(2) मौर्य साम्राज्य का उत्थान और उसके प्रभाव (Rise of Mauryan empire and its impact)
- इकाई— 4 (1) हिन्द-यूनानी (Indo-Greeks)  
(2) शुंग (Shungas)  
(3) सातवाहन (Satvahanas)  
(4) शक-क्षत्रप, पार्थियन (Shak-Kshatrapas, Parthiyans)  
(5) खारवेल (Kharvela)
- इकाई— 5 (1) संगम युग (Sangam Age)  
(2) कुषाण (Kushanas)  
(3) मालव, यौधेय, अर्जुनायन तथा औदुम्बर (Malavas, Yaudheyas, Arjunayana and Audumbara)  
(4) नागवंश (Nagas)

सहायक ग्रंथ :

- |  |  |
|--|--|
| 1. एच.सी. रायचौधरी                             | — प्राचीन भारत का राजनीतिक इतिहास                      |
| 2. के.ए. नीलकण्ठ शास्त्री                      | — दक्षिण भारत का इतिहास                                |
| 3. कृष्णदत्त बाजपेयी तथा विमलचन्द्र पांडेय     | — प्राचीन भारत का इतिहास                               |
| 4. विमल चन्द्र पांडेय                          | — प्राचीन भारत का राजनीति तथा सांस्कृतिक इतिहास भाग एक |
| 5. किरन कुमार थप्याल                           | — सैधव सम्यता  |
| 6. गुलाम, याजदानी (संपा.)                      | — दकन का इतिहास  |
| 7. राजबली पाण्डेय                              | — प्राचीन भारत   |
| 8. H.C. Roycoudhary                            | - Political History of Ancient India                   |
| 9. R.C. Majumdar (Ed.)                         | - The Age of Imperial Unity                            |
| 10. Romila Thaper                              | - History of India                                     |
| 11. K.A. Nilkanta Shastri                      | - History of South India                               |
| 12. व्ही.डी.झा. सुष्मिता पाण्डेय, डॉ.ओम प्रकाश | — Ashoka and the declaim of Moury empire               |

(24)  
31/05/19  
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31-5-19

**बी.ए. प्रथम वर्ष**  
प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व  
प्रथम : प्रश्न-पत्र  
**B.A. Part I Paper II**  
भारत का राजनीतिक इतिहास (319 ई.से 1300 ई. सन् तक)  
Political History of India (From 319 A.D. to 1300 A.D.)

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य विद्यार्थियों को संबंधित कालखण्ड के राजनीतिक इतिहास का समुचित ज्ञान प्रदान करना है।

- इकाई- 1 (1) गुप्तों की उत्पत्ति एवं प्रारंभिक इतिहास (Rise of Guptas and their early History)  
(2) चन्द्रगुप्त प्रथम, रामगुप्त, समुद्रगुप्त (Chandragupta – I, Ramagupta, Samudragupta)  
(3) कुमारगुप्त प्रथम, स्कन्दगुप्त (Kumargupta – I, Shandgupta)  
(4) वाकाटक राजवंश, गुप्त-वाकाटक सम्बन्ध (Vakataka Dynasty, Gupta Vakataka relation)

- इकाई- 2 (1) परवर्ती गुप्त राजवंश (Later Gupta Rulers)  
(2) मौखरी (Maukharis)  
(3) वर्धन राजवंश और हर्ष का प्रशासन (Vardhana Dynasty and Administration of Harsha)

- इकाई- 3 (1) बादामी के चालुक्य (Chalukyas of Badami)  
(2) कांची के पल्लव (Pallavas of Kanchi)  
(3) चोल तथा उनका प्रशासन (Cholas and their administration)

- इकाई- 4 (1) गुर्जर प्रतिहार (Gurjara Pratihara)  
(2) राष्ट्रकूट (Rashtrakutas)  
(3) पाल (Palas)  
(4) गाहड़वाल (Gahadwalas)

- इकाई- 5 (1) चन्देल (Chandela)  
(2) परमार (Parmaras)  
(3) चाहमान (Chahmanas)  
(4) त्रिपुरी के कलचुरि (Kalachuris of Tripuri)  
(5) रतनपुर के कलचुरि (Kalachuris of Ratanpur)

अनुशंसित पुस्तकें :

- |   |   |
|---|---|
| 1. उदयनारायण राय                        | – गुप्त राजवंश तथा उसका इतिहास (नया संस्करण) 1988                           |
| 2. श्री राम गोयल                        | – भारत का राजनैतिक इतिहास भाग 2 एवं 3                                       |
| 3. श्री राम गोयल                        | – गुप्त साम्राज्य का इतिहास   |
| 4. Ashvini Agrawal                      | – Rise and Fall of the imperial Gupta                                       |
| 5. विशुद्धानंद पाठक                     | – उत्तर भारत का राजनीतिक इतिहास   |
| 6. अवध बिहारी लाल अवस्थी                | – राजपूत राजवंश   |
| 7. डी.सी.गांगुली                        | – परमार राजवंश  |
| 8. भगवती प्रसाद पांथरी                  | – मौखरी और पुष्यभूमि राजवंश   |
| 9. डॉ.के.ए.नीलकंठ शास्त्री              | – दक्षिण भारत का इतिहास   |
| 10. डॉ.बैजनाथ शर्मा                     | – हर्षवर्धन   |
| 11. R.C. Majumdar & A.D. Pusalkar (Ed.) | – The Classicale Age “The age of Imperial Unity”<br>The Strangle for Empire |
| 12. Majumdar, Roy Choudhary             | – An Advanced History of India Vol. I                                       |

(24)  
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31/05/19

R.C. Majumdar  
31-5-19

R.C. Majumdar  
31-5-19

**DEFENCE - STUDIES**  
**PAPER - I**  
**INDIAN MILITARY HISTORY** **M.M. 50**  
**(Paper Code-0143)**

**AIM :** The main idea behind this paper is to give a conceptual background about the events and factors which influenced course of history and helped in developing the art of war in India.

**Note :** Questions will be set from each unit, There will be only internal choice.

**UNIT-11.** The definition and scope of Defence Studies and its relationship with other sub-jects.

2. Art of war of Epic and Puranic period.
3. Comparative study of Indo-Greek art of war with special reference to the Battle of Hydaspes 326 B.C.
4. Mauryan Military system and art of war.

**UNIT-21.** Kautilya's Philosophy of war.

2. Gupta's military system and art of war.
3. Military system of Harshavardhan.
4. Decline of Chariots and Importance of Elephant and Cavalry.

**UNIT-31.** Mughal military system.

2. Rajput and Turk pattern of warfare with special reference to Battle of Somnath and Battle of Tarain up to 12th century A.D.
3. Causes of the fall of Rajput Military system.
4. Army organization during Sultanate period.
5. Battle of Panipat 1526 A.D. and Battle of Haldighati 1576 A.D.

**UNIT-4 1.** Maratha Military system.

2. Warfare of Shivaji.
3. Battle of Assaye 1803 A.D.
4. Sikh Military system.
5. Battle of Sobraon 1846 A.D.

**UNIT-5 1.** 1857 Liberation Movement.

2. Reorganizations of Indian Army under the Crown.
3. Nationalization of Indian Army after independence.
4. Military reforms of Lord Kitchner's.

**READING LIST :**

- |                                       |   |               |
|---------------------------------------|---|---------------|
| 1. Military System of Ancient India   | : | B.K. Majumdar |
| 2. Generalship of Alexander the Great | : | J.F.C. Fuller |
| 3. Kautilya Arthashastra              | : | K.P. Kanbley  |
| 4. Military history of India          | : | J.N. Sarkar   |

**PAPER - II**  
**DEFENCE MECHANISM OF THE MODERN STATE**  
**(Paper Code-0144)**

**AIM :** To enable students to appreciate the importance of higher political direction in the for-mulation of national defence policy and roles as political and military leadership in fur-thering national security.

**Note :** Question will be from each unit, there will be only internal choice.

**UNIT-1** 1. Evolution of National defence policy.

2. Inter dependence of Foreign, Defence and Economics policies.
3. Higher defence organization of U.S.A., U.K. and RUSSIA.
4. Higher defence organization of CHINA, PAKISTAN and NATO.

**UNIT-2** 1. Higher defence organization in India.

2. Powers of President and relation to Armed forces.
3. Parliament and the Armed forces.
4. Defence (Political affair) committee of the cabinet. Its composition, methods of working during war and peace.
5. National Defence Council and its Valiant.

**UNIT-3** 1. Organization of Ministry of Defence.

2. Organization of Army head quarter.
3. Organization of Naval head quarter.
4. Orgatiization of Air head quarter.

**UNIT-4** 1. Organization and role of Para-militaty forces - B.S.F., I.T.B.P., C.I.S.F. etc.

2. Organization and role of Intelligence Agencies - RAW, CBI, CID., IB etc.
3. Military Intelligence.
4. Role of N.C.C. in preparing youth for Defence services.

**UNIT-5** 1. Organization of Civil - defence.

2. Importance and role of civil defence during war and peace.
3. Air-Raid signal and precaution before and after bombardment.
3. Role of Indian armed forces in war and peace.

**READING LIST :**

1. Indian Army, A Sketch of its History & Organisation : E.H.E. Choen  
: Venkateshwar m
2. Defence Organization in India

## **PRACTICAL**

**M.M. : 50**

There shall be practical examination of 3 hours duration and carrying 50 marks. The distribution of marks shall be as follows -

- |                                   |   |           |
|-----------------------------------|---|-----------|
| 1. Exercises based on Map reading | : | 20 Marks  |
| 2. Exercises based on models      | : | 10 Marks  |
| 3. Sessional Work and Record      | : | 10 marks  |
| 4. Viva-Voce                      | : | 10 marks, |

## **PART - A**

### **ELEMENTARY MAP READING**

1. Maps- Definition, types, Marginal Information.
2. Conventional signs - Military and Geographical.
3. Direction and cardinal points.
4. Types of North, Angle of Convergence.
5. Study of Liquid compass, its parts, various tactical uses and preparation of Night navigation chart.
6. service Protractor and its uses.
7. To find North by Compass, Watch, Sun, Stars etc.
8. Bearing and interconversion of bearing.
9. Setting of Map.
10. Grid System.

## **PART - B**

### **RECOGNITION & ELEMENTRY STUDY OF FOLLOWING MODELS**

1. equivalent Rank and Badges of Indian Army, Navy and Air Force.
2. Famous Armoured vehicles used in war.
3. Weapons used in Infantry.
4. Various Ships of Indian Navy.
5. Famous Air-Crafts Used by Air-Force.

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## पाठ्यक्रम उर्दू निसाब

नोट : इस इम्तेहान में दो पर्चे में 75 नम्बर पर मुश्तमिल होगा।

1. नस्र

2. नज्म

### पहला पर्चा

नस्र( पेपर कोड— 0129)

(सवानेह, खाके, इन्शाईये)

#### निसाब

##### 1. सवानेह :

1. गालिब के सवानेही हालात —' यादगारे गालिब ' के मुसन्निक अल्लाफ हुसैन हाली
2. शिब्ली की बेनियाजी और खुद्दारी शिब्ली ' से सैयद सुलेमान नदवी
3. नजीर अहमद की कहानी : ' कुछ मेरी, कुछ उनकी जबानी ' मुसन्निक फरहत उल्ला बेग

##### 2. खाके :

1. नामदेव माली : चन्द्र हम अस्र से मुसन्निक मौलवा अब्दुल हक
2. हकीम अजमल खां : 'खिमालिस्तान ' सज्जाद हदर यलद्रम'
3. अकबर इलाहाबादी :इन्शाएं माजिद हिस्सा—2 मुसन्निक अब्दुल माजिद दरयावादी
4. जिगर साहब : 'सहाब' से मुसन्निक मोहम्मद तुफैल
5. मौलाना अब्बुल कालाम आजाद : 'अब्बुल कालाम आजाद' से मुसन्निक ख्वाजा सहन निकामी

##### 3. इन्शाईये :

1. तास्सुब : 'मजामीने सर सैयद' सर सैयद
2. मुझे मेरे दोस्तों से बचाओ : 'खिमालिस्तान' सज्जाद हदर यलद्रम
3. शहजादे का बाजार में घिसटना : गदरे देहली के अफसाने सुसन्निक सहन निजामी
4. स्बरे जो कल आंख मेरी खुली : 'मजामीने पितरस' अज पितरस बुखारी
5. बरसात : निगारिस्तान अज नियाज फतहपूरी
6. शायर होना क्या माने रखना है : अज रशीद अहमद सिद्दीकी

## पर्चा प्रथम

नोट : मुन्दरजा बाला पर्चा पांच इकाईयों में तफसीम होगा ।

### इकाई-1

1. सवाने, निगारी, खाका निगारी और इन्शाईया निगारी पर सवालात नंबर 15
2. शामिले निशाब हसबाफ पर सवाल नंबर 15
3. शामिले निशाब खाकों पर सवालात नंबर 15
4. शामिले निशाबइन्शाईयों पर सवालात नंबर 15
5. शामिले निशाब असबाफ सवानेही और इन्शाईयों में इक्तेबायात की तशरीह 15 नंबर

## पर्चाद्वितीय (शायरी) गजलियात (पेपर कोड – 0130)

निसाब :

### (1) बली :

1. याद करना हर घड़ी उस यार का
2. शराबे शौक से सरशार हैं हम

### (2) मीर तरी मीर :

1. उल्टी हो गई सब तदवीरें
2. मुहं तकाही करें है जिस तिस का

### (3) गालीब :

1. दिल ही ताक है न संगो खिश्त दर्द से भर आये क्यो
2. यह न थी हमारे किस्मत के विसाले यार होता

### (4) मौमिन :

1. अगर उसकी जरा नहीं होता
2. गैरो पर खुल न जाएं कही राज देखना

### (5) आतिश :

1. मगर उसको फरेबे नर्गिये मस्ताना आता है
2. हवाएं दौरे गए खुशगवार राह में है



**(6) दाग देहलावी :**

1. खातिर से या खअयाल से मैं मान तो गया
2. गाब किया तेरे बादे पे एतेवार किया

**(7) सिरज मिर खां सैहर**

1. सोने में दिल है दिल में दाग
2. वक्ते जिबाह मुहं फिर गया शमशीरे कातिल का

**(8) डॉ. इकबाल**

1. कभी ये हकीकते मुसुन्तजिर नजर आ लिबाजे गजाज
2. फिर चरागे लाबा से रोशन हुए कोहो दमन

**(9) हसरत मौहानी**

1. रस्मे जफा कामयाब देखिए कब तक रहे
2. हुस्ने बे परवा को कुद बीन खुद आरा कर दिया

**(10) फानी बदायूरी**

1. खल्क कहती है जिसे दिल तेरे दिवाने का
2. दुनियां मैरा बला जाने मेंहगी है के सस्ती है

**(11) जिगर मुरादाबादी**

1. दिल गया रोकने हायत गई
2. सेरले खिदर ने दिल यह दिखाएं

**(12) फराक गौरखपुरी**

1. निगारे नाज दे पर्दे उठाए है क्या—क्या
2. बहुद पहले से उन कदमों की आहट जान लेते है

**(13) मजरूम सुलतान पुरी**

1. जला के मशअले जौ हम जुन सिफात चले
2. मुझे सहल हो गई मंजिले

**(14) ताल भोपाली**

1. मैं हूं गदाए हुस्न न यूँ हँस के टाल दे
2. है अजब भीड़ भाड़ सड़कों पर

**(15) जौ निसार अख्तर**

1. हम से भागा न करो दूर गजालो की तरह
2. न ख्वाब, खलिश न खुमार यह आदमी तो कोई सानेहा लगे है मुझे

(16) खलील उर्रेहमान आंजमी

1. हम जिन्दगी की साज पे गाते रहे नगमा तेरा
2. मै सूने मकान का दिया हूँ

(17) फजला ताबिशं

1. एक दो धोखे हो तो यारो दिल रखने को खा भी लो
2. न कर शुमार के हर शै गिनी नहीं आती

इकाईयां : इकाई नं.

- |                                       |          |
|---------------------------------------|----------|
| 1. गजल से मुजाल्लिक सवालात            | 15 नम्बर |
| 3. कदीम शुअरा पर तन्दीकी सवालात       | 15 नम्बर |
| 4. जरीद गजल गो शुअरा पर सावालात       | 15 नम्बर |
| 5. कदीम गजल गो शुअरा के अशआर की तशरीह | 15 नम्बर |
| 6. जदीद गजल गो शुअरा के अशआरकी तशरीह  | 15 नम्बर |

## M.M.: 50

NIT-1	Structure & functions of cell general introduction of Tissue and their functions skeletal system - Types of bones, classification general structure & functions of bones. Muscular system - General structure, types and function.
UNIT-2	Circulatory system - General structure of organs and functions, composition of blood & function. Respiratory system - General structure of organs and functions.
UNIT-3	Digestive system - General introduction of Nutrients, Liver and spleen organs of digestion their general structure and function. Excretory system - organs of excretion. Kidney & skin - structure & function.
UNIT-4	Nervous system - Central nervous system structure and function. Senses and Sensory organs - ear and eye structure & function.
UNIT-5	Hygiene - Personal Hygiene Social Hygiene Environmental and Industrial Hygiene Water - its importance and purification. Air - its importance and purification. First aid home nursing - Principles, qualities of nurse, Responsibilities, selection of sick room, care of the patient. Some common accidents and their aid, poison, bleeding, Burns and scalds, fracture sprain, dislocation.

11/16/00

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## HOME SCIENCE

### Paper – II

## HOME SCIENCE - EXTENSION EDUCATION

(Paper Code-0122)

### UNIT-1 Introduction of Home Science Extension

#### Education:

- (A) Home Science - Concepts, goals and Areas of Home Science & their inter relationship with extension.
- (B) Principles and methods of home science extension education general concepts of extension work.
- (C) Objectives of extension education qualities of extension workers, extension education process.

### UNIT-2 Community Development problems and Role of Home Scientists:

- (A) Principles of community development organization and function of community development.
- (B) Role of home scientists in community development, programmes of extension education for community, programmes of community development at central, state, district, block and village level.  
Family planning programme.  
Community problems, child marriage, Dowry system, parda pratha, rural indebtedness unemployment.

### UNIT-3 Teaching methods & aids:

Methods of learning - Discussion, demonstration, observation and their application to home science teaching.

Extension Methods - their scope advantages and application. scope and use in Home Science teaching

Extension Methods - their scope advantages and application.

### UNIT-4 Attitude towards Home Science:

Attitudes towards Home Science, Motivation towards Home Science. Application of Home Science towards improvement in family living. Job opportunities in Home Science National and International agencies and their

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13.6.19  
A. Singh  
13.06.19  
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collaboration with Home Science, Official organization Home Science Association of India, W.H.O. FAG, CARE, ICAR, ICDS, ICSSR, ICMR, IRDR Adult education.

#### **UNIT-5 Curriculum Planning in Home Science:**

Basic concept of curriculum planning components of curriculum planning imple. Mentation evolution' and improvement required in the existing system of H.Sc. education policy and its relevance to H.Sc. Programme planning- concept, principles objectives and steps in programme planning.

#### **REFERENCE:**

1. Extension -education and community development by Dhama O. P.
2. Co-operative Extension Work by Kelsey, L.D. and Reame C. R.
3. Extension education, Shri Lakshmi press by Reddy A. A.
4. An Introduction to programme evaluation John Wiley, Fracklin, J.K. & Thrashe / J.H.

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## प्रायोगिक

कुल समय 3 घंटे

कुल अंक-50

### अंको का विभाजन

1. स्पेशल	10
2. प्राथमिक उपचार	10
3. गृह परिचर्या	15
4. शरीर रचना एवं स्वास्थ्य विज्ञान	15

स्पेशल : (परीक्षा के समय छात्राएं प्रायोगिक नोट बुक एवं उपचार पेटी जमा करें।)

प्रयोग क्रमांक -1 रिपोर्ट : कालेज की कक्षाओं का प्रतिदिन की सफाई एवं वायुविज्ञान संबंधित निरीक्षण।

प्रयोग क्रमांक - 2 स्वयं के परिवार में पीने के पानी के प्राप्ति के साधन, संग्रह के प्रकार एवं साधन पानी की शुद्ध एवं स्वच्छता के लिये प्रयुक्त विधि।

प्रयोग क्रमांक -3 रिपोर्ट : स्वयं के परिवार एवं अन्य दो पड़ोसी परिचर्यवार के घर में अगरस्त से दिसम्बर ( अनुमानत : पांच महीने) के दौरान हुई बीमारियों के संबंध में जानकारी।

1. रोग का नाम।
2. प्राथमिक उपचार- जो दिया गया।
3. आहार (जो उपयोग में लाया गया)

प्रयोग क्रमांक - 4 प्राथमिक उपचार पेटी (आवश्यक सामान)

1. घाव धोने एवं बांधने का सामान।
2. दर्द कम करने की दवाईयां।
3. अपाचन- में प्रयुक्त दवाईयां।

प्राथमिक उपचार पेटी छात्राएं परीक्षा के समय अपना नाम एवं परिवार के सदस्यों की संख्या लिखकर प्रस्तुत करें।

प्रयोग क्रमांक - 5 रोगी के लिये उपचारात्मक व्यंजनो का अध्यापक द्वारा करके बताना।

1. सब्जियों का सूप।
2. दाल का सूप।
3. उबला अंडा।
4. फटे दूध का पानी (छे वाटर)
5. सब्जी एवं फलों का स्टू

इन व्यंजनो की विधि एवं उपयोगिता नोट बुक में अंकित की जावेगी।

प्रयोग क्रमांक - 6 प्राथमिक उपचार

1. विभिन्न प्रकार की पट्टियां (तिकोनी, गोल)
2. घाव की देखभाल।
3. कृत्रिम श्वसन।

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प्रयोग क्रमांक - 7 गृह परिचर्या

1. शरीर के तापमान का चार्ट
2. गरम एवं ठंडे पानी की थैली तैयार करना।
3. बिस्तर लगाना/चद्दर बदलना।

प्रयोग क्रमांक- 8 दृष्य श्रव्य यंत्र का बनाना।

महत्वपूर्ण निर्देश- प्रयोग क्रमांक 1, 2, 3 तथा 5 की रिपोर्ट छात्राओं द्वारा प्रायोगिक नोट बुक में लिखकर एवं अध्यापक द्वारा प्रति हस्ताक्षरित/प्रमाणित करवाकर परीक्षा के समय प्रस्तुत की जावेगी।

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**INSURANCE PRINCIPAL & PRACTICE (Paper Code-0139)**

**PAPER - I**

**LIFE INSURANCE :**

**M.M. : 50**

- UNIT-1** Introduction :  
Need for security against economic difficulties, Risk and uncertainty, Individual value system, Individual, Life Insurance Nature and uses of Life Insurance, Life Insurance as a collateral, as a measure of financing business continuation, as a protection to property, as a measure of investment.
- UNIT-2** Life Insurance Contract :  
Distinguishing characteristics, Utmost Good Faith, Insurable Interest, Caveat Emptor, Unilateral and aleatory nature of contract, proposal and application form, Warranties Medical examination, policy construction and delivery, policy provision, lapse revival, surrender value, paid-up policies, maturity, nomination and assignment. Suicide and payment of insured amount, Loan, to policy holders.
- UNIT-3** Life Insurance Risk :  
Factors governing sum assured, Methods of calculating economic risk in life insurance proposal. Measurement of risk and mortality table, Calculation of Premium, Treatment of sub-standard risks. Life Insurance Fund, valuation and investment of surplus, Payment of bonus.
- UNIT-4** Life Insurance Policies :  
Types and their applicability to different. Situations, Important life Insurance Policies issued by the life Insurance Corporation of India. Life Insurance annuities. Important legal provisions and judicial pronouncements in India.
- UNIT-5** Salesmanship  
Life Insurance p :  
Rules of agency Essential qualities of an ideal insurance salesman, Rules to canvass business from prospective customers, After-sale service to policy holders.

**GENERAL INSURANCE (Paper Code-0140)**

**PAPER - II**

**M.M. :**

**50**

**UNIT-1** 1. Introduction to risk and insurance.

(A) Risk (B) The treatment of Risk

2. The structure and operation of the insurance business.

**UNIT-2** (a) Insurance contract fundamentals.

(b) Insurance marketing.

(c) Insurance loss payment.

(d) Underwriting, rating, reinsurance, and other functions.

**UNIT-3** General Insurance corporation and other Insurance institutions.

Working of GIC in India; Types of risks assumed and specific policies issued by ECGC.

**UNIT-4 Health Insurance :**

(a) Individual health insurance.

(b) Group health insurance.

**UNIT-5** (a) Motor Insurance.

(b) Multiple line and all lines Insurance such as rural Insurance - Hull Insurance-etc.

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## FUNCTIONAL ENGLISH

(Paper Code-0137)

### PAPER - I

M.M. : 50

- UNIT-1 (a) Linguistics and Phonetics.  
(b) Phonology.
- UNIT-2 (a) The Organs of Speech  
(b) Speech Sounds - Vowels and Consonants
- UNIT-3 Consonant Clusters in English
- UNIT-4 Phonetic symbols
- UNIT-5 Transcriptions  
Based on a text of English Phonetics for Indian students by Bal-sybramanium.

## FUNTIONAL ENGLISH

(Paper Code-0138)

### PAPER - II

M.M. : 50

- UNIT-1 Articles, Parts of Speech, Linking Verbs Negative sentences.  
Questions, Agreement of verb and subject, Transitive and Intransitive regular
- UNIT-2 and in-  
regular verbs.
- UNIT-3 Tenses
- UNIT-4 Question Tags, Transformetin Active and Passive Voice, Direct and Indirects S
- UNIT-5 Common Errors in English.  
Based on F.T. words Grammer

Dr. M. C. Chakraborty  Dr. S. Gupta  DR. MERILY ROY 

**VIVA - VOCE**  
**SYALLABUS FOR THEORY AND PRACTICAL**

(Drawing and painting)

M.M. 50

B.A. (Drawing and painting) course is divided into three parts : B.A. I<sup>st</sup> year, B.A. II<sup>nd</sup> year, B.A. III Year, all Examination is conducted by University for all class Maximum marks will be 150 the three parts details are as under :-

**B.A. I<sup>st</sup> Year**  
**SESSION – 2019-20**

**THEORY FUNDAMENTAL OF PAINTING (ART)**

**The Time Of Theory Paper Is Three Hours**      M.M. : 50

1. Defination of Art
2. Classificaction of Art
3. Elements of painting - Line, Form, Colour, Tone, Texture, Space.
4. Shadang - Rupa Veda, Pramanani, Bhava, Labanya, Yojan, Sadrusya, Varnika Bhang.

**BOOK RECOMMENDED :**

- |                        |   |               |
|------------------------|---|---------------|
| 1. Still life Painting | - | Richmend.     |
| 2. Akar Kalpna         | - | Ranbir Saxana |
| 3. Chirta Sayanjan     | - | P. N. Choyal  |
| 4. Kala ke mull Tatya  | - | Dr. C. L. Jha |



## PRACTICAL

There will be Two Practical Paper Evaluation will be made by the external and the internal examiners. Together, and Sessional Marking is made by the class Teacher.

\* The time of each paper is four hour's and there will be a half hour's recess in between.

## STILL LIFE

(Paper Code-0150)

PAPER - I

SESSION - 2019-20

Scheme of Examination  
Time - 4 Hours  
Paper - 1/4 Imp Size  
Medium - Water Colour

Total Mark - 50  
Examination - 40  
Sessional - 10

**Class Work** - Minimum work to be Submitted. Five Paining Size 1/4 IMP  
Any type of still object will be drawn books, flower pot's Fruits etc.

## BASIC DESIGN

(Paper Code-0150 A)

PAPER - II

SESSION - 2019-20

Scheme of Examination  
Time - 4 Hours  
Paper - 1/4 Imp Size  
Medium - Water Colour or Poster Colour

Total Mark - 50  
Examination - 40  
Sessional - 10

**Class Work** - Minimum work to be Submitted. Five Paining Size 1/4 IMP  
Form of natural element and object will be decorated and repeated. Form like Flower, leaf, fruits, pot. Ball and Geometrical design will be drawn and painted with water colour and poster colour.

Three handwritten signatures are present. The first signature is on the left, the second is in the middle, and the third is on the right with the date '14/06/19' written below it.

**B.A. EDUCATION PART - I**  
**PAPER - I**  
**EDUCATION AND SOCIETY**  
**(Paper Code-0123)**

**M.M. 75**

**COURSE OBJECTIVES**

To enable the students to understand -

1. The general aims of Education alongwith Nature types and Scope of educations.
2. Meaning of Major Philosophies of education and function of education.
3. Meaning of curriculum and its Planning and Construction.
4. The Importance of Play and activity oriented education and Modern Methods of Teaching.
5. Specific aims of education as per the present day needs.

**UNIT-1** Nature and Scope of Education, Education as a Science, Education as a Social Process, Factors of Education.

- Aims of Education-Individual, Social, Vocational and Democratic.
- Formal, informal and non formal agencies of education, Relation between School and Society.

**UNIT-2** • School a Miniature Society.

- Education and State-To talitarian and Democratic concepts, State Control over Education, Nature.
- Centralization and Decentralization.

**UNIT-3**

- Curriculum definition, Types of Curricula. Principles of Curriculum Construction,
- Child Centred and Life Centred Curricula.
- Co-Curricular activities.
- Education and Craft, Principle of Basic Education.
- Freedom and Discipline, Need of discipline in and out of school, discipline and
- Order, Free disciplin

#### **UNIT-4**

- Value Education, MEaning of Human Values. Their development, Some Transactional Strategies.

#### **UNIT-5** Education for National Integration, I nternational understanding and education for Human resource development, Education for Licture. Secularism and Education.

Shiksha Sidhant - Pathak and Tyagi - Vinod Pustak Mandir, Agra.

**PAPER - II**  
**PROBLEMS OF**  
**EDUCATION**  
**(Paper Code-0124)**

**M.M.**  
**75**

- UNIT-1** ● Problems and suggestions for improvement in Primary Educn.  
● Problems and suggestions for improvement in Secondary Educn.
- UNIT-2** ● Problems and Suggestions for improvement in Higher Educn.  
● Problems and Suggestions for improvement in Teacher Educn.
- UNIT-3** ● Problems and Suggestions for improvement in Women Educn.  
● Problems and Suggestions for improvement in Adult Educn.
- UNIT-4** ● Problems and Suggestions for improvement in Technical Education.  
● Problems and Suggestions for improvement in Distance Education.
- UNIT-5** ● Problems and Suggestions for improvement in Population Education.  
● Problems and Suggestions for improvement in Environmental Education.

**BOOK RECOMMENDED :**

- |     |                   |   |  |
|-----|-------------------|---|--|
| 1.  | A. Mishra         | - | The Financing of Indian Education.     |
| 2.  | Nurullah and Naik | - | A History of Education in India.       |
| 3.  | S. N. Mukherjee   | - | Education in India Today and Tomorrow. |
| 4.  | K.G. Saiyad       | - | Problems of Education Reconstruction.  |
| 5.  | Mahatma Gandhi    | - | Our Language Problems.                 |
| 6.  | S.R. Dongerkerry  | - | University and their Problems.         |
| 7.  | R.V. Parulacker   | - | Literacy in India.                     |
| 8.  | G. Ghaurasia      | - | New Era in Teacher Education.          |
| 9.  | J.P. Naik         | - | Education Planning in India.           |
| 10. | J.C. Agrawal      | - | Progress of Education in India.        |

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# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका दुर्ग (छ.ग.)-491001

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दूरभाष : 0788-2359400

क्र. 2960/A / अका. / 2020

दुर्ग, दिनांक 10/9/2020

प्रति,

प्राचार्य,  
समस्त संबद्ध महाविद्यालय,  
हेमचंद यादव विश्वविद्यालय,  
दुर्ग (छ.ग.)

विषय:- स्नातक स्तर भाग-दो के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर भाग-दो के निम्नलिखित कक्षा/विषयों के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2020-21 से लागू किये जाते हैं:-

1. बी.ए. - आधार पाठ्यक्रम-हिन्दी भाषा, हिन्दी साहित्य, राजनीतिशास्त्र, अर्थशास्त्र, नृत्य, दर्शनशास्त्र, समाजशास्त्र, इतिहास, मानवविज्ञान, संस्कृत, सांख्यिकी प्राचीन भारतीय इतिहास, भूगोल, मनोविज्ञान
2. बी.एस-सी.- आधार पाठ्यक्रम-हिन्दी भाषा, जीव विज्ञान, मानवविज्ञान, बायोटेक्नोलॉजी, कम्प्यूटर साईंस, गणित, भौतिक शास्त्र, प्राणीशास्त्र, सूक्ष्मजीव विज्ञान, वनस्पतिशास्त्र, भूविज्ञान, इलेक्ट्रॉनिक्स, रसायन शास्त्र, सांख्यिकी, भूगोल।
3. बी.ए./बी.एस.सी (गृह विज्ञान) - आधार पाठ्यक्रम - हिन्दी भाषा एवं गृह विज्ञान।

उपरोक्त विषयों को शिक्षा सत्र 2020-21 से संशोधित रूप में स्नातक स्तर भाग-दो के लिए लागू किया जाता है स्नातक स्तर भाग-एक हेतु सत्र 2019-20 में लागू पाठ्यक्रम मान्य होंगे एवं भाग - तीन के पाठ्यक्रम यथावत रहेंगे।

टीप:- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय के परीक्षा विभाग एवं वेबसाइट पर प्रकाशित करने हेतु वेबसाइट प्रभारी को उपलब्ध करा दी गई है।


  
कुलसचिव

क्र. 2961/A / अका. / 2020

दुर्ग, दिनांक 10/9/2020

प्रतिलिपि:-

1. संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019 परिपेक्ष्य में सूचनार्थ।
2. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद यादव विश्वविद्यालय, दुर्ग।
3. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद यादव विश्वविद्यालय, दुर्ग।

  
सहा. कुलसचिव (अका.)

## **REVISED ORDINANCE NO.11**

(As per State U.G.C. Scheme)

### **BACHELOR OF ARTS**

1. The three year course have been broken up into three Parts.  
Part-I Examination : at the end of the first year.  
Part-II Examination : at the end of the second year and  
Part-III Examination : at the end of the third year.
2. A candidate who after passing (10+2) or Intermediate Examination of C.G. Board of Secondary Education, Raipur or any other examination recognised by the University or C.G. Board of Secondary Education as equivalent thereto, has attended a regular course of study in an affiliated college or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.A. Part-I examination.
3. A candidate who after passing B.A. Part-I examination of the University or any other examination recognised by the University as equivalent thereto has attended a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.A. Part II Examination.
4. A candidate who after passing B.A. Part II examination of the University has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.A. Part-III examination.
5. Besides regular students, subject to their compliance with this ordinance, ex-students and non-collegiate candidates shall be eligible for admission to the examination as per provisions of Ordinance N. 6 relating to Examinations (General). Provided that non-collegiate candidates shall be permitted to offer only such subjects/papers as are taught to the regular students at any of the University Teaching Department or College.

6. Every candidate for the Bachelor of arts examination shall be examined in :
- A. Foundation Course:
- I - Group - Hindi Language
  - II - Group - English Language
- B. Three Course subjects : One subject from any
- three groups out of the following six groups :
1. Sociology/Ancient Indian History Culture and Anthropology.
  2. Political Science/Home Science / Drawing & Painting / Vocational Course.
  3. Hindi Literature/Sanskrit Literature /Urdu Literature/Mathematics
  4. Economics/Music/Defence studies / Linguistics.
  5. Philosophy/Psychology/Geography/Education/Management.
  6. History/English Literature/Statistics.
  7. Practicals (if necessary) for each core subject.
7. Any candidate who has passed the B.A. examination of the University shall be allowed to present himself for examination in any of additional subjects prescribed for the B.A. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.A. Part I examination in the subject which he proposes to offer and then the B.A. Part II and Part III examination in the same subject. Successful candidate will be given a certificate to that effect.
8. In order to pass at any part of the three year degree course examination, an examinee must obtain not less than 33% of the total marks in each subject/group of subjects. In subject/group of subjects, where both theory and practical examination are provided, an examinee must pass in both theory and practical parts of the examination separately.
9. Candidate will have to pass separately at the Part-I, Part II and part-III examination. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the Final examination, total marks obtained by the examinees, in their Part-I, Part-II and Part-III examination in the aggregate shall be taken into account. Candidate will not be allowed to change subjects after passing Part I Examination.

Provided in case of candidate who has passed the examination through the supplementary examination having failed in one subject only the total aggregate marks being carried over for determining the division shall include the actual marks obtained in the subject in which he appeared at the supplementary examination.

10. Successful examinees at the Part-III examination obtaining 60% or more marks shall be placed in the First division, those obtaining less than 60% but not less than 45% marks in the Second division and other successful examinees in the third division.

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# SCHEME OF EXAMINATION

Subject	Paper	Max. Marks	Min. Marks
i) Environmental Studies		75	
Fild Work		25	33
A. Foundation Course			
i) Hindi Language - I		75	26
ii) English Language - II		75	26
B. Three Core Subject :			
1. Hindi Literature	I	75	
	II	75	50
2. Sanskrit Literature	I	75	
	II	75	50
3. English Literature	I	75	
			50
	II	75	
4. Philosophy	I	75	
			50
	II	75	
5. Economics	I	75	
			50
	II	75	
6. Political Science	I	75	
	II	75	50
7. History	I	75	
	II	75	50
8. Ancient Indian History	I	75	
Culture & Archaeology	II	75	50
9. Sociology	I	75	
	II	75	50
10. Geography	I	50	
			33
	II	50	
	Practical	50	17
11. Mathematics	I	50	
	II	50	50
	III	50	
12. Statistics	I	50	
	II	50	33
	Practical	50	17
13. Anthropology	I	50	
			33
	II	50	
	Practical	50	17

14. Linguistics	I	75	50
	II	75	
15. Indian Music	I	50	33
	II	50	
	Practical	50	17
16. Home Science	I	50	33
	II	50	
	Practical	50	17
17. Education	I	75	50
	II	75	
18. Psychology	I	50	33
	II	50	
	Practical	50	17
19. Management	I	75	50
	II	75	
20. Defence Studies	I	50	33
	II	50	
	Practical	50	17
21. Urdu	I	75	50
	II	75	
22. Dance	I	50	33
	II	50	
	Practical	50	17
23. Vocational Course	I	50	33
	II	50	
	Practical	50	17

### USE OF CALCULATORS

The Students of Degree/P.G. Classes will be permitted to use of Calculators in the examination hall from annual 1986 examination on the following conditions as per decision of the standing committee of the Academic Council at its meeting held on 31-1-1986-

1. Student will bring their own Calculators.
2. Calculators will not be provided either by the university or examination centres.
3. Calculators with, memory and following variables be permitted +, -, x, , square, reciprocal, expotentials log, square root, trigonometric functions, wize, sine, cosine, tangent etc. factiorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

संशोधित पाठ्यक्रम  
बी.ए./बी.एस-सी./बी.कॉम./बी.एच.एस.-सी.  
भाग - दो, आधार पाठ्यक्रम  
प्रश्न पत्र - प्रथम (हिन्दी भाषा) (पेपर कोड - 0171)

पूर्णांक- 75

खण्ड - क निम्नलिखित 5 लेखकों के पाठ शामिल होंगे -

अंक-35

- |                        |   |                          |
|------------------------|---|--------------------------|
| 1. महात्मा गांधी       | - | चोरी और प्रायश्चित       |
| 2. आचार्य नरेंद्र देव  | - | युवकों का समाज में स्थान |
| 3. वासुदेव शरण अग्रवाल | - | मातृभूमि                 |
| 4. हरि ठाकुर           | - | डॉ. खूबचंद बघेल          |
| 5. पं. माधवराव सप्रे   | - | सम्भाषण-कुशलता           |

खण्ड-ख हिन्दी भाषा और उसके विविध रूप

अंक-16

1. कार्यालयीन भाषा
2. मीडिया की भाषा
3. वित्त एवं वाणिज्य की भाषा
4. मशीनी भाषा

खण्ड-ग हिन्दी की व्याकरणिक कोटियाँ

अंक-24

संज्ञा, सर्वनाम, विशेषण, क्रिया विशेषण,  
समास, संधि एवं संक्षिप्तियाँ  
अनुवाद व्यवहार : अंग्रेजी से हिन्दी में अनुवाद

इकाई विभाजन-

- |         |   |
|---------|---|
| इकाई- 1 | चोरी और प्रायश्चित : महात्मा गांधी / कार्यालयीन भाषा, मीडिया की भाषा                        |
| इकाई- 2 | युवकों का समाज में स्थान : आचार्य नरेन्द्र देव / वित्त एवं वाणिज्य की भाषा, मशीनी भाषा      |
| इकाई- 3 | मातृभूमि: वासुदेवशरण अग्रवाल / संज्ञा सर्वनाम, विशेषण, क्रिया विशेषण                        |
| इकाई- 4 | डॉ. खूबचंद बघेल : हरि ठाकुर/समास, संधि,   |
| इकाई- 5 | सम्भाषण-कुशलता : पं. माधवराव सप्रे, / अनुवाद - अंग्रेजी से हिन्दी में अनुवाद, संक्षिप्तियाँ |

मूल्यांकन योजना -

प्रत्येक इकाई से एक-एक प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक इकाई को दो-दो खण्डों (क्रमशः 'क' और 'ख' में) विभक्त करते हुए निर्धारित पाठ से 8 एवं शेष पाठ्य सामग्री से 7 अंक के प्रश्न होंगे। इस प्रकार पूरे प्रश्न-पत्र के पूर्णांक 75 होंगे।

**पाठ्यक्रम संशोधन का औचित्य :** विद्यार्थी चर्चित एवं सुप्रसिद्ध व्यक्तियों के लेख के माध्यम से समाज एवं राष्ट्रहित के साथ-साथ व्यक्तित्व विकास विषयक मुद्दों से परिचित हो सकें तथा व्याकरणक एवं भाषा विषयक प्रस्तावित पाठ्यक्रम के माध्यम से हिन्दी भाषा संबंधित प्रयोग पक्ष से परिचित होते हुए प्रतियोगी परीक्षाओं की दृष्टि से ज्ञानार्जन कर सकें।



ENGLISH LANGUAGE (Paper Code-1132)

B.A. / B.Sc. /B.COM. /B.H. Sc. - II

M.M.75

The question paper for B.A. /B.Sc./B.Com./B.H.Sc., English Language and cultural values shall comprise the following units:

UNIT-I Short answer questions to be passed by (Five short answer questions of three marks each) 15 Marks

UNIT-II (a) Reading comprehension of an unseen passage 05 Marks  
(b) Vocabulary

UNIT-III Report-Writing 10 Marks

UNIT-IV Expansion of an idea 10 Marks

UNIT-V Grammar and Vocabulary based on the prescribed text book. 20+15Marks

Note: Question on all the units shall asked from the prescribed text which will  
Comprise Specimens of popular creative/writing and the following it any

a Matter & technology

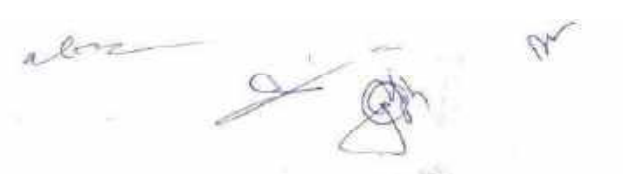
- i. State of matter and its structure
- ii. Technology (Electronics Communication, Space Science)

b Our Scientists & Institutions

- I. Life & work of our eminent scientist Arya Bhatt. Kaard  
Charak Shusruta, Nagarjuna, J.C. Bose and C.V. Raman, S.  
Rmanujam, Homi J. Babha Birbal Sahani.
- II. Indian Scientific Institutions (Ancient & Modern)

Books Prescribed:

Foundation English for U.G. Second Year - Published by M.P. Hindi Granth  
Academy, Bhopal.



संशोधित  
बी. ए. भाग-2  
हिन्दी साहित्य  
प्रथम प्रश्न पत्र

अर्वाचीन हिन्दी काव्य (पेपर कोड- 0173)

पूर्णांक- 75

प्रस्तावना- आधुनिक काव्य आधुनिकता की समस्त विशेषताओं को समेटे हुए है। स्वतंत्रता प्राप्ति के पूर्व की भाव-भाषा, शिल्प, अन्तर्वस्तु सम्बन्धी समस्त विकास धारा यहां सजीव रूप में देखी जा सकती है। इसे अनदेखा करना मनुष्य की विकास यात्रा को नजर अंदाज करना है। इस यात्रा के साक्षात्कार के लिए आधुनिक काव्य का अध्ययन अपेक्षित ही नहीं अपितु अनिवार्य है।

पाठ्य विषय-

- |                               |   |
|-------------------------------|---|
| 1. मैथिलीशरण गुप्त            | - भारत- भारती की कविताएँ  |
| 2. सूर्यकान्त त्रिपाठी निराला | - (1) सखि बसन्त आया।<br>(2) वर दे, वीणा वादिनी वर दे।<br>(3) हिन्दी के सुमनों के प्रति पत्र।<br>(4) तोड़ती- पत्थर।<br>(5) राजे ने अपनी रखवाली की। |
| 3. सुमित्रानन्दन पंत          | - (1) बादल।<br>(2) परिवर्तन 2 पद (1. खोलता इधर जन्मलौचन<br>2. आज का दुख कल का आल्हाद)<br>(3) ताज।<br>(4) झंझा में नीम।<br>(5) भारत माता।          |
| 4. माखन लाल चतुर्वेदी         | - (1) बलि पंथी से।<br>(2) सौंझ और ढोलक की थापें।<br>(3) मैं बेच रही हूँ, दही।<br>(4) उलाहना।<br>(5) निः शस्त्र सेनानी।                            |
| 5. स. ही. वात्स्यायन अज्ञेय   | - (1) सबेरे उठा तो धूप खिली थी।<br>(2) साम्राज्ञी का नैवेद्य दान।<br>(3) घर।<br>(4) चांदनी जी लो।<br>(5) दूर्वाचल।                                |

हुतपाठ हेतु निम्न कवियों का अध्ययन किया जाएगा, जिन पर लघुउत्तरीय प्रश्न पूछे जायेंगे-

R.L. 5  
11/06/2019  
Ate

संशोधित  
बी. ए. भाग-2  
हिन्दी साहित्य  
द्वितीय प्रश्न पत्र

हिन्दी निबंध तथा अन्य गद्य विधाएँ (पेपर कोड- 0174)

पूर्णांक- 75

पाठ्य विषय-

व्याख्या एवं आलोचनात्मक प्रश्नों के लिए एक नाटक, पांच प्रतिनिधि निबंध और पाँच एकांकी का निर्धारण किया गया है।

नाटक- अंधेरी नगरी- भारतेन्दु हरिश्चन्द्र

निबंध-	1. क्रोध	- आचार्य रामचन्द्र शुक्ल।
	2. वसन्त	- डॉ. हजारी प्रसाद द्विवेदी।
	3. उस अमराई ने राम- राम कही हैं	- डॉ. विद्यानिवास मिश्र।
	4. काव्येषु नाट्यम् रम्यम्	- बाबू गुलाब राय।
	5. बेईमानी की परत	- हरिशंकर परसाई
एकांकी-	1. औरंगजेब की आखिरी रात	- डॉ. रामकुमार वर्मा
	2. स्ट्राईक	- भुनेश्वर
	3. एक दिन	- लक्ष्मीनारायण मिश्र
	4. दस हजार	- उदयशंकर भट्ट
	5. मम्मी ठकुराईन	- डॉ. लक्ष्मीनारायण लाल

दुत पाठ के लिए तीन गद्यकारों का अध्ययन किया जायेगा, जिन पर लघुउत्तरीय प्रश्न पूछे जायेंगे।

1. राहुल सांकृत्यायन      2. महादेवी वर्मा      3. हबीब तनवीर

अंक विभाजन- व्याख्याएं (3)	- 21 अंक
आलोचनात्मक प्रश्न (2)	- 24 अंक
लघुउत्तरीय प्रश्न (5)	- 15 अंक
वस्तुनिष्ठ (15)	- 15 अंक
कुल अंक	75 अंक

इकाई विभाजन-

इकाई- 1 व्याख्या

इकाई- 2 अंधेरी नगरी एवं क्रोध, वसन्त, उस अमराई ने राम- राम कही हैं।

इकाई- 3 औरंगजेब की आखिरी रात, स्ट्राईक, एक दिन, दस हजार, मम्मी ठकुराईन

इकाई- 4 दुतपाठ के गद्यकार- राहुल सांकृत्यायन, महादेवी वर्मा, हबीब तनवीर।

इकाई- 5 वस्तुनिष्ठ (समग्र पाठ्य विषय से)

*Ran Y me*  
11/10/06  
*Ata*

**ENGLISH LITERATURE**  
**PAPER-I**  
**MODERN ENGLISH LITERATURES (Paper Code-0175)**

**M.M. 75**

**All Questions are compulsory.**

- Note :
1. Unit-I is compulsory. Two passages from each of the units I to V to be set and three to be attempted. (3 x 5 = 15)
  2. Short answer questions from unit VII, seven to be set and five to be attempted. (5 x 2 = 10)
  3. Long answer questions from unit II to VI. Five questions from each unit with internal choice to be set. (5 x 2 = 10)  
(Words limit for each answer is 300-400 words)

**UNIT-I** Annotations

**UNIT-II (Poetry)**

W.B. Yeats - 'A Prayer for My Daughter, The Second Coming'  
T.S. Eliot - 'Love Song of J. Alfred Prufrock'

**UNIT-III (Poetry)**

Dylan Thomas - 'Lament, 'A Refusal to Mourn the Death  
Larkin - 'Toads', At Grass'

**UNIT-IV (Prose)**

Bertrand Russell - On the Value of Scepticism  
Oscar Wilde - Happy Prince

**UNIT-V (Drama)**

G.B. Shaw - Pygmalion

**UNIT-VI (Fiction and short-stories)**

Rudyard Kipling-Kim  
Short-Stories  
Katherine mansfield - A Cup of Tea

- UNIT-VII**
1. Elegy,
  2. Sonnet,
  3. Ode,
  4. Morality & Miracle Play,
  5. One Act Play,
  6. Interlude

**BOOKS RECOMMENDED :**

1. An Introduction to the study of English Lit. B. prasad
2. A Glossart of Literary Terms - M.H. Abrahamas
3. Prose of Today - M. Millan Pub
4. Short stories of Yesterday and To day - M. Millan

Dr. M. Chakraborty

Dr. S. Gupta

DR. MERILY ROY

**PAPER - II**  
**MODERN ENGLISH LITERATURES (Paper Code-0176)**

**M.M. 75**

**All question are compulsory.**

- Note :** 1. Unit I is compulsory. Two passages from each of the units II to V to be set and three to be attempted. (3x5 = 15)
2. Short answer questions from unit VII, seven to be set and five to be attempted. (5x2 = 10)
3. Long-answer questions from unit II to VI. Five questions from each unit with internal choice to be set. (5x2 = 10)  
(Words limit for each answer is 300-400 words)

**UNIT-I** Annotation

**UNIT-II (Poetry)**

Sasson - At the Grove of Henry Vaughan.

Owen, W.H. - Strange Meeting

**UNIT-III (Poetry)**

Auden - Seascape

Ted Hughes - The Howling of Wolves

**UNIT-IV (Prose)**

Robert Lynd - Forgetting

H. Belloc - A conversation with A Reader

**UNIT-V (Drama)**

John Galsworthy - Strife

**O R** J.M. Synge - Riders of the Sea

**UNIT-VI** William Golding - Lord of the Flies (Fiction)

**UNIT-VII** 1. Simile 2. Metaphor 3. Alliteration 4. Onomatopoeia 5. Ballad 6. Epic 7. Dramatic Monologue.

**BOOK RECOMMENDED -**

1. Golden Treasury - Palgrave
2. A Glossary of Literary Terms - M.H. Abrams
3. An Introduction to the study of English literature - B.Prasad

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Dr. M. Chakraborty

Dr. S. Gupta

DR. MERILY ROY

# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

## नवीन संशोधित पाठ्यक्रम

### दर्शन शास्त्र

बी.ए. भाग-दो, दर्शन शास्त्र में दो प्रश्न पत्र (75 अंक) के होंगे

1. नीति शास्त्र – भारतीय एवं पाश्चात्य

2. धर्म दर्शन

प्रत्येक प्रश्न पत्र पांच इकाईयों में विभाजित है । प्रत्येक इकाई में से एक प्रश्न हल करना अनिवार्य होगा ।

बी.ए. भाग – दो

दर्शन शास्त्र

प्रश्न पत्र – प्रथम

नीतिशास्त्र – भारतीय एवं पाश्चात्य

(कुल 75 अंक)

इकाई-1

1. नीतिशास्त्र : परिभाषा, स्वरूप एवं उपयोगिता
2. मूल्य : नैतिक मूल्य एवं अन्य मूल्यों में अंतर
3. कर्म का सिद्धांत

इकाई-2

1. पुरुषार्थ : पुरुषार्थों का आपस में सम्बन्ध, पुरुषार्थ- साधना
2. बौद्ध नीति : चार आर्य सत्य
3. जैन नीति : अणुव्रत एवं महाव्रत

इकाई-3

1. संकल्प की स्वतंत्रता एवं उत्तरदायित्व
2. दण्ड का सिद्धांत
3. सद्गुण : सुकरात , प्लेटो एवं अरस्तू के अनुसार

इकाई -4

1. सुखवाद : बेंथम एवं मिल
2. चार्वाक का सुखवाद
3. कांट : कर्तव्य के लिए कर्तव्य

इकाई -5

1. अंतः प्रज्ञावाद
2. पूर्णतावाद
3. गीता का निष्काम कर्मयोग

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

115A  
29/6/19

# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

नवीन संशोधित पाठ्यक्रम

बी.ए. भाग – दो

दर्शन शास्त्र

प्रश्न पत्र द्वितीय – धर्म दर्शन

(कुल अंक –75)

- इकाई—1
1. धर्म : धर्म एवं रिलिजन में अंतर
  2. धर्म—दर्शन : अर्थ, स्वरूप
  3. धर्म एवं धर्म—दर्शन में अंतर
  4. धर्म की उत्पत्ति के सिद्धांत
- इकाई—2
1. धार्मिक अनुभव : ब्रह्मानुभव एवं रहस्यवाद
  2. बुद्धि, विश्वास एवं अंतः प्रज्ञा
  3. धार्मिक विश्वास एवं अन्य विश्वास
- इकाई—3
1. ईश्वर : ईश्वर के गुण
  2. ईश्वर के अस्तित्व के प्रमाण : भारतीय एवं पाश्चात्य
  3. प्रार्थना एवं भक्ति
- इकाई—4
1. अनीश्वरवाद
  2. ईश्वर के बिना धर्म
  3. धर्म— निरपेक्षता
- इकाई—5
1. आत्मा की अमरता
  2. पुनर्जन्म एवं कर्म का सिद्धांत
  3. अशुभ की समस्या

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

115A  
29/6/19

## बी. ए. भाग 2 B. A. Part II

राजनीति विज्ञान Political Science

प्रथम प्रश्नपत्र : राजनीतिक चिन्तन Paper I : Political Thought

- इकाई 1 : प्लेटो : आदर्श राज्य – न्याय, शिक्षा, साम्यवाद, दार्शनिक शासक ।  
अरस्तू : राज्य, दासप्रथा, नागरिकता , क्रान्ति ।
- Unit 1 : Plato : Ideal State : Justice, Education, Communism , Philosopher King.  
Aristotle : State, Slavery, Citizenship , Revolution.
- इकाई 2 : मैकियावेली : युग का शिशु, धर्म व नैतिकता, राजा के कर्तव्य और आचरण ।  
हॉब्स : सामाजिक समझौता सिद्धान्त – लेवियाथन । लॉक : सामाजिक समझौता सिद्धान्त ।  
रुसो : सामाजिक समझौता सिद्धान्त , सामान्य इच्छा ।
- Unit 2 : Machiavelli : Child of his times, Religion and Morality, Duties and Conduct of King. Hobbes : Social Contract Theory: Leviathan. Locke : Social Contract Theory. Rousseau : Social Contract Theory and General Will.
- इकाई 3 : बेंथम : उपयोगितावाद । मिल : उपयोगितावाद में संशोधन, स्वतंत्रता और प्रतिनिधि शासन ।  
ग्रीन : राजनीतिक विचार । मार्क्स : राजनीतिक विचार ।
- Unit 4 : Bentham : Utilitarianism. Mill : Amendment in Utilitarianism. Liberty and Representative Government. Green : Political Thoughts. Marx : Political Thoughts.
- इकाई 4 : आदर्शवाद, व्यक्तिवाद, उदारवाद, समाजवाद, फासीवाद : विशेषताएं और आलोचना ।
- Unit 4 : Idealism, Individualism, Liberalism, Socialism, Fascism : Features and Criticism.
- इकाई 5 : मनु और कौटिल्य : सप्तांग सिद्धान्त, राजा और राजपद, प्रशासकीय व्यवस्था, राज्यमण्डल ।  
गांधी : सत्य, अहिंसा, सत्याग्रह एवं राजनीतिक विचार । अम्बेडकर : राजनीतिक एवं सामाजिक विचार  
दीनदयाल उपाध्याय : एकात्ममानववाद ।
- Unit 5 : Manu and Kautilya : Saptang Theory, King and Kingship, Administrative System, Rajyamandal.  
Gandhi : Truth , Non violence , Satyagrah and Political thoughts.  
Ambedkar : Political and Social thoughts.  
Deen Dayal Upadhyay : Akatmamanavvad.

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बी.ए.— द्वितीय वर्ष  
प्रथम प्रश्न पत्र – राजनीतिक चिन्तन

संदर्भ पुस्तक

क्र	पुस्तक का नाम	लेखक का नाम
1.	राजनीतिक चिन्तन की रूपरेखा	ओ.पी. गावा
2.	राजनीतिक चिन्तन का इतिहास	जीवन मेहता
3.	राजनीतिक चिन्तन का इतिहास	बी.एल. फाडिया
4.	पाश्चात्य एवं आधुनिक राजनीतिक चिन्तन का इतिहास	प्रभु दत्त शर्मा
5.	पाश्चात्य राजनीतिक चिन्तन	जे.पी. सूद
6.	भारतीय राजनीतिक चिन्तन	वी.पी. वर्मा
7.	भारतीय राजनीतिक चिन्तन	अवस्था एव अवस्था
8.	भारतीय राजनीतिक चिन्तन	आ.पी. गावा
9.	पलाटकल थाट	सा.एल. बपर
10.	हिस्ट्री आफ पलाटकल थियरी	जाज एच सबाइन
11.	रिसन्ट पलाटकल थाट	फ्रान्सिस डब्लू काकर
12.	मास्टर आफ पलाटकल थाट	माइकल बा. फास्टर
13.	ग्रंट पलाटकल थाट	वाटयम इवस्टान

**Reference:-**

- W.A. Dunning: **A History of Political Theories**, (Vols. I, II & III), New York: Mcmillan, 1930
- G.H. Sabine: **A History of Political Theory** (English & Hindi), New Delhi: Oxford & IBH Publishing Co., 1963
- C.L. Wayper: **Political Thought** (English & Hindi), Bombay: B.I. Publications Pvt. Ltd., 1974
- E. Barker: **Greek Political Theory: Plato and His Predecessors**, London: Methuen & Co. Ltd., 1918
- **Political Thought in England**, London: Thornton Butterworth Ltd., 1928
- Gettell: **History of Political Thought** (English & Hindi)
- K.P. Jaiswal: **Hindu Polity** (English & Hindi), Bangalore: Bangalore Printing & Publishing Co., 1955
- V.P. Verma: **Modern Social and Political Thought of India**, Agra: L.N. Agrawal Educational Publishers, 1961
- N.C. Bandopadhyaya: **Development of Hindu Polity and Political Theory**, New Delhi: Munshiram & Manoharlal, 1980
- Arvind Sharma, **Modern Hindu Thought: The Essential Texts**, New Delhi: OUP, 2002
- John Dunn, **Western Political Theory in the Face of the Future**, New York: Cambridge University Press, 1993
- Jonathan Wolff, **An Introduction to Political Philosophy**, Revised Edition, Oxford: OUP, 2006
- J.E. Parsons Jr., **Essays in Political Philosophy**, Washington D.C., University Press of America, 1982
- Mark N. Hagopian, **Ideals and Ideologies of Modern Politics**, New York & London: Longman, 1985
- John Elster (Ed.) **Karl Marx: A Reader**, New York: OUP, 1977
- Thomas Sowell, **Marxism: Philosophy and Economics**, New York: Quill, 1985
- Brian R. Nelson, **Western Political Thought**, Delhi NCR: Pearson Education Ltd., 1996
- Vishwanath Mishra, **Rajavidya evam Rajanitishashtra**, Sagar: Vishwavidyalaya Prakashan, 2007
- Brian R. Nelson, **Western Political Thought**, Delhi NCR: Pearson Education Ltd., 1996

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बी. ए. भाग 2 B. A. Part II  
राजनीति विज्ञान Political Science

द्वितीय प्रश्नपत्र : तुलनात्मक शासन एवं राजनीति

Paper II : Comparative Government and Politics

- इकाई 1 : ब्रिटिश संविधान : विकास, विशेषताएं, कार्यपालिका, व्यवस्थापिका, न्यायपालिका ।
- Unit 1 : British Constitution : Evolution , Salient Features, Executive, Legislature and Judiciary.
- इकाई 2 : संयुक्त राज्य अमेरिका का संविधान : विशेषताएं, कार्यपालिका, व्यवस्थापिका, न्यायपालिका, शक्ति पृथक्करण व नियंत्रण संतुलन का सिद्धान्त ।
- Unit 2 : Constitution of United States of America : Salient Features, Executive, Legislature and Judiciary. Theory of Separation of Powers and checks and balances.
- इकाई 3 : स्विटजरलैण्ड का संविधान : विशेषताएं, कार्यपालिका, व्यवस्थापिका, न्यायपालिका, प्रत्यक्ष प्रजातन्त्र । Unit 3 : Constitution of Switzerland : Salient Features, Executive, Legislature and Judiciary. Direct Democracy.
- इकाई 4 : चीन का संविधान : विशेषताएं, कार्यपालिका, व्यवस्थापिका, न्यायपालिका, साम्यवादी दल ।
- Unit 4 : Constitution of China : Salient Features, Executive, Legislature and Judiciary. Communist Party.
- इकाई 5 : तुलनात्मक राजनीति : अर्थ, परिभाषा, । ईस्टन का व्यवस्था सिद्धान्त, आमण्ड का संरचनात्मक—प्रकार्यात्मक उपागम । राजनीतिक विकास, राजनीतिक समाजीकरण, राजनीतिक संस्कृति की अवधारणा ।
- Unit 5 : Comparative Politics : meaning , Definition. System Theory of David Easton, Structural -functional Approach of Almond. Concept of Political Development, Political Socialisation, Political Culture

  
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बी.ए. द्वितीय वर्ष  
द्वितीय प्रश्न पत्र  
तुलनात्मक शासन एवं राजनीति

संदर्भ पुस्तक

क्र	पुस्तक का नाम	लेखक का नाम
1.	तुलनात्मक राजनीति एवं राजनीतिक संस्थाएं	सी बी गेना
2.	तुलनात्मक राजनीति	जे.सी. जौहरी
3.	तुलनात्मक राजनीति	पी.डी शर्मा
4.	तुलनात्मक राजनीति	एस.आर. महेष्वरी
5.	तुलनात्मक राजनीति संस्थाएं और प्रक्रियाएं	तपन बिस्वाल
6.	कम्परेटीव गर्वनेमेंट	एस.ई. फाईनर

**Reference :-**

- Anup Chand Kapur, K.K. Mishra **Select Constitutions** (U.K., U.S.A., France, Canada, Switzerland, Japan, China, India), S. Chand & Company Ltd., New Delhi, 2001.
- B.C. Rai, **The World Constitution: A Comparative Study** (U.S.A., U.K., Soviet Union, Switzerland, Japan, France, Australia, Canada, India, Pakistan), Prakashan Kendra, Lucknow, 2001
- G. Almond et.al., **Comparative Politics Today : A World View**, 7<sup>th</sup> Edition, New York/London, Harper Collins, 2000
- R. Hague & M. Harrop, **Comparative Government and Politics: An Introduction**, 5<sup>th</sup> Edition, New York, Palgrave, 2001
- A Bobler and J. Seroka (eds.); **Contemporary Political System: Classification and Typologies**, Boulder Colorado, Lynne Rienner Publishers, 1990.
- Richa Sakma, **Russian Politics and Society**, London: Routledge, 1996.
- Anuradha Chenoy, **The Making of New Russia**, New Delhi, Har-Anand Publications, 2000
- Shashi Kant Jha & Bhaswati Sarkar (eds.) **Amidst Turbulence & Hope, Transition Russia and Eastern Europe**, New Delhi, 2002
- Thomas F. Remington, **The Russian Parliament: Institutional Evolution in a Transitional Regime**, 1989-1999, Yale University Press, 2002
- Gabriel A. Almond and G. Bingham Powell (eds.) **Comparative Politics Today: A World view**, Harper Collins Publishers, 2002
- **The Russian Constitution**, Text as adopted in 1993
- J. C. Johri, **'New Comparative Government'**, Lotus Press Publisher, 2008.
- Vidya Bhushan and Vishnu Bhagwan, **World Constitutions**, New Delhi

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**Revised syllabus**  
**SOCIOLOGY**      **2019 - 2020**

B.A. PART-II  
PAPER - I  
SOCIOLOGY OF TRIBAL SOCIETY  
(Paper Code-0185)

- UNIT-I    **Tribes: Concepts, Characteristics, Tribes and Schedule Tribes, Distinction between Tribe and Caste.**
- UNIT-II    **Classification of Tribal people: Food gatherers and hunters, Shifting cultivates, Nomads, Peasant settled Agriculturists and Artisans.**
- UNIT-III    **Socio-cultural Profile: Kinship, Marriage, Family, Religion and belief cultural traditions.**
- UNIT-IV    **Tribal sensitization: Tribal Mobility, Schemes of Tribal Development, Various Tribal Movements.**
- UNIT-V    **Problems of Tribal People: Poverty, Illiteracy, Indebtedness, Agrarian issues, Exploitation study of tribal communities in Chhattisgarh with special reform to Particularly Venerable Tribal Groups (PVTG).**

**ESSENTIAL READINGS :-**

- 1 Vidyarthi, L.P. 1965. Cultural Counters of Tribal Bihar, Punthi Pustak, Calcutta.
- 2 Bose, N.K. 1971. Tribal Life in India, National Book Trust, New Delhi.
- 3 Das, R.K. 1988. The Tribal Social Structure, Inter India Publications, New Delhi.
- 4 Dubey, S.C.. 1977. Tribal Heritage of India, Ethnicity, Identity and Interaction, Vol.1, Vikash Publishing House, Delhi.
- 5 Elwin, Varrier. 1989. The Tribal World of Verrier Elwin: An Autobiography, Oxford, New Delhi.
- 6 Russell, R.V. and Hira Lal. 1916. The Tribes and Castes of Central Province of India, 4 Vols. Cosmo Publications, New Delhi.

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**Revised syllabus**  
**SOCIOLOGY 2019 - 2020**

B.A. PART-II

PAPER-II

**CRIME AND SOCIETY**

(Paper Code-0186)

- UNIT-I **Concept of Crime:** Meaning, Characteristics and Types.  
**School of Crime:** Classical, Sociological and Psychological.
- UNIT-II **Structure of Crime:** Anomie, Criminality and Suicide, Organized Crime, White Collar Crime and Cyber Crime
- UNIT-III **Social Evils and Crime:** Alcoholism, Drug Addiction, Dowry and Beggary.
- UNIT-IV **Punishment:** Meaning, Characteristics, Objectives and Types,  
Major Theories of Punishment.
- UNIT-V **Correctional Process:** Role of Police and Judiciary in India, Development of Jail reforms in India and Modern correctional concepts- Probation, Parole and after care Programme.

**ESSENTIAL READINGS :-**

1. Mike, & Maguire. (2007). *The Oxford Hand Book of Criminology*. London: Oxford University Press.
2. Haster, S., & Eglin, P. (1992). *A Sociology of Crime*. London: Routledge Publishers.
3. Mead, G. H. (1934). *Mind Self and Society*. Chicago: Chicago University Press
4. Gottfredson, Michael, R., Hirschi, & Travis. (1990). *A General Theory of Crime*. London: Stanford University Press.
5. Sutherland, & Edwin, H. (1924). *Principles of Criminology*. Chicago: Chicago University Press.
6. Sutherland, Edward, H., & White, C. (1949). *Crime*. New York, Holt, Rinehart: Winston Press, New York.

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# **HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

## **REVISED SYLLBUS**

### **B.A. Part- II (Economics)**

#### **Subject : Macro Economics, Paper-I (Code: 0181)**

##### **UNIT 1**

National Income: Concept and measurement of national income, Economic welfare and national income, Social accounting. Circular flow of income, National income accounting, Green accounting Classical theory of employment, Say's law of market Keynesean theory of employment.

##### **UNIT 2**

Consumption Function - Average and marginal propensity to consume, Keynes's psychological law of consumption. Determinants of the consumption function. The saving function. The investments multiplier and its effectiveness, The investment Function - marginal efficiency of capital, Autonomous and induced investment. Saving and investment equality.

##### **UNIT 3**

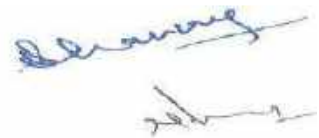
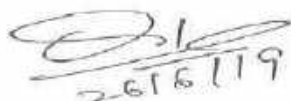
Nature and Characteristics of trade cycle, Theories of trade cycle: Hawtrey's monetary theory, Hayek's over investment theory, Keynes's view on trade cycles, Schumpeter's theory of innovation, Samuelson and Hicks multiplier accelerator model, Control of trade cycle.

##### **UNIT 4**

International Trade - Inter-regional and international trade, Comparative advantage cost theory, Opportunity cost theory and Heckscher Ohlin theory, International trade and economic development, Tariffs & import quotas, Concept of optimum tariff. Balance of trade & balance of payment., Concept & components of BOP, Equilibrium & disequilibrium in BOP, Relative merits & demerits of devaluation, Foreign trade multiplier.

##### **UNIT 5**

Functions and objectives of international monetary fund, World Bank and World Trade Organization, International monetary reforms and India, Foreign trade in



India recent change in the composition and direction of foreign trade, India's balance of payment, Export promotion and import substitution in India. Multinational Corporation and India.

### **BASIC READING LIST -**

- Ackley, G. (1976) – “ Macro Economics; Theory and Policy,” Mcmillan Publishing Company, Newyork.
- Day, A.C.L. (1960) – “Outline of Monetary Economics,” Oxford University Press Oxford.
- Gupta, S.B. (1994)- “Monetary Economics,” S. Chand and Co., Delhi
- Heijdra, B.J. and F.V. Ploeg (2001) – “Foundations of Modern Macro-economics,” Oxford University Press, Oxford.
- Lewis, M.K. and P.D. Mizan (2000) –“ Monetary Economics, “ Oxford University Press, New Delhi.
- Shapiro, E. (1996) – “Macroeconomic Analysis,” Galgotia Publications, New Delhi .

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Day, A.C.L. (1960) –“ Outline of Monetary Economics,” Oxford University Press Oxford.

- Gupta, S.B. (1994)- “Monetary Economics,” S. Chand and Co., Delhi

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- Lewis, M.K. and P.D. Mizan (2000) - Monetary Economics, Oxford University Press, New Delhi.

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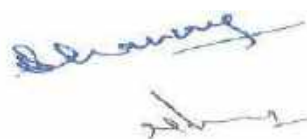
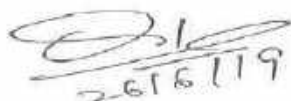
- Hanson, A.H. (1953), “A Guide to Keynes, “ McGraw Hill, New York.

- Higgins, B. (1963), “Economic Development; Principles, Problems and Policies, “ Central Book Depot, Allahbad.

- Keynes, J.M. (1936), “The General Theory of Employment, Interest and Money,” Macmillan, London.

- Kindleberger, C.P. (1958), “Economic Development,” McGraw Hill Book company, New York.

Powelson, J.P.C. (1960), “ National Income and Flow of Funds Analysis,” McGraw Hill, New York.





# **HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

## **REVISED SYLLBUS**

### **B.A. Part- II (Economics)**

**Subject : Money, Banking and Public Finance, Paper-II (Code: 0182)**

#### **UNIT 1**

Basic concepts : Money - meaning and functions, Gresham's law; Quantity theory of money- Cash transaction and cash balance approaches; Value of Money, Inflation, deflation and reflation, types, causes and effects on different sectors of the economy; Demand pull and cost push inflation; Measures to control inflation. Phillips curve, Concept of demonetization.

#### **UNIT 2**

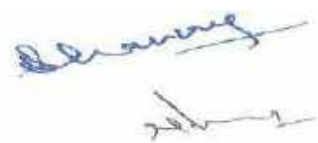
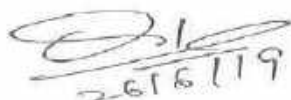
Commercial banking- meaning and types; Functions of commercial banks, The process of credit creation, purpose and limitations; Liabilities and assets of banks; Evolution of commercial banking in India after independence; A critical appraisal of the progress of commercial banking after Nationalization, Functions of a central bank; Quantitative and qualitative methods of credit control; Bank rate policy; Open market operations; Variable reserve ratio and selective methods. Role and functions of the Reserve bank of India; Objectives and limitations of monetary policy with special reference to India.

#### **UNIT 3**

Meaning and scope of public finance; Distinction between private and public finance; public goods v/s private goods; The Principle of maximum social advantage; Role of the government in economic activities ; Public expenditure - Meaning, classification and principles of public expenditure; Trends in public expenditure and causes of growth of public expenditure in India.

#### **UNIT 4**

Sources of Public revenue; taxation - Meaning, Canons and classification of taxes; Division of tax burden. The benefit and ability to pay approaches; Impact and incidence of taxes; Taxable capacity; Effects of taxation; Characteristics of a good tax





system; Equity and Justice in Taxation, Major trends in tax revenue of the Central and State Government in India.

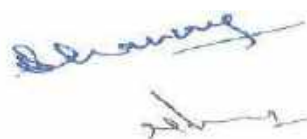
## UNIT 5

Public debt and financial administration: Sources of public borrowing, Effects of public debt. Methods of debt redemption. The public budget- Kinds of budget, Economic and functional classification of the budget; Preparation and passing of budget in India.

### READING LIST -

- Ackley G. (1978), "Macroeconomics : Theory and Policy," Macmillan Publishing Co., New York.
  - Bhargavas B.H. (1981), "The Theory and Working of Union Finance in India," Chaitanya Publishing House Allaybad.
  - Gupta, S.B. (1994), "Monetary Economics", S. Chand & Company, New Delhi.
  - Houghton. E.W. (Ed.) (1988), "Public Finance." Pengum, Battinore - Jha R. (1998), Modern Public Economics. Routledge, London.
  - Mithani, D.M. (1981), "Modern Public Finance," Himalaya Publishing House, Mumbai.
  - Musgrave, R.A. and P.B. Musgrave (1976), "Public Finance in Theory and Practice", McGraw Hill, Kogakusha, Tokyo.
  - Shapiro, E. (1996), "Macroeconomics Analysis," Galgotia Publications, New Delhi.
- ADDITIONAL READING LIST

- Day, A.C.L. (1960), "Outline of Monetary Economics, " Oxford University Press, Oxford.
- De Kock, M.H. (1960), "Central Banking." Staples Press, London.
- Due, J.E. (1963), "Government Finance," Irwin, Homewood.
- Government of India, "Economic Survey" (Annual), New Delhi
- Halm, G.N. (1955), "Monetary Theory," Asia Publishing House, New Delhi



# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

बी.ए. द्वितीय वर्ष

इतिहास

प्रश्न पत्र – प्रथम

प्रश्न पत्र का नाम – भारत का इतिहास 1206 ई. से 1761 ई. तक

इकाई-1

1. सल्तनतकालीन एवं मुगलकालीन इतिहास के स्रोत
2. दास वंश- ऐबक, इल्तुतमिश, बलबन
3. खिलजी वंश- अलाउद्दीन खिलजी-सैनिक उपलब्धियां, राजस्व व्यवस्था एवं बाजार नियंत्रण
4. तुगलक वंश- मोहम्मद बिन तुगलक,

इकाई-2

1. मुगल साम्राज्य की स्थापना – बाबर एवं हुमायूँ
2. शेरशाह सूरी का प्रशासन
3. अकबर की राजपूत नीति
4. मुगल शासकों की धार्मिक नीति – अकबर से औरंगजेब तक

इकाई-3

1. मुगल प्रशासन
2. मध्यकालीन सामाजिक एवं आर्थिक दशा
3. भक्ति आंदोलन
4. सूफीवाद

इकाई-4

1. मध्यकालीन साहित्य, कला एवं स्थापत्य
2. विजयनगर राज्य
3. बहमनी राज्य
4. शिवाजी का प्रशासन

इकाई-5

1. पेशवा- बालाजी विश्वनाथ, बालाजी बाजीराव
2. पानीपत का तृतीय युद्ध- कारण एवं परिणाम
3. मराठों के अधीन छत्तीसगढ़ – बिम्बाजी भोसले
4. छत्तीसगढ़ में मराठा प्रशासन

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## संदर्भ ग्रन्थ सूची:-

1. श्रीवास्तव ए.एल
  2. श्रीवास्तव ए.एल
  3. श्रीवास्तव ए.एल
  4. हबीबुल्लाह
  5. मजूमदार, राय चौधरी एवं दत्त
  6. पंजाबी बी. के.
  7. हबीब एवं निजामी
  8. वर्मा हरिश्चंद्र
  9. शर्मा कालूराम एवं व्यास प्रकाश
  10. सक्सेना आर.के.
  11. राधेशरण
  12. पाण्डेय ए.बी.
  13. पांडेय ए.बी.
  14. ईश्वरी प्रसाद
  15. श्रीवास्तव एच.एस.
  16. सरदेसाई जी.एस.
  17. सरकार जे.एन.
  18. त्रिपाठी आर.पी.
  19. मित्तल ए.के.
  20. मित्तल ए.के.
  21. Dey, U.N.
  23. Habib & Nizami
  24. Majumdar, R. C. & Dutt
  25. Mehta
  26. Pandey A.B.
  27. Pandey A.B
  28. Prasad Ishwari
  29. Sarkar, J.N.
  30. Satish Chandra
  31. Niraj Shrivastav
  32. पी.एल. मिश्र
  33. भगवान सिंह वर्मा
- भारत का इतिहास ( अंग्रेजी अनुवाद )  
दिल्ली सल्तनत ( अंग्रेजी अनुवाद )  
मुगलकालीन भारत ( अंग्रेजी अनुवाद )  
भारत में मुस्लिम शासन की बुनियाद  
भारत का वृहत् इतिहास खंड-2  
भारत का इतिहास ( 1206-1761 )  
दिल्ली सल्तनत  
मध्यकालीन भारत ( 750-1540 )  
मध्यकालीन भारतीय संस्कृति  
दिल्ली सल्तनत  
भारत की सामाजिक एवं आर्थिक संरचना और संस्कृति के मूल तत्व  
(आदिकाल से 1950 ईस्वी तक)  
पूर्व मध्यकालीन भारत  
उत्तर मध्यकालीन  
मुगलकालीन भारत  
मुगलकालीन शासन व्यवस्था  
मराठों का नवीन इतिहास खंड-2  
शिवाजी और उनका युग  
मुगल साम्राज्य का इतिहास और पतन  
यूनिफाइड इतिहास ( प्रारंभ से 1761 ई. )  
यूनिफाइड इतिहास प्राचीन काल से 1950 ईस्वी तक  
Mughal Government  
Comprehensive History of India  
An Advanced History of India Vol-II  
Advanced Study in the Medieval History of India  
Early Medieval India  
Medieval India  
Medieval India  
Shivaji and his Time  
Madhyakalin Bharat  
Madhyakalin Bharat Prashasan, Samaj, Sanskriti  
मराठाकालीन छत्तीसगढ़  
छत्तीसगढ़ का इतिहास

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# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

बी.ए. द्वितीय वर्ष

इतिहास

प्रश्न पत्र — द्वितीय

विश्व का इतिहास 1890 ई. से 1964 ई. तक

इकाई—1

1. विलियम द्वितीय की विश्व राजनीति
2. अफ्रीका का विभाजन
3. जापान का आधुनिकीकरण— मेईजी पुनर्स्थापना एवं जापान का आधुनिकीकरण

इकाई—2

4. रूस—जापान युद्ध : कारण एवं परिणाम
5. चीन अफीम युद्ध एवं चीन की क्रांति, साम्यवाद
6. पूर्वी समस्या —बर्लिन कांग्रेस, युवा तुर्क आंदोलन
7. बाल्कन युद्ध : कारण एवं परिणाम

इकाई—3

1. प्रथम विश्व युद्ध : कारण एवं परिणाम
2. वर्साय की संधि
3. रूस की क्रांति 1917 ई.
4. फासीवाद — मुसोलिनी

इकाई—4

1. नाजीवाद —हिटलर
2. जापान का सैन्यवाद
3. राष्ट्रसंघ : स्थापना एवं विल्सन के 14 सूत्र
4. द्वितीय विश्वयुद्ध : कारण एवं परिणाम

इकाई—5

1. संयुक्त राष्ट्र संघ — स्थापना एवं संगठन, उपलब्धियां
2. शीत युद्ध
3. गुट निरपेक्ष आंदोलन एवं पंचशील सिद्धान्त
4. विश्व शांति की चुनौती— कोरिया एवं फिलीस्तीन समस्या
5. एक ध्रुवीय विश्व

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### संदर्भ ग्रन्थ सूची:-

- |                                   |  |
|-----------------------------------|--|
| 1. हेजन                           | आधुनिक यूरोप का इतिहास   |
| 2. बी.आई. पाल                     | आधुनिक यूरोप का इतिहास   |
| 3. HAL Fisher                     | A History of Europe  |
| 4. Christopher                    | From Reformation to Industrial Revolution                                      |
| 5. A.J.P. Taylor                  | The origins of the second war  |
| 6. David Thompson                 | Europe, Napoleon   |
| 7. सत्यकेतु विद्यालंकार           | एशिया का इतिहास  |
| 8. दीनानाथ वर्मा                  | आधुनिक यूरोप का इतिहास   |
| 9. Grant and Temperley            | Europe in the 19 <sup>th</sup> and 20 <sup>th</sup> Century ( also Hi—Version) |
| 10. Kettelby                      | History of the Modern Times  |
| 11. Moon                          | Imperialism In World Politics  |
| 12. Plamor & Parkins              | International Politics   |
| 13. Parks, Henry Bamford          | The United States of America A History   |
| 14. Panikkar K.M.                 | Asia and Western Dominance   |
| 15. Schuman                       | International Politics   |
| 16. Taylor, A.J.P.                | Struggle for Mastery over Europe   |
| 17. Vinacke, H.M.                 | A History of Far East In Modern Times  |
| 18. Fay                           | Origins of the World War   |
| 19. के.एल.खुराना एवं शर्मा        | विश्व का इतिहास  |
| 20. देवेन्द्र सिंह चौहान          | समकालीन यूरोप  |
| 21. S.P. Nanda                    | History of Modern World  |
| 22. सुरेश चंद्र एवं शिवकुमार      | आधुनिक विश्व का इतिहास   |
| 23. कालू राम शर्मा                | आधुनिक विश्व   |
| 24. ई.एच.कार                      | दो विश्व युद्ध के बीच  |
| 25. जैन एवं माथुर                 | विश्व का इतिहास  |
| 26. अर्जुन देव, इंदिरा अर्जुन देव | समकालीन विश्व का इतिहास (1890—2008)  |
| 27. बी.एन.लुणिया                  | आधुनिक पाश्चात्य इतिहास की प्रमुख धाराएं (भाग-2)                               |
| 28. कौलेश्वर राय                  | आधुनिक यूरोप (1789—1945)   |

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Rajesh  
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# **Syllabus of Geography**

**(B.A./B. Sc. II Year)**

**Session**

**2019-2020**

**2020-2021**

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(Dr. S. K. Das)

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DR. R. Chakraborty

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## Brief Summary

### 3 Year Integrated UG Courses (B.A./ B.Sc.) in Geography

#### B.A. /B.Sc. Part I

The B.A. /B.Sc. Part-I Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows:

- |             |                     |
|-------------|---------------------|
| Paper - I   | Physical Geography  |
| Paper - II  | Human Geography.    |
| Paper - III | Practical Geography |

#### B.A. /B.Sc. Part-II

The B.A./B.Sc. Part-II Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows:

- |           |                                  |
|-----------|----------------------------------|
| Paper-I   | Economic and Resources Geography |
| Paper-II  | Regional Geography of India      |
| Paper-III | Practical Geography              |

#### B.A. /B.Sc. Part III

The B.A. /B.Sc. Part III Examination in Geography will be 150 marks. There will be two theory papers and one Practical each of 50 marks as follows

- |             |                           |
|-------------|---------------------------|
| Paper – I   | Remote Sensing and GIS    |
| Paper - II  | Geography of Chhattisgarh |
| Paper - III | Practical Geography       |

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DR. R. Sharma

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## B.A. /B.Sc. Part II

### PAPER - I

### ECONOMIC AND RESOURCES GEOGRAPHY

Max. Marks: 50

(Paper Code-0187)

- Unit I** Meaning, scope and approaches to economic geography; Main concepts of economic geography; Resource: concept and classification; Natural resources: soil, forest and water.
- Unit II** Mineral resources: iron ore and bauxite; Power resources: coal, petroleum and hydro electricity; Resource conservation; Principal crops: wheat, rice, sugarcane and tea
- Unit III** Agricultural regions of the world (Derwent Whittlesey); Theory of agricultural location (Von Thunen); Theory of industrial location (Weber); Major industries: iron and steel, textiles, petrochemical and sugar; industrial regions of the world.
- Unit IV** World transportation: major trans-continental railways, sea and air routes; International trade: patterns and trends; Major trade blocks: LAFTA, EEC, ASEAN; Effect of globalization on developing countries.
- Unit V** Conservation of resources; evolution of the concept, principles, philosophy, and approach to conservation, resources conservation and practices. Policy making and sustainable development.

#### Books Recommended:

1. Alexander, J. W. (1988): Economic Geography. Prentice-Hall, New Delhi,.
2. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): The Economic Geography Reader: Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.
3. Clark, G. L., Gertler, M. S. and Feldman, M. P. (eds.) (2000): The Oxford Handbook of Economic Geography. Oxford University Press, USA.
4. Coe, N. (2007): Economic Geography: A Contemporary Introduction. Blackwell Publishers, Inc., Massachusetts.
5. Gautam, A. (2006): *Aarthik Bhugol Ke Mool Tattava*, Sharda Pustak Bhawan, Allahabad.
6. Guha, J. S. and Chatteraj, P.R. (2002): A New Approach to Economic Geography: A Study of Resources. The World Press Private Limited, Kolkata.
7. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
8. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff, New Jersey, Prentice Hall
9. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
10. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.

Dr. S. K. Das  
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Ashwini  
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DR. R. Chandra



**B.A. /B.Sc. Part II**  
**PAPER - II**  
**GEOGRAPHY OF INDIA**  
**Max. Marks: 50**  
**(Paper Code-0188)**

- Unit I** Physical Features: Structure, Relief, Climate, Physiographic Regions, Drainage, Climate-origin and mechanism of monsoon, and regional and Seasonal variation.
- Unit II** Natural Resources: Soils - types, their distribution and characteristics. Water Resources (major irrigation and hydel power projects); Forests-types, distribution, economic significance and conservation. Mineral and Power resources-Iron-ore, Manganese, Copper, Coal, Petroleum and Natural gas, Non conventional sources of energy.
- Unit III** Cultural Features : Population - Growth, Density and Distribution. Agriculture - Major crops, impact of Green Revolution and Agricultural regions.
- Unit IV** Industries Localization, Development & Production - Iron and steel, Cotton Textile, Cement, Sugar, Transport, Foreign Trade. Industrial Region.
- Unit V** Detailed Study of the following regions of India : Kashmir Valley, North- East Region, Chhota Nagpur Plateau, Thar Desert, Islands of India.

**Books Recommended:**

1. Chauhan, P.R. and Prasad, M. (2003): *Bharat Ka Vrihad Bhugol*, Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): *An Introduction to South Asia*. Methuen, London
3. Gautam, A. (2006): *Advanced Geography of India*, Sharda Pustak Bhawan, Allahabad
4. Johnson, B.L.C. (1963): *Development in South Asia*. Penguin Books, Harmondsworth
5. Krishnan, M.S. (1982): *Geology of India and Burma*, CAS Publishers and Distributors, Delhi.
6. Khullar, D.R. ( 2007): *India: A Comprehensive Geography*, Kalyani Publishers, New Delhi
7. Nag, P. and Gupta, S. S. (1992): *Geography of India*, Concept Publishing Company, New Delhi.
8. Rao, B.P. ( 2007): *Bharat ke Bhaugolik Sameeksha*, Vasundhara Prakashan, Gorakhpur.
9. Sharma, T.C. and Coutinho, O. (2003): *Economic and Commercial Geography of India*, Vikas Publishing House Private Ltd. New Delhi.
10. Singh, J. (2003): *India: A Comprehensive Systematic Geography*. Gyanodaya Prakashan, Gorakhpur
11. Singh, J. (2001): *Bharat: Bhaugolik Aadhar Avam Ayam*, Gyanodaya Prakashan, Gorakhpur.
12. Singh, R.L. (ed.) (1971): *India: A Regional Geography*. National Geographical Society of India, Varanasi.
13. Spate, O.H. K., Learmonth A. T. A. and Farmer, B. H. (1996): *India, Pakistan and Sri Lanka*. Methuen, London, 7<sup>th</sup> edition.
14. Sukhwai, B.L. (1987): *India: Economic Resource Base and Contemporary Political Patterns*. Sterling Publication, New Delhi
15. Tiwari, R.C. (2007): *Geography of India*, Prayag Pustak Bhawan, Allahabad.
16. Wadia, D. N. (1959): *Geology of India*. Mac-Millan and Company, London and student edition, Madras.

*(Dr. S. K. Das)* 27.5.19  
*Ashwini* 27.5.19  
*Relu* 27.05.19  
*DR. R. Chandra*

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**B.A. /B.Sc. Part II**  
**PAPER - III**  
**PRACTICAL GEOGRAPHY**  
**Max. Marks: 50**

**SECTION A**

MAP INTERPRETATION, PROJECTIONS AND STATISTICAL METHODS (M.M. 25)

**Unit I** Distribution Maps: Dot Map, Choropleth Map and Isopleth Map.

**Unit II** Map Projections: Definition and classification; Conical, Zenithal, and Cylindrical Projections.

**Unit III** Interpretation of Weather Maps: Use of Meteorological Instruments.

**Unit IV** Statistical Methods: Quartile: Mean Deviation, Standard Deviation and Quartile Deviation; Relative Variability and Co-efficient of Variation.

**SECTION B**

SURVEYING (M.M. 15)

**Unit V** Surveying: Whole Circle Bearing and Reduced Bearing, Methods of Prismatic Compass Survey.

PRACTICAL RECORD AND VIVA VOCE (M.M. 10)

**Books Recommended:**

1. Alvi, Z. 1995 : Statistical Geography: Methods and Applications, Rawat Pub. New Delhi: .
2. Davis, R.E. and Foote, F.S. (1953): Surveying, 4<sup>th</sup> edition, McGraw Hill Publication, New York
3. Kanetkar, T.P. and Kulkarni, S.V.(1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai.
5. Pal, S.K. 1999 : Statistics for Geoscientists, Concept publishing Company, New Delhi
6. Punmia, B.C.(1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
7. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5<sup>th</sup> edition
8. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
9. Sharma, J. P. (2001): *Prayogik Bhugol.*, Rastogi Publication, Meerut 3<sup>rd</sup>. edition.
10. Silk, J. 1979 : Statistical techniques in Geography, George Allen and Unwin, London
11. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.,
12. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
13. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

*(Dr. S.K. Das)*  
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*DR. R. Sharma*  
27.05.19

बी.ए./बी.एस.सी. –द्वितीय वर्ष  
प्रश्न पत्र–प्रथम  
आर्थिक एवं संसाधन भूगोल

(कोड क्रमांक 0187)

अधिकतम अंक: 50

- इकाई—1 :** आर्थिक भूगोल का अर्थ, विषय क्षेत्र एवं उपागम; आर्थिक भूगोल की आधारभूत संकल्पनाये; संसाधन : संकल्पनायें एवं वर्गीकरण; प्राकृतिक संसाधन : मिट्टी, वन एवं जल ।
- इकाई—2 :** खनिज संसाधन : लौह अयस्क एवं बाक्ससाईट; शक्ति संसाधन कोयला, पेट्रोलियम एवं जल विद्युत; संसाधन संरक्षण ; प्रमुख फसले: गेहूँ, चावल, गन्ना, एवं चाय ।
- इकाई—3 :** विश्व के कृषि प्रदेश (व्हिटलसी के अनुसार); कृषि अवस्थिति के सिद्धान्त (वॉन थ्यूनेन); औद्योगिक स्थानीयकरण का सिद्धान्त (वेबर); प्रमुख उद्योग : लौह एवं इस्पात, वस्त्र उद्योग, शैलरासायनिक एवं शक्कर; विश्व के औद्योगिक प्रदेश ।
- इकाई—4 :** विश्व परिवहन : प्रमुख ट्रांस महाद्वीपीय रेलवे, समुद्र एवं वायु मार्ग; अंतर्राष्ट्रीय व्यापार प्रतिरूप एवं प्रवृत्तियाँ; प्रमुख व्यापार संघ : लैटिन अमेरिकी स्वतंत्र व्यापार संघ (LAFTA), यूरोपीय साझा बाजार (EEC), दक्षिणी-पूर्वी एशियाई राष्ट्रों का संघ (ASEAN), विकासशील देशों पर भूमण्डलीकरण का प्रभाव ।
- इकाई—5 :** संसाधनों का संरक्षण; संकल्पनाओं का उद्भव, सिद्धांत, दर्शन एवं संरक्षण के उपागम, संसाधन संरक्षण एवं प्रवृत्तियाँ, अक्षय विकास एवं नीति निर्माण ।

**Books Recommended:**

1. Alexander, J. W. (1988): Economic Geography. Prentice-Hall, New Delhi,.
2. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): The Economic Geography Reader: Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.
3. Clark, G. L., Gertler, M. S. and Feldman, M. P. (eds.) (2000): The Oxford Handbook of Economic Geography. Oxford University Press, USA.
4. Coe, N. (2007): Economic Geography: A Contemporary Introduction. Blackwell Publishers, Inc., Massachusetts.
5. Gautam, A. (2006): *Aarthik Bhugol Ke Mool Tattava*, Sharda Pustak Bhawan, Allahabad.
6. Guha, J. S. and Chatteraj, P.R. (2002): A New Approach to Economic Geography: A Study of Resources. The World Press Private Limited, Kolkata.
7. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
8. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff, New Jersey, Prentice Hall
9. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
10. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.

*(Dr. S. K. Das)* 27.5.19  
*Ashwini* 27.5.19  
*DR. R. Sharma* 27.05.19

बी.ए./बी.एस.सी. द्वितीय वर्ष  
प्रश्न पत्र— द्वितीय  
भारत का भूगोल

(कोड क्रमांक 0188)

अधिकतम अंक: 50

- इकाई -1** भौगोलिक स्वरूप – संरचना, उच्चावच जलवायु, भू-आकृतिक प्रदेश, अपवाह, जलवायु-मानसून की उत्पत्ति एवं विकास प्रक्रिया तथा पादेशिक एवं मौसमी विविधता।
- इकाई -2** प्राकृतिक संसाधन – मिट्टियाँ, प्रकार, वितरण एवं विशेषताएँ, जल संसाधन, सिंचाई और बहुउद्देशीय परियोजनाएँ, वन-प्रकार, वितरण आर्थिक महत्व एवं संरक्षण। खनिज एवं शक्ति के संसाधन – लौह अयस्क, मैंगनीज, तांबा, कोयला, पेट्रोलियम और प्राकृतिक गैस, गैर पारंपरिक उर्जा, (सौर उर्जा, पवन उर्जा ज्वारीय उर्जा, भूतापीय उर्जा)।
- इकाई -3** सांस्कृतिक तत्व, जनसंख्या वृद्धि, घनत्व और वितरण, कृषि प्रमुख खाद्य फसलें, हरित क्रांति का प्रभाव, कृषि प्रदेश,।
- इकाई -4** उद्योग-स्थानीकरण, औद्योगिक विकास और उत्पादन – लौहा और इस्पात उद्योग, सूती वस्त्र उद्योग, सीमेंट, चीनी, यातायात और व्यापार, औद्योगिक प्रदेश।
- इकाई -5** भारत के निम्न प्रदेशों का विस्तृत अध्ययन कश्मीर घाटी, उत्तर पूर्वी प्रदेश, छोटा नागपुर का पठार, थार मरुस्थल भारत के द्वीप समूह।

**Books Recommended:**

1. Chauhan, P.R. and Prasad, M. (2003): *Bharat Ka Vrihad Bhugol*, Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): *An Introduction to South Asia*. Methuen, London
3. Gautam, A. (2006): *Advanced Geography of India*, Sharda Pustak Bhawan, Allahabad
4. Johnson, B.L.C. (1963): *Development in South Asia*. Penguin Books, Harmondsworth
5. Krishnan, M.S. (1982): *Geology of India and Burma*, CAS Publishers and Distributors, Delhi.
6. Khullar, D.R. (2007): *India: A Comprehensive Geography*, Kalyani Publishers, New Delhi
7. Nag, P. and Gupta, S. S. (1992): *Geography of India*, Concept Publishing Company, New Delhi.
8. Rao, B.P. (2007): *Bharat ke Bhaugolik Sameeksha*, Vasundhara Prakashan, Gorakhpur.
9. Sharma, T.C. and Coutinho, O. (2003): *Economic and Commercial Geography of India*, Vikas Publishing House Private Ltd. New Delhi.
10. Singh, J. (2003): *India: A Comprehensive Systematic Geography*. Gyanodaya Prakashan, Gorakhpur
11. Singh, J. (2001): *Bharat: Bhaugolik Aadhar Avam Ayam*, Gyanodaya Prakashan, Gorakhpur.
12. Singh, R.L. (ed.) (1971): *India: A Regional Geography*. National Geographical Society of India, Varanasi.
13. Spate, O.H. K., Learmonth A. T. A. and Farmer, B. H. (1996): *India, Pakistan and Sri Lanka*. Methuen, London, 7<sup>th</sup> edition.
14. Sukhwai, B.L. (1987): *India: Economic Resource Base and Contemporary Political Patterns*. Sterling Publication, New Delhi
15. Tiwari, R.C. (2007): *Geography of India*, Prayag Pustak Bhawan, Allahabad.
16. Wadia, D. N. (1959): *Geology of India*. Mac-Millan and Company, London and student edition, Madras.

*(Dr. S.K. Das)* 27.5.19  
*Ashwini* 27.5.19  
*DR. R. Sharma* 27.05.19

बी.ए./बी.एस.सी. द्वितीय वर्ष  
प्रश्न पत्र-तृतीय  
प्रायोगिक भूगोल

अधिकतम अंक : 50

खण्ड-अ. मानचित्र की व्याख्या, प्रक्षेप और सांख्यिकीय विधियां ।

(25 अंक)

इकाई -1 मानचित्र - बिन्दु विधि, छाया विधि, सममान रेखा मानचित्र (मानचित्र निर्माण)

इकाई -2 प्रक्षेप - परिभाषा एवं प्रकार शंकवाकार, खमध्य बेलनाकार प्रक्षेप.

इकाई -3 मौसम मानचित्र की व्याख्या एवं मौसम संबंधी उपकरणों का उपयोग.

इकाई -4 सांख्यिकीय विधियां - विचलन- चतुर्थांश माध्य विचलन, मानक विचलन, चतुर्थक विचलन, सापेक्षिक परिवर्तनशीलता, प्रसरण गुणक ।

खण्ड-ब. सर्वेक्षण

(15 अंक)

इकाई -5 प्रिज्मीय सर्वेक्षण- पूर्णवृत्त दिक्मान, समानीत दिक्मान एवं प्रिज्मीय कम्पास सर्वेक्षण की विधियाँ ।

प्रायोगिक पुस्तिका और मौखिक परीक्षा

(10 अंक)

**Books Recommended:**

1. Alvi, Z. 1995 : Statistical Geography: Methods and Applications, Rawat Pub. New Delhi: .
2. Davis, R.E. and Foote, F.S. (1953): Surveying, 4<sup>th</sup> edition, McGraw Hill Publication, New York
3. Kanetkar, T.P. and Kulkarni, S.V.(1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai.
5. Pal, S.K. 1999 : Statistics for Geoscientists, Concept publishing Company, New Delhi
6. Punmia, B.C.(1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
7. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5<sup>th</sup> edition
8. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
9. Sharma, J. P. (2001): *Prayogik Bhugol.*, Rastogi Publication, Meerut 3<sup>rd</sup> edition.
10. Silk, J. 1979 : Statistical techniques in Geography, George Allen and Unwin, London
11. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.,
12. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
13. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

*(Dr. S.K. Das)* 27.5.19  
*Ashwini* 27.5.19  
*DR. R. Sharma* 27.5.19

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)

## B.A. – II PSYCHOLOGY

Paper	Name of the Paper	Max. Marks	Duration
I	Social Psychology	50	3 hrs.
II.	Psychological Assessment	50	3 hrs.
III.	Practicum	50	4 Hrs.

### PAPER - I

#### SOCIAL PSYCHOLOGY (Paper Code-0189)

M.M.:50

**Note:** This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

**UNIT-1** Nature, Goal and Scope of Social Psychology; Methods of Social Psychology: Experimental, Survey, Interview, Observation, and Sociometric. Approaches to the study of social behavior: Psychoanalytic, Cognitive, and Behavioral.

**UNIT-2** Social Perception: Perception of Self and Others, Impression Formation and its Determinant, Prosocial Behavior: Co-operation and Helping- Personal, Situational and Socio-cultural Determinants.

**UNIT-3** Stereotypes: Nature and Determinants; Prejudice: Nature and Determinants; Attitudes: Nature and Measurement; Interpersonal Attraction and Determinants.

**UNIT-4** Group Structure and Function: Social Facilitation, Conformity, Cohesiveness; Group Norms; Leadership: Nature, Types, Characteristics and Functions.

**UNIT-5** Social Issues: Aggression- Determinants, Prevention and Control; Population Explosion- Nature and Consequences (Socio-cultural); Pollution; Corruption; Mob Behavior; Gender Discrimination and Child Labour.

### References

- 1- सिंह, अरू । कुमार। समाज मनविज्ञान की रूपरेखा। मातृलाल बनारसदास प्रकाशन।
- 2- मिश्रा एव जन। समाज मनविज्ञान के मूल आधार। म.प्र. हिन्दी ग्रंथ अकादमी।
- 3- त्रिपाठी, लालबचन। समाज मनविज्ञान की रूपरेखा। हरप्रसाद नागव प्रकाशन।
- 4- Baron, R.A. & Byrne, D. Social Psychology. New Delhi: Prentice Hall Pub.
- 5- Secord, P.F. & Backman, C.W. (1994). Social Psychology. McGraw-Hill.

**B. A. - II**  
**PSYCHOLOGY PAPER- II**

**PSYCHOLOGICAL ASSESSMENT (Paper Code-0190)**

**M.M.:50**

**Note:** This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

**UNIT-1** Psychological Assessment: Concept, Difference between Physical and Psychological Assessment, Levels of Assessment, Barriers in Psychological Assessment, Unidimensional and Multidimensional Assessment.

**UNIT-2** Psychological Tests: Concept, Characteristics, and Types- Standardized and Non-standardised, Group, Performance and Verbal; Uses of Psychological Tests.

**UNIT-3** Test Construction: Steps in Test Construction, Reliability- Test-retest, Split-half; Factors affecting Reliability; Validity: Content and Predictive; Factors affecting Validity; Norms- Age and Grade.

**UNIT-4** Cognitive and Non-cognitive Tests: Cognitive- Introduction to Intelligence, Aptitude, and Achievement Testing; Non-Cognitive: Introduction to Personality, Interest, and Value Testing.

**UNIT-5** Psychological Testing in Applied aspects of Life: Education, Occupation, Social, Health and Organization; Socio-Cultural factors in Psychological Assessment.

**References**

- 1- Anastasi (1997) Psychological Testing, New York: McGraw-Hill.
- 2- Ciminero, A.R. (1986) Handbook of Behavioral Assessment, New York: John Wiley.
- 3- Gupta, S.P. (2001). Manovaijyanik Mapan evam Moolyankan. Agra: Sharda Prakashan.



**B. A. - II**  
**PSYCHOLOGY PAPER- III**  
**PRACTICUM**

**M.M.:50**

**Note:** This paper consists of two parts:

**Part-A**

- (a) Comprises of Laboratory **Experiments**.  
(b) Comprises of Psychological **Testing** and understanding of self and others.

(a) **Experiments** (Any five of the following):-

1. Effect of Group on Decision Making.
2. Social Facilitation.
3. Effect of Social setting on Sociometry.
4. Stereotypes.
5. Effect of Order of Information on Person-Perception.
6. Effect of Leadership on Performance.
7. Effect of Cognitive Dissonance on Attitude Change.
8. Effect of Communicator's Credibility on Suggestibility.

(b) **Psychological Tests** (Any four of the following):-

1. Aggression.
2. Deprivation.
3. Self-concept.
4. Dependence Proneness Scale.
5. Value.
6. Vocational Interest.
7. Attitude Scale.
8. Creativity.
9. Personality Test.

**Part-B**  
**Field Work**

Each student will be required to visit a hospital/ industrial organisation/ educational institution etc. under departmental supervision and shall be preparing his/her observation report, revealing his/her psychological insight about group dynamics that is operational in the unit. This record constitutes a part of assessment of field visit. Measures of central tendency in group data and correlation- Rank order.

**Distribution of Marks**

A.	Conduction of Psychological Experiment and Reporting	15 marks.
B.	Administration of one Psychological Test and Reporting	15 marks.
C.	Evaluation of Practical note book of the Field-Work	10 marks.
D.	Viva-Voce	10 marks.

**References** Sharma, R. (2018) - Psycho-laboratory- Experiment and Test. Raipur: Vaibhav Prakshan.

*U. Mohan*  
22.6.19

*[Signature]*  
22.06.2019



प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व  
Ancient India History, Culture and Archaeology

बी.ए. द्वितीय वर्ष

B.A. Part II Year

पाठ्यक्रम  
Syllabus

सत्र : 2019–20

Session 2019-20

Dr. Shilpi  
Sharma  
31.5.19

Prashant  
31.5.19

RAJ  
31.5.19

**बी.ए. द्वितीय वर्ष**  
**B.A. Part II Paper I**

प्रथम : प्रश्न-पत्र

प्राचीन भारतीय सामाजिक तथा आर्थिक संस्थाएं (पेपर कोड 0134)  
Ancient Indian Social and Economic Institution

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य प्राचीन भारत की सामाजिक तथा आर्थिक संस्थाओं का सामान्य ज्ञान कराना है।

- इकाई- 1 (1) वर्णाश्रम व्यवस्था (Varna System)  
(2) आश्रम व्यवस्था (Ashramas)  
(3) पुरुषार्थ चतुष्टय (Purushartha Chatushtaya)  
(4) पंचमहायज्ञ (Pancha mahayagya)
- इकाई- 2 (1) संस्कार (Sanskaras)  
(2) विवाह तथा उसके प्रकार (Marriage and their types)  
(3) परिवार की उत्पत्ति तथा महत्व, संयुक्त परिवार, पिता,माता, तथा पुत्र की स्थिति, पुत्रों के प्रकार (Origin of Family and its Significance, Joint Family, position of Father, Mother and Sons; Types of Son)
- इकाई- 3 (1) नारियों की स्थिति (Position of Women)  
(2) शिक्षा-उद्देश्य, आदर्श, उपलब्धियाँ तथा प्रमुख शिक्षा केन्द्र (Objectives of Education, Model, Achievements and Important education Centres)
- इकाई- 4 (1) वैदिक काल से 600 ई.पू. तक प्राचीन भारत की आर्थिक दशा (Economic Condition of Ancient India from Vedic age to 600 B.C.)  
(2) श्रेणियों का संगठन और कार्य (Organisation and working of Guilds)  
(3) 600 ई.पू. से 319 ई. तक प्राचीन भारत की आर्थिक दशा (Economic Condition of Ancient India from 600 B.C. to 319 A.D.)
- इकाई- 5 (1) 319 ई. से 1200 ई. तक प्राचीन भारत की आर्थिक दशा (Economic Condition of Ancient India from 319A.D. to 1200 A.D.)  
(2) आंतरिक और बाह्य व्यापारिक मार्ग (Domestic and International trade routes)

सहायक ग्रंथ :

- |   |   |
|---|---|
| 1. मनोरमा जौहरी                               | — प्राचीन भारतीय वर्णाश्रम व्यवस्था                         |
| 2. जयशंकर मिश्र                               | — भारत की सामाजिक इतिहास                                    |
| 3. के.सी.जैन                                  | — प्राचीन भारतीय सामाजिक तथा आर्थिक संस्थाएं                |
| 4. राजबली पाण्डेय                             | — हिन्दू संस्कार  |
| 5. हरिदत्त वेदालंकार                          | — हिन्दू परिवार मीमांसा                                     |
| 6. ए.एस.अल्तेकर                               | — प्राचीन भारत में नारियों की स्थिति                        |
| 7. आर.एस.शर्मा                                | — प्राचीन भारत में शूद्रों की स्थिति                        |
| 8. ए.एस.अल्तेकर                               | — प्राचीन भारतीय शिक्षण पद्धति                              |
| 9. रमेशचन्द्र मजुमदार (अनु.कृष्णदत्त बाजपेयी) | — प्राचीन भारत में संगठित जीवन                              |
| 10. मोतीचन्द्र                                | — सार्थवाह  |
| 11. कृष्णदत्त बाजपेयी                         | — भारतीय व्यापार का इतिहास                                  |
| 12. कृष्णदत्त बाजपेयी                         | — प्राचीन भारत का विदेशों में संबंध                         |
| 13. आर.एस.शर्मा                               | — पूर्व मध्यकालीन भारत में सामाजिक परिवर्तन                 |
| 14. डॉ. चन्द्रदेव सिंह                        | — प्राचीन भारतीय समाज और चिन्तन                             |
| 15. सुस्मिता पाण्डेय                          | — समाज, आर्थिक व्यवस्था एवम् धर्म                           |
| 16. P.N. Prabhu                               | - Hindu Social Organization                                 |
| 17. S.K. Maity                                | - The Economics life of Northern India in the Gupta Period. |
| 18. L.Gopal                                   | - Economic life of Northern Indian                          |
| 19. D.R. Das                                  | - Economics History of the Deccan                           |
| 20. शिव स्वरूप सहसा                           | — प्राचीन भारतीय सामाजिक, आर्थिक संस्थाएं                   |

(24)  
31/05/19  
31/05/19

31-5-19

31-5-19

**बी.ए. द्वितीय वर्ष**  
**द्वितीय : प्रश्न-पत्र**  
**B.A. Part II Paper II**  
**प्राचीन भारतीय राजनय तथा प्रशासन (पेपर कोड 0205)**  
**Ancient Indian Polity and Administration**

पूर्णांक : 75

- इकाई— 1 राज्य की उत्पत्ति, प्रकार, स्वरूप तथा कार्य।  
(Origin, types, form, and function of State)
- इकाई— 2 राजपद, मंत्रिपरिषद्-संगठन एवं कार्य, सप्तांग सिद्धांत।  
(Kingship; organisation and working of Council of Ministers; Theory of Saptanga)
- इकाई— 3 गणराज्य : संगठन, शासन, पद्धति, गुण-दोष  
(Republics: organisation, government, system, Pros & Cons)
- इकाई— 4 अंतर्राष्ट्रीय संबंध, मण्डल सिद्धांत, षाडगुण्य सिद्धांत, दूत व्यवस्था, गुप्तचर व्यवस्था।  
(International Relation, Principle of Mandala, Principle of Shadgunya, Ambassadors, Espionage)
- इकाई— 5 विभिन्न राजवंशों की प्रशासन व्यवस्था :  
मौर्य, गुप्त, हर्ष कालीन वंश की प्रशासन, राष्ट्रकूट एवं चोलवंश।  
(Administrative system of various Dynasties: Mauryas, Guptas, period of Harsha, Rashtrakutas and Cholas )

अनुशंसित पुस्तकें :

- |                            |  |
|----------------------------|--|
| 1. अनंत सदाशिव अल्तेकर     | — प्राचीन भारतीय शासन पद्धति (Ancient Indian Administration) |
| 2. काशी प्रसाद जायसवाल     | — हिन्दू राजतंत्र, भाग 1, 2 (Hindu Polity)                   |
| 3. डॉ. रवीन्द्रनाथ अग्रवाल | — मध्यप्रदेश क्षेत्र के अंतर्राज्यीय संबंधों का अध्ययन       |
| 4. सत्यकेतु विद्यालंकर     | — प्राचीन भारतीय शासन व्यवस्था एवं राज्य शास्त्र             |
| 5. मनोरमा जौहरी            | — प्राचीन भारत में राज्य और शासन व्यवस्था                    |
| 6. हरिश्चन्द्र शर्मा       | — प्राचीन भारतीय राजनीतिक विचारक एवं संस्थाएं                |
| 7. राधाकृष्ण चौधरी         | — प्राचीन भारतीय राजनीति एवं शासन व्यवस्था                   |

(24)  
31/05/19  
Prakash  
31/05/19

Ramesh  
31-5-19

Ramesh  
31.5.19

सत्र 2019-20 से प्रस्तावित

बी.ए. द्वितीय वर्ष

संस्कृत साहित्य

टीप - बी.ए. द्वितीय वर्ष में संस्कृत साहित्य के दो प्रश्न-पत्र होंगे एवं दोनों प्रश्न-पत्र 75-75 अंकों के होंगे ।

**प्रथम प्रश्नपत्र**

नाटक, व्याकरण तथा रचना

पूर्णांक - 75

- |         |  |          |
|---------|--|----------|
| इकाई -1 | नागानन्द नाटकम् (हर्षवर्धनकृत)                               | अंक - 15 |
|         | 1. एक ससन्दर्भ व्याख्या                                      |          |
|         | 2. दो सूक्तियों की व्याख्या                                  |          |
| इकाई -2 | नागानन्द नाटकम् - समीक्षात्मक प्रश्न                         | अंक - 15 |
| इकाई -3 | व्याकरण (लघुसिद्धान्तकौमुदी)                                 | अंक - 15 |
|         | कर्तृवाच्य, कर्मवाच्य, भाववाच्य                              |          |
| इकाई -4 | व्याकरण (लघुसिद्धान्तकौमुदी)                                 | अंक - 15 |
|         | समास प्रकरण  |          |
| इकाई -5 | वाक्यरचना  | अंक - 15 |
|         | व्याकरण के अधीत अंश पर आधारित छह संस्कृत शब्दों से वाक्यरचना |          |

**अनुशंसित ग्रन्थ -**

1. नागानन्द नाटक - हर्षवर्धन, प्रकाशक - चौखम्बा विद्याभवन, वाराणसी
2. रचनानुवाद कौमुदी - डा. कपिलदेव द्विवेदी
3. संस्कृत में अनुवाद कैसे करें - उमाकान्त मिश्र शास्त्री, प्रकाशक - भारती भवन
4. लघु सिद्धान्त कौमुदी - श्रीधरानन्द शास्त्री
5. लघु सिद्धान्त कौमुदी - श्री महेश सिंह कुशवाहा, प्रकाशक - चौखम्बा विद्याभवन, वाराणसी
6. शीघ्रबोधव्याकरणम् - डा. पुष्पा दीक्षित, पाणिनीय शोध संस्थान, तेलीपारा, बिलासपुर

*31/05/19*

सत्र 2019-20 से प्रस्तावित

बी.ए. द्वितीय वर्ष

संस्कृत साहित्य

द्वितीय प्रश्नपत्र

नाटक, व्याकरण और अनुवाद

पूर्णांक — 75

- इकाई —1 रघुवंशमहाकाव्यम् (द्वितीय सर्गः)  
दो श्लोकों की व्याख्या अंक — 15
- इकाई —2 रघुवंशमहाकाव्य के समीक्षात्मक प्रश्न अंक — 15
- इकाई —3 नीतिशतकम् (भर्तृहरिकृत)  
दो श्लोकों की व्याख्या अंक — 15
- इकाई —4 साहित्येतिहासः अंक — 15  
नाटक, महाकाव्य तथा गद्यकाव्य —  
अभिज्ञानशाकुन्तल, उत्तररामचरित, वेणीसंहार, मुद्राराक्षस, मृच्छकटिक,  
रघुवंश, कुमारसंभव, बुद्धचरित, सौन्दरनन्द, पद्मचूडामणि, सुग्रीववध,  
किरातार्जुनीय, भट्टिकाव्य, जानकीहरण, शिशुपालवध, नैषधीयचरित,  
हरविजय, नवसाहसांकचरित, विक्रमांकदेवचरित, राजतरंगिणी ।  
वासवदत्ता, दशकुमारचरित, कादम्बरी, हर्षचरित, तिलकमंजरी, गद्यचिन्तामणि,  
शिवराजविजय ।
- इकाई —5 साहित्येतिहासः अंक — 15  
गीतिकाव्य, मुक्तक तथा कथा साहित्य —  
शतकत्रय (भर्तृहरि), ऋतुसंहार, मेघदूत, अमरुकशतक, गीतगोविन्द,  
भामिनीविलास, पंचलहरी, नलचम्पू, रामायणचम्पू, भारतचम्पू,  
वरदाम्बिकापरिणय, पंचतंत्र, हितोपदेश, बेतालपंचविंशति, शुकसप्तति,  
कथासरित्सागर, बृहत्कथामंजरी, कथामुक्तावली, इक्षुगन्धा ।  
(उल्लिखित रचनाओं एवं रचनाकारों का सामान्य परिचय अपेक्षित है ।)

अनुशंसित ग्रन्थ —

1. रघुवंशमहाकाव्य — कालिदास, प्रकाशक — मोतीलाल बनारसीदास
2. नीतिशतकम् — भर्तृहरि, प्रकाशक — चौखम्बा विद्याभवन, वाराणसी
3. संस्कृत साहित्य का इतिहास — आचार्य बलदेव उपाध्याय
4. संस्कृत साहित्य का अभिनव इतिहास — डा. राधावल्लभ त्रिपाठी, वि.वि. प्रकाशन, सागर, म.प्र.

31/05/19

**भाषाविज्ञान**  
**प्रथम प्रश्न-पत्र**  
**वाक्य- अभिरचनाएं**  
**(पेपर कोड – 0177)**

1. हिन्दी की व्याकरणिक कोटियां—शब्दवर्ग, पुरुष, लिंग, वचन, कारक, काल, वृत्ति—परिभाषा तथा सोदाहरण विवेचना।
2. भाषित रूप — अर्थ—तत्त्व व संबंध—तत्त्व । संबंध—तत्त्व के प्रकार एवं कार्य । रूपिम के प्रकार, रूपिम—निर्धारण—व्यतिरेकी विवरण, परिपूरक वितरण।
3. भाषित संकेत — समाजभाषाविज्ञान के संदर्भ में, 'लांग' तथा 'पैरोल' । भाषा के अध्ययन के प्रकार — एककालिक, बहुकालिक, तुलनात्मक, व्यतिरेकी तथा अनूपयुक्त।
4. पदबंध उपवाक्य तथा वाक्य — पदबंध का वर्गीकरण — संज्ञा—पदबंध, सर्वनाम — पदबंध, विशेषण—पदबंध, क्रिया — पदबंध, क्रियाविशेषण — पदबंध आदि।  
उपवाक्य का वर्गीकरण — संज्ञा—उपवाक्य, विशेषण — उपवाक्य, क्रियाविशेषण, उपवाक्य आदि । वाक्यों का वर्गीकरण—विभिन्न आधार।
5. कारक — कर्ता, कर्म, करण, आदि अन्वय । काल, पक्ष, भाव, वाच्य, पदक्रम, — वाक्य—विन्यास — निकटस्थ अवयव विश्लेषण, रूपान्तरण—प्रजनक व्याकरण । हिन्दी के वाक्यों में होने वाली अशुद्धियों का संशोधन।

**निर्धारित पुस्तकें —**

1. भाषाविज्ञान — भोलानाथ तिवारी (किताब महल, इलाहाबाद)
2. भाषाविज्ञान एवं भाषाशास्त्र — डॉ. कपिलदेव द्विवेदी (विश्वविद्यालय प्रकाशन, वाराणसी)
3. भाषाविज्ञान सैध्दांतिक चिंतन — रविन्दनाथ श्रीवास्तव
4. आधुनिक हिन्दी व्याकरण और रचना 'वासुदेवनंदल प्रसाद
5. अच्छी हिंदी — रामचंद्र वर्मा
6. भाषाशास्त्र की रूपरेखा — उदानारायण तिवारी

**भाषाविज्ञान**  
**द्वितीय प्रश्न पत्र**  
**कोशविज्ञान एवं अर्थविज्ञान**  
**(पेपर कोड – 0178)**

1. कोशविज्ञान – परिभाषा, उद्देश्य, विषय-क्षेत्र, विज्ञान है या कला, कोशविज्ञान का अन्य विषयों से संबंध, कोशों के अध्ससन के आधार – ऐतिहासिक, तुलनात्मक आदि।
2. कोश – निर्माण की विधियां, शब्द- संकलन के आधार, प्रविष्टियों का चयन, क्रम-विन्यास, कोश-निर्माण में होने वाली समस्याएं।
3. शब्दाकोश के प्रकार – भाषा के आधार पर – एकभाषिक, द्विभाषिक, त्रिभाषिक, बहुभाषिक आदि : काल के आधार पर – समकालिक, ऐतिहासिक आदि। कोशीय अर्थ का निर्धारण-पर्यायवाची, अनेकार्थी, अनेकार्थ, लक्षणार्थ, समध्वनि, विलोमार्थ, संदर्भपरक, अर्थ आदि। शब्दकोश की विशेषताएं।
4. अर्थीय संबंध – शब्द और अर्थ के बीच संबंध, अर्थ के प्रकार अर्थ परिवर्तन की दिशाएं- अर्थ-विस्तार, अर्थसंकोच, अर्थादेश आदि। अर्थ-परिवर्तन के विभिन्न कारण।
5. हिन्दी शब्दों का प्रयोग और अर्थ –ऊनार्थक (लघुतावाची) शुद्ध, पर्यायवाची शब्द, समूहवाची शब्द, ध्वनिमूलक शब्द (सजीव तथा निर्जीव से संबंधित) समध्वनि मूलकशब्द, मुहावरें तथा लाकोक्तियों का अर्थ और प्रयोग।

**निर्धारित पुस्तकें-**

1. कोशविज्ञान – भोलानाथ तिवारी
2. आधुनिक हिन्दी व्याकरण और रचना – वासुदेवनंदन प्रसाद
3. अच्छी हिन्दी – रामचंद्र वर्मा
4. शुद्ध हिन्दी – हरदेव बाहरी

**B.A. II<sup>nd</sup> Year**  
**MUSIC**  
**PAPER – I**  
**SESSION – 2019-20**

**THEORY OF INDIAN MUSIC-VOCAL / INSTRUMENTAL**

(Paper Code-0201)

- UNIT-I** (a) Definitions and study of the following terms : Graha, Ansha, Nayas Swara, Paryayansha Swara, Alpatva-Bahutva, Aavirbhava-Tirobhava, Gandharva-Gan, Nibaddha-Anibaddha Gan, Jamjama, Ghaseet, Krintan, Shuddha, Chayalag, Sankirna Raga.
- (b) Swasthan Niyam, Ragalap, Aalapti, Akshiptika, Samvadatva.
- UNIT-II** Short Biographics and contributions of the Musicians :- Sharangdeva, Acharya Bharat, Ahobal, Vyankatmakhi, Sadarang-Adarang. Aalauddin Khan, Faiyaz Khan, Imdad Khan, Pt. Ravi Shankar.
- UNIT-III** Notation of Talas with Dugun and Chaugun Layakaries :-  
Roopak, Teevra, Sultal, Deepchandi, Jhumra, Adachautal, Dhamar, Tilwara.
- UNIT-IV** (a) Study of Karnatak Taal System,
- (b) Comparative study of Karnatak and Hindustani Taal System.
- UNIT-V** Definition of Vaggeyakar, Uttam Vaggeykar, Adham Vaggeykar.  
Classification of Instruments :- Tat, Vitat, Ghan, Shushir vadya.

  
14/06/19



## PAPER - II

THEORY OF INDIAN MUSIC VOCAL/INSTRUMENTAL

M.M. : 50

(Paper Code-0202)

SESSION – 2019-20

**UNIT-I** Elementry of Medium-Sound, Musical Sound and Noice, Vibratory motions, Frequency, Pitch, Magnititude and Timber, Major Tone, Minor Tone, Semi Tone.

**UNIT-II** Study of Melas or Thatas as follows :

- (a) 72 Melas of Vyankatmakhi
- (b) 32 Thatas of V.N. Bhatkhande

**UNIT-III** History of Indian Music as follows :

- (a) Origin of Music
- (b) Vedic, Pauranik and Gupta Period a short survey

**UNIT-IV(a)** Explanation of the following terms :

Kajari, Chaiti, Rabindra Sangeet, Tribal Music, Lawani, Garba, Baul, Bhatiyali, Mand.

- (b) Merits of a good listener, Qualities of a good listener to make any music programme a success.

**UNIT-V (a)** Study of theoritical details of Ragas prescribed for practical course : Bihag, Kedar, Desh, Bageshwari, Malkauns, Jaunpuri, Bhairavi, Hameer, Kalingda, Kamod, Chhayanat.

- (b) Writing in notation of songs (Bandish) or gats prescribed in practical course of Second year.
- (c) Writing of a critical appreciation of Radio or T.V. Music (Classical) Programme.

  
14/06/19

**PRACTICAL**  
**VOCAL/INSTRUMENT**

**M.M. : 50**

1. Study of the following Ragas : Bihag, Kedar, Desh, Bageshwari, Malkauns, Jaunpuri, Bhairavi, Hameer, Kalingda, Kamod, Chhayanaat .
2. Two Vilambit Khayalas/Maseet Khani Gat, with Alap and Tanas or Todas. One Choice of the candidate and one vilambit asked by the examiner. 10 marks
3. Sargam geet and Lakshan geet in all the above Ragas. Playing of a Gat in Jhaptal and Rupak Tal. 3 + 3 = 6
4. Drut Khayal or Raza Khani Gat with Tanas or Todas in any five of the above mentioned Ragas. 4 + 4 = 8
5. Singing of a Dhrupad Dhamar with Layakaris or playing a Gat in other than Teen Tal. 8 marks
6. Study of the following Talas :

Roopak, Teevra, Sooltaal, Deepchandi, Jhumra, Adachautal, Dhamar, Tilwara.  
Demonstration of Talas with Dugun Chaugun. 4 marks  
Singing of Tarana/Playing of Bol or Jhala 4 marks

**SESSIONAL WORK**

**M.M. : 10**

1. Keeping up to date Practical and Theory note books. Attendance in Class and performance in college classes.
2. Ten descriptions of Music Programmes in Radio, T.V. or Personally attended. Participation in Departmental activities.





  
14/06/19

**BOOKS RECOMMENDED: -**

1. Hindustani Sangeet Paddhati Kramik Pustak Malika (Part-1-4) By V.N. Bhatkhande.
2. Sangeet Visharad, by Vasant.
3. Sangeet Bodh, by S.S. Paranjape.
4. Sangeet Shastra Darpan, By Shanti Govardhan Part I + II
5. Rag Bodh, By B.R. Deodher Part I, II, III
6. Bharatiya Sangeet, Ka Itihass by Umesh Joshi. By Dr. S.S. Paranjape.
7. Sangeet Shastra 1 + 2 + 3 by Mahesh Narayan Saxena.
8. Sangeet Shastra 1, 2, 3 by V.N. Bhatkhande.
9. Sangeetanjali, by Pt. Omkar Nath Thakur.
10. Sitar Malika, by Bhagwat Sharan Sharma.
11. Taal Prakash by Bhagwat Saran.
12. Dhvani Aur Sangeet by Lalit Kishore Singh.

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## **EDUCATION**

### **PAPER - I**

#### **EDUCATION & INDIAN HERITAGE (Paper Code-0193)**

**M.M. 75**

- UNIT-I** Education in India during (a) Vedic (b) Budhastic and (c) Medieval Periods.
- UNIT-II** Macavleys Minutes & Bentinik Resolution (1835), Adam's Report and its recommendation wood's despatch (1854).  
Lord Curzon's educational policy, Growth of national consciousness, National education movement.
- UNIT-III** Report of Hunter Commission, its influence in the subsequent development of education. Ghokhle's Bill.Sadler Commission's recommendation.
- UNIT-IV** Wardha Scheme of education 1937. RadhaKrishanan Commission 1948, Mudaliar Commission (1952-53).
- UNIT-V** Kothari Commission 1964-66, New education policy 1986 and its revised formulation of 1992, Gujrat Vidya Peeth, Basic education, Visva Bharti.

### **PAPER - II**

#### **EDUCATION AND HUMAN DEVELOPMENT (Paper Code-0194) MM. 75**

#### **COURSE OBJECTIVES**

To make the students understand about -

1. The meaning, scope and uses of psychology in education.
2. Human growth and development upto the stage of adolescence.
3. Meaning and purpose of learning and factors influencing learning.
4. The concept of intelligence, its meaning and measurement.
5. Heredity and environment and their roles in causing individual differences.

#### **COURSE CONTENTS**

- UNIT-I** Pshchology- Its meaning, nature and scope. Relationship between education and psychology. Distinction between psychology and educational psychology.
- UNIT-II** Stages of human development : infancy, Childhood, latency and adolescence- their needs, significance and problems. Human development and education, role of educational psychology in understanding the individual.
- UNIT-III** Learing : Learning and maturation, Essential aspects of different theories and laws of learning, motivation in learning, transfer of learning.  
Attention and Interest. Nature and conditions for attention, their educational implications.Emotions - their meening, characteristics and place of emotions in education.
- UNIT-IV** Personality Meanining & Factors. Intelligence - concept, definition and measurement.Habits, meaning of habit and its role and implications in education's.
- UNIT-V** Heredity and invironment and their implications for education.  
Individual differences - causes of individual differences, significance of individual differences and educational implications.

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**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**Syllabus for B.A. / B.Sc. Course, 2019-20**  
**Subject: Statistics**

Each year of B.A. /B.Sc. I, II, III shall have two theories and one practical course. All the Theory as well as Practical Examinations will be of 3 hours duration. In each practical examination 10% marks shall be fixed for viva –voce and 20% marks for practical record.

Scheme of Examination

	<b>Title of the paper</b>	<b>MAX. Marks</b>
<b>B.A./B.Sc. I</b>	<b>Paper-I</b> (Code No. 0803): <b>Probability I</b>	50
	<b>Paper-II</b> (Code No. 0804): <b>Descriptive Statistics I</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. II</b>	<b>Paper-I</b> (Code No. 0853): <b>Statistical Methods</b>	50
	<b>Paper-II</b> (Code No. 0854): <b>Sampling Theory and Design of Experiments</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. III</b>	<b>Paper I</b> (Code No. 0907): <b>Applied Statistics</b>	50
	<b>Paper II</b> ( Code No. 0908): <b>Statistical Quality Control and Computational Techniques</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>

**B.A./B.Sc. –II**  
**Subject: Statistics**  
**Paper-I( Paper Code-0853)**  
**Statistical Methods**

**Unit I**

Sampling from a distribution: Definition of a random sample, simulating random sample from standard distributions (uniform, Normal, Exponential), concept of derived distributions of a functions of random variables, concept of a statistics and its sampling distribution. Point estimate of a parameter. Properties of a good estimator, Concept of bias and standard error of an estimate .Standard errors of sample mean, sample proportion. Sampling distribution of sum of Binomial, Poisson and mean of Normal distributions. Independence of sample mean and variance in random sampling from a Normal distribution (without derivation).

**Unit II**

Statistical tests and interval estimation: Null and alternative hypothesis. Types of errors, level of significance, p values, one and two tailed tests, Procedure for testing of hypothesis. Statement of chi-squares, Student's t and F statistics. Testing for the single mean and variance of a univariate normal distribution, testing the equality of two means and testing for the equality of two variances of two univariate normal distributions. Related confidence intervals. Testing for the significance of sample correlation in sampling from bi-variate normal distribution and for equality of means and equality of variances in sampling from bivariate normal populations.

**Unit III**

Large sample tests: use of central limit theorem for testing and interval estimation of a single mean and a single proportion and difference of two means and two proportions, Fisher's Z transformation and its uses. Pearson's chi-square test for goodness of fit and for homogeneity for standard distributions. Contingency table and test of independence in a contingency table.

**Unit IV**

Nonparametric tests: Definition of order statistics and their distributions, Non-parametric tests, Sign test for univariate and bivariate distributions, Wilcoxon test, Mann-Whitney test, Run test, median test and Spearman's rank correlation test.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Frund J.E. (2001) Mathematical Statistics, Prentice Hall of India.
2. Goon A.M., Gupta M.K., Das Gupta.B. (1991): Fundamentals of Statistics, Vol.I, World Press, Culcutta.
3. Gupta and Kapoor: Fundamentals of Mathematical Statistics S.Chand & Sons.
4. Hodges, J.L. and Lehman E.L. (1964): Basic Concepts of Probability and Statistics, Holden Day.
5. Mood A.M, Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGraw Hill.

## **ADDITIONAL REFERENCES**

- 1..Bhat B.R., Shrivienkatramana T and Rao Madhava K.S. (1997): A Beginner's Text, Vol. II, New age International (P) Ltd.
2. Rohatgi, V.K. (1967): An Introduction to Probability Theory and Mathematical Statistics, John Wiley & Sons.
3. Snedecor, G.W. and Cochran W.G. (1967): Statistical Methods. Iowa State University Press.

**Paper-II** (Paper Code-0854)  
**Sampling Theory and Design of Experiments**

**Unit I**

Concepts of population and sample, need for sampling, Census and sample survey, Basic concepts in sampling, organizational aspects of survey sampling, sample selection and sample size.  
Some basic sampling methods – simple random sampling (SRS) with and without replacement.

**Unit II**

Stratified random sampling, Systematic sampling, Allocation problems, ratio and regression methods of estimation under SRS.

Non-sampling errors, acquaintance of working (questionnaires, sampling design, methods followed in field investigation, principal findings, etc) of NSSO and other agencies undertaking sample surveys.

**Unit III**

Analysis of variance for one way and two-way classifications. Need for design of experiments, fundamental principal of design, basic designs- CRD, RBD, LSD and their analysis.

**Unit IV**

Missing plot technique. Analysis of co-variance. Factorial experiments :  $2^2$ ,  $2^3$  factorial experiments, illustrations, main effects and interactions, confounding and illustrations. Yates method of finding treatment totals.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Cochran W.G. (1977): Sampling Techniques, John Wiley and Sons.
2. Des Raj (2000): Sample Survey Theory, Narosa Publishing House.
3. Murthy M.N.(1967): Sampling Theory and Methods, Statistical Publishing Society, Calcutta.
4. Singh, D. and Chaudhary, F.S. (1986): Theory and analysis of Sample Survey Designs. New Age International Publisher.
5. Sukhatme P.V., Sukhatme B.V., Sukhatme S. and Ashok C.(1984), : Sample Survey Methods and Its Applications, Indian Society of Agricultural Statistics, New Delhi.
6. Das M.N. and Giri (1986) : Design and analysis of experiments, Springer Verlag.
7. Goon A.M., Gupta M.K., Das Gupta B. (1986): Fundamentals of Statistics, Vol.II, World Press, Calcutta.
8. Joshi, D.D.(1987): Linear Estimation and Design of Experiments, Wiley Eastern.
9. Kempthorne O.(1965) : The Design and Analysis of Experiments, Wiley Eastern.



### **Paper III:**

#### **Practical : Practicals Based on Paper I & II**

1. drawing random samples from standard univariate discrete and continuous distributions such as Binomial, Poission, Normal, Cauichy and Exponential.
2. Tests of significance based on Student's t, Chi-square, F. Test of significance of sample correlation coefficient. Use of Z Transformation. Testing of equality of means and equality of variance in sampling from bivariate normal.
3. Large sample tests for means and proportions, tests of goodness of fit and independence of attributes in contingency tables.
4. Nonparametric tests: Sign, Run, Median, Wilcoxon, Mann-Whitney tests.
5. Selection of samples and determination of sample size. Simple random sampling, Statified and systematic sampling. Allocation problem in stratified sampling. Ratio and regression methods of estimation.
6. Analysis of variance for one way and two way classifications. Analysis of CRD, RBD and LSD. Analysis of  $2^2$  and  $2^3$  experiments.

## MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

### **B.A. Part-II**

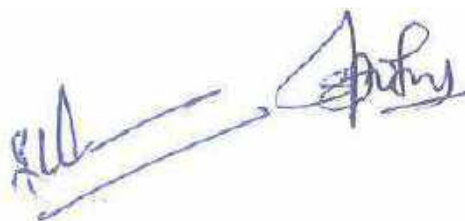
### **Paper-I**

### **ADVANCED CALCULUS**

- UNIT-I Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests, Cauchy's integral test, Ratio tests, Raabe's, Logarithmic, De Morgan and Bertrand's tests. Alternating series, Leibnitz's theorem. Absolute and conditional convergence.
- UNIT-II Continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain rule of differentiability, Mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders.
- UNIT-III Limit and continuity of functions of two variables. Partial differentiation. Change of variables. Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobians.
- UNIT-IV Envelopes, evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's multiplier method.
- UNIT-V Beta and Gamma functions, Double and triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.

#### REFERENCES :

1. Gabriel Klaumber, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
3. R.R. Goldberg, Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970.
4. D. Soma Sundaram and B. Choudhary, A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
6. Gorakh Prasad, Differential Calculus, Pothishala Pvt. Ltd., Allahabad.
7. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Co., New York.
8. Gorakh Prasad, Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
9. S.C. Malik, Mathematical Analysis, Wiley Eastern Ltd., New Delhi.
10. O.E. Stanaitis, An Introduction to Sequences, Series and Improper Integrals, Holden-Dey, Inc., San Francisco, California.
11. Earl D. Rainville, Infinite Series, The Macmillan Company, New York.
12. Chandrika Prasad, Text Book on Algebra and Theory of Equations, Pothishala Pvt. Ltd., Allahabad.
13. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
14. Shanti Narayan, A Course of Mathematical Analysis, S.Chand and Company, New Delhi.



**B.A. Part-II**  
**Paper-II**  
**DIFFERENTIAL EQUATIONS**

- UNIT-I Series solutions of differential equations- Power series method, Bessel and Legendre functions and their properties-convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions, Reality of eigen values, Orthogonality of Bessel functions and Legendre polynomials.
- UNIT-II Laplace Transformation- Linearity of the Laplace transformation, Existence theorem for Laplace transforms, Laplace transforms of derivatives and integrals, Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equations and systems of differential equations using the Laplace transformation.
- UNIT-III Partial differential equations of the first order. Lagrange's solution, Some special types of equations which can be solved easily by methods other than the general method, Charpit's general method of solution.
- UNIT-IV Partial differential equations of second and higher orders, Classification of linear partial differential equations of second order, Homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations reducible to equations with constant coefficients, Monge's methods.
- UNIT-V Calculus of Variations- Variational problems with fixed boundaries- Euler's equation for functionals containing first order derivative and one independent variable, Extremals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form, invariance of Euler's equation under coordinates transformation.
- Variational Problems with Moving Boundaries- Functionals dependent on one and two functions, One sided variations.
- Sufficient conditions for an Extremum- Jacobi and Legendre conditions, Second Variation. Variational principle of least action.

**REFERENCES :**

1. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999.
2. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967.
3. A.R. Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
4. Lan N. Sneddon, Elements of Partial Differential Equations, McGraw-Hill Book Company, 1988.
5. Francis B. Hilderbrand, Advanced Calculus for Applications, Prentice Hall of India Pvt. Ltd., New Delhi, 1977.
6. Jane Cronin, Differential equations, Marcel Dekkar, 1994.
7. Frank Ayres, Theory and Problems of Differential Equations, McGraw-Hill Book Company, 1972.
8. Richard Bronson, Theory and Problems of Differential Equations, McGraw-Hill, Inc., 1973.
9. A.S. Gupta, Calculus of variations with-Applications, Prentice-Hall of India, 1997.
10. R. Courant and D. Hilbert, Methods of Mathematical Physics, Vols. I & II, Wiley-Interscience, 1953.
11. I.M. Gelfand and S.V. Fomin, Calculus of Variations, Prentice-Hill, Englewood Cliffs (New Jersey), 1963.
12. A.M. Arthurs, Complementary Variational Principles, Clarendon Press, Oxford, 1970.
13. V. Kornkov, Variational Principles of Continuum Mechanics with Engineering Applications, Vol. I, Reidel Publ. : Dordrecht, Holland, 1985.
14. T. Oden and J.N. Reddy, Variational Methods in Theoretical Mechanics, Springer-Verlag, 1976.



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**B.A. Part-II**  
**Paper-III**  
**MECHANICS**

**STATICS**

UNIT-I Analytical conditions of Equilibrium, Stable and unstable equilibrium. Virtual work, Catenary.

UNIT-II Forces in three dimensions, Poinsot's central axis, Null lines and planes.

**DYNAMICS**

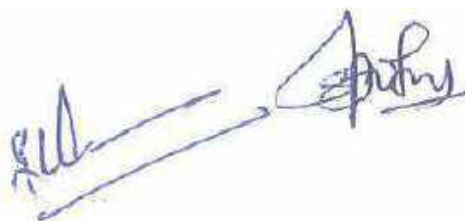
UNIT-III Simple harmonic motion. Elastic strings. Velocities and accelerations along radial and transverse directions, Projectile, Central orbits.

UNIT-IV Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves.

UNIT-V Motion in a resisting medium, motion of particles of varying mass, motion of a particle in three dimensions, acceleration in terms of different co-ordinate systems.

**REFERENCES :**

1. S.L. Loney, Statics, Macmillan and Company, London.
2. R.S. Verma, A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad.
3. S.L. Loney, An Elementary Treatise on the Dynamics of a particle and of rigid bodies, Cambridge University Press, 1956.



## **B.A./B.Sc. – Second Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- First  
Name of the Paper :- ARCHAEOLOGICAL ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I      Meaning and scope of Archaeological Anthropology, branches of Archaeology: Classical Archaeology, Historical Archaeology, Prehistoric Archaeology and Protohistoric Archaeology. Anthropology as Archaeology. Differences between the Old world and new world Archaeological Traditions. Absolute and Relative Dating.
- UNIT – II      Geological time scale. The Great Ice Age  
Stratigraphy and other evidences of Ice Age: River terraces. Moraines etc. Pluvial and interpluvials  
Stone Age tools: Types and Technology.
- UNIT – III      Age of Paleolithic savagery:  
European lower Paleolithic period: Stone tools and cultures  
Indian lower Paleolithic period: Sohan Culture & Madrasian Culture.  
European Middle Paleolithic Period: Tools & culture; Flake tool complex in India  
European Upper Paleolithic period; Tools and Culture, main characteristics of the European Paleolithic Home and Cave art and its significance.
- UNIT – IV      Mesolithic complex in North Europe. Mesolithic complex in Western Europe, Mesolithic Culture in India. Chief feature of Neolithic revolution. Neolithic complex in India.
- UNIT – V      Metal Age: Copper, Bronze and Iron Age  
Urban revolution: General Features  
Indus valley civilization: Main Features, Town Planning, Economic activities, origin and decay

  
20/06/19

## **B.A. /B.Sc. – Second Year**

**Session: 2019-20**

Name of the Subject :- Anthropology  
Paper :- Second  
Name of the Paper :- TRIBAL CULTURE OF INDIA  
Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT-I** Define tribe and scheduled tribe. Geographical distribution of Indian tribes and their racial and linguistic classification. Contribution of Anthropology in the study of Indian tribes.  
Sacred complex, Universalisation and parochialisation, Sanskritisation, westernization, dominant caste.  
Tribes and caste, Difference between S.C. and S.T.  
Particularly Vulnerable Tribale Group (PVTG) of Chhattisgarh (Kamar, Birhor, Hill Korwa. Abujhmariya, Baiga)
- UNIT-II** Primitive economy:-  
Stages of tribal economy: Hunting, food gathering, fishing, shifting and settled agriculture.  
Concept of Property and ownership in tribal societies  
Problems of tribal people: land alienation, bonded labour, indebtedness, shifting cultivation, irrigation, Unemployment, agricultural labour; Forest and Tribals  
New economic anthropology: Exchange- Gifts, barter, trade, ceremonial exchange and market economy
- UNIT-III** The problems of culture contact: Problems due to urbanization and industrialization, Regionalism  
Tribal religion: origin & function, animism, totemism.  
Concept and practices of Magic and witchcraft, shamanism, head hunting.
- UNIT-IV** Political organisation of Indian tribes: Distinction between state and stateless society, law in primitive society  
Social organization of Indian Tribes: Matriarchal and patriarchal family,. Lineage and clan, Ways of acquiring mates in tribal societies.  
Youth dormitories: Type, organisation and functions.
- UNIT-V** Tribal development: History of tribal development, the constitutional safeguards for the scheduled tribes.  
Tribal problem: isolation, migration, acculturation, detribalization.  
Policies, plans and programmes of tribal development and their implementation. Tribal revolts in India.  
Contributions of anthropology to tribal development.  
Response of the tribal people for development programs of government and NGO

  
20/06/19

Recommended Readings:

1. Chaudhary, Bhudadeb (Ed.). Tribal Development in India.
2. Elwin, V.A. Philosophy for NEFA.
3. Haimendorf. The Tribes of India: Struggle for survival.
4. Shara B.D. Basic Issues in tribal Development.

Smit  
20/06/19

## **B.A./B.Sc. – Second Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- Practical  
Name of the Paper :- MATERIAL CULTURE AND RESEARCH TOOLS

Total Marks : 50

Pass Marks : 17

### **OBJECTIVES :**

The objective of this practical course is to introduce the student with the primitive material culture and technology used by primitive man and the student will be introduced with various techniques commonly used by social Anthropology.

### **MATERIAL CULTURE :**

- Part – I. Identification and technological descriptions of the following.
1. Implements for food gathering, hunting, fishing and agriculture
  2. Fire making implements
  3. Types of habitations
  4. Land and water transport
- Part-II Sketching, identification and the description of Paleolithic, Mesolithic and Neolithic tools
- ( It is essential that students should draw at least five tools of each age )
- Part- III Construction of schedule, Geneology and Questionnaire
- Each student should collect information through above tools from 10 Respondents.
- The Student will be required to maintain practical records of all work done in the practical class.

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पाठ्यक्रम उर्दू अदब  
बी.ए. भाग – 2

नोट— इस इस्तेमाल में दो पर्चे होंगे । हर पर्चा 75 का होगा ।

1. नस
2. शायरी

पहला पर्चा नस  
(पेपर कोड – 0199)  
(खत निगारी, तन्जोमिजाह, तन्कीद)

निसाब :

खत निगारी:

1. खुतूते गालिब : ऊर्दूए मोअल्ला और ऊदे हिन्दी से तीन खत
- 2- खुतूते मेहदी इफादी : सहीकए मुहब्बत से तीन खते
3. मुतूते अबुल कलाम आजाद : गुबारे खातिर से तीन खते

तन्जो पिजाह:

1. खाजो का किरदार : फसानए आजाद से अज पं. रतननाथ सरशार
2. औरत जात से : अज मुल्ला रमूजी
3. गफूर मियां से इफतेताब : तखल्लूस भोपाल
4. हिमाकते : शफीरकुरेहयान

तककीद :

1. मजमून अज शिब्लि मजस्माने शिब्लि
2. गालिब शख्सो शायर से : मंजूर गौरखपूरी
3. इकबाल की अजमत : आले अहमद सुरूर
4. चकबस्त बहैहियत पयोम्बरे दौरे जदीद : अहतेशाम हुसैन
5. कसीदे सिन्फे सूखुन की हैसियत से : ऊर्दू में कसीदा निगारी से डॉ. अबु मुहम्मद सहर

इकाईयां:

पहली इकाई : शामिले निसाब अफनाफ पर सवालात	नं. 15
दुसरी इकाई : खत निमारों पर तनकीदी सवालात	नं. 15
तीसरी इकाई : तन्जो मिजाह निगारों पर सवालात	नं. 15
चौथी इकाई : तन्कीद निगारों पर सवालात	नं. 15
पांचवी इकाई : शामिले निसाब खुतुत और तन्कीदी गमामी के इक्बेबासात की तशरीह	नं. 15

निसाब उर्दू अदब  
पर्चा- 2 (शामरी)  
(पेपर कोड - 0200)  
(मसनवियात ब - मन्जूमात)

नं. : 75

निसाब :

मसनवियात :

1. आदबी नामा : अज नजीर अकबर आबादी
2. बरसात की बहारे : अज नजीर अकबर आबादी
3. चुण की दाद : अज अल्ताफ हुसैन हाली
4. हुब्बे वतन : अज अल्तास हुसैन हाली
5. रामायण का एक सीन : अज बृजमोहन चकबस्त
6. जिल्लील और इल्लीस : डॉ. इकबाल
7. शुभाए उम्मीद : डॉ. इकबाल
8. अल्बेली सुबह : जोश मलीहाबादी
9. तन्हाई : फैज अहमद उल ईमान
10. आवारा : मजाज लखनवी
11. चांद तारो का बन : मखदमू मुहीउद्दीन
12. सुबहे परदा : सरदार जाफरी

इकाईयां :

इकाई

1. शामिले निसाब असनाफ पर सवालात नं. 15
2. मसनबी निगारो पर सवालात नं. 15
3. नज्म निगारों पर सवालात और मन्जूमात का खुलासा या जायजा नं. 15
4. तशरीह मसनवियात से नं. 15
5. तशरीह मन्जूमात नं. 15

गृह विज्ञान  
प्रश्न पत्र - 1  
तंतु एवं वस्त्र विज्ञान  
(पेपर कोड - 0181)

इस परीक्षा में दो प्रश्न पत्र होंगे। जिसमें से प्रत्येक तीन घंटे की अवधि तथा 50 अंकों का होगा। एक प्रायोगिक परीक्षा 50 अंकों की होगी। जिसमें से 10 अंक सत्रीय कार्य के लिये सुरक्षित रहेंगे। कुल अंक 150 होंगे। परीक्षार्थियों को लिखित एवं प्रायोगिक परीक्षा में पृथक-पृथक उत्तीर्ण होना अनिवार्य -

- इकाई - 1 तंतु विज्ञान का परिचय - तंतुओं का वर्गीकरण, विशेषतायें, भौतिक एवं रासायनिक परीक्षण।  
वस्त्र बुनाई (Weaver) : के प्रकार - सादी ट्रिबल सेटिन जैकार्ड, पाइल।  
इकाई - 2 आधारभूत परिसज्जाएँ, विशेष परिसज्जाएँ। रंगों का वर्गीकरण एवं विभिन्न तंतुओं के लिये उनकी उपयुक्तता।  
इकाई - 3 छपाई-प्रकार, ब्लाक, स्टेन्सिल, स्क्रीन, डिस्चार्ज रोलर। प्रत्येक प्रकार की छपाई की विधियाँ। टाई एंड डाई-विशेषता, विधि।  
इकाई - 4 धुलाई : जल, साबुन, शुष्क धुलाई, कलफ तथा नील। धब्बे छुड़ाना, विभिन्न प्रकार के वस्त्र धोना।  
इकाई - 5 परिधान - परिधान एवं व्यक्तित्व, परिधान का चुनाव, ड्रापिंग की विधि, सीवर (प्रकार) परिधान में पूर्णता (डार्ट, प्लीट्स, टक्स, गेदर्स) प्लैक्ट ओपनिंग, फासनर।

स्वीकृत पुस्तकें -

1. वस्त्र विज्ञान एवं परिधान : डॉ. प्रमिला
2. वस्त्र विज्ञान के मूल सिद्धांत : डॉ. जी.पी. शैरी
3. हाउसहोल्ड फिसिक्स : डॉ. कुल श्रेष्ठ
4. गृह व्यवस्था एवं गृह सज्जा : श्रीमती के. बक्शी
5. गृह व्यवस्था एवं गृह सज्जा : चन्द्रकांता मांडलिक
6. गृह व्यवस्था एवं गृह कला : जी.पी. शैरी
7. गृह व्यवस्था एवं गृह कला : श्रीमति कांति पांडेय
8. पारिवारिक परिधान एवं व्यवस्था - मंजु पाटनी व सपना हेनरी
9. गृह व्यवस्था : डॉ. करुणा शर्मा

R  
13/6/19  
Rough  
13/6/19  
A. Singh  
13.06.19

**गृह विज्ञान**  
**प्रश्न पत्र - 2**  
**पारिवारिक संसाधन प्रबंधन**  
**(पेपर कोड - 0192)**

**पूर्णांक - 50**

- इकाई - 1** गृह प्रबंध : गृह प्रबंध की परिभाषा, गृह प्रबंध प्रक्रिया, परिवार में गृहणी के कर्तव्य एवं उत्तरदायित्व - मूल्य, लक्ष्य स्तर-अर्थ विशेषता वर्गीकरण एवं विकास, निर्णय प्रक्रिया।
- इकाई - 2** गृह सज्जा : कला के सिद्धांत एवं कला के तत्व। नमूना-रचनात्मक एवं अलंकारमय नमूना, नमूने के सिद्धांत। रंग-रंग के महत्व एवं प्रभाव, फर्नीचर का चुनाव एवं महत्व, गृह सज्जा के उपसाधन। पुष्प सज्जा, प्रकार सिद्धांत, उपयोग।
- इकाई - 3** पारिवारिक साधन : पारिवारिक साधन, वर्गीकरण, विशेषतायें, उपयोग को प्रभावित करने वाले तत्व, समय-अवधारणा, समय, व्यवस्थापन के साधन। समय व्यवस्थापन की प्रक्रिया। शक्ति- अवधारणा, विभिन्न घेरलू कार्य में शक्ति व्यवस्थापन की प्रक्रिया। आय के साधन एवं प्रकार, पारिवारिक बजट, व्यय बचत, रहन सहन का स्तर, आय व्यय का लेखा जोखा (एकाउंट कीपिंग)।
- इकाई - 4** रसोई घर : आधुनिक रसोई घर, प्रकार, रसोई-घर के कार्यक्षेत्र, ईंधन के गैर परम्परागत स्रोत, सौर ऊर्जा, जल वितरण प्रणाली, वायुबीजन, प्रकाश की व्यवस्था, संग्रह व्यवस्था।
- इकाई - 5** कार्य का सरलीकरण - अर्थ, कार्य, विधियां एवं आदतों में सुधार की तकनीक, प्रोसेस चार्ट, पाथवे चार्ट, परिवर्तन की श्रेणियां। समय शक्ति एवं श्रम बचत के उपकरण।

**प्रायोगिक कार्य :**

1. सिलाई - ब्लाऊज, बेबी फ्राक, झबला, बाबा सूट, पंजाबी कुरता, सलवार, पेटीकोट, पुष्प सज्जा।
2. धुलाई- विभिन्न वस्त्रों की धुलाई, धब्बे छुड़ाना, बांधनी का कार्य।
3. पुष्प सज्जा।

**अंक वितरण -**

सत्रीय : 10  
सिलाई : 20  
धुलाई : 15 (धुलाई कार्य, बांधनी - 10, धब्बा छुड़ाना 5)  
पुष्प सज्जा : 5

**स्वीकृत पुस्तकें :**

- |                                   |   |                          |
|-----------------------------------|---|--------------------------|
| 1. वस्त्र विज्ञान एवं परिधान      | : | डॉ. प्रमिला              |
| 2. वस्त्र विज्ञान के मूल सिद्धांत | : | डॉ. जी.पी. शेरी          |
| 3. हाउसहोल्ड फिजिक्स              | : | डॉ. कुलश्रेष्ठ           |
| 4. प्रारंभिक कृषि विज्ञान         | : | राजेन्द्र प्रसाद         |
| 5. उद्यान विज्ञान                 | : | डॉ. एस.एस. श्रीवास्तव    |
| 6. गृह व्यवस्था एवं गृह सज्जा     | : | श्रीमती के. बक्शी        |
| 7. गृह व्यवस्था एवं गृह सज्जा     | : | चन्द्रकांता मांडलिक      |
| 8. गृह व्यवस्था एवं गृह कला       | : | जी.पी. शेरी              |
| 9. गृह व्यवस्था एवं गृह कला       | : | श्रीमति कांति पांडेय     |
| 10. कृषि विज्ञान                  | : | कृपाल सिंह भिंडर         |
| 11. उद्यान शास्त्र                | : | बसंत इंगले               |
| 12. पारिवारिक परिधान एवं व्यवस्था | : | मंजु पाटनी व सपना हेनरी। |



**DEFENCE-STUDIES**  
**PAPER - I**  
**WESTERN MILITARY HISTORY**  
**(Paper Code-0214)**

**Note :** The aim of this paper is to give a historical, political & social back ground of the state engaged in the conflicts under study and the factors influencing the development of different forms of warfare and weapons system.

**Note :** Question will be set from each unit there will be only Internal choice.

**UNIT-I Age of Valour**

1. Military System of Greek; Tactics of Phalanx.
2. Alexander the Great and his reforms.
3. Military system of Roman; Tactics of Legion, Jullius Caesar.
4. Battle of Arbela 311 B.C.
5. Battle of cannae 216 B.C.

**UNIT-II Age of chivalry**

1. Emergence and decline of cavalry.
2. Battle of Adrianopole 378 A.D.
3. Battle of Hastings 1066 A.D.
4. Cavalry tactics of Zenghiz Khan.
5. Battle of Cracee 1346 A.D.

**UNIT-III Age of Gun Powder & Steam**

1. Impact of Gun Powder in war.
2. Contribution of Gustavas adolphus & Fredrik the Great.
3. The Revolution in tactics - Causes of war of american Independence 1775-83.
4. The Revolution in tactics - Causes of French Revolution.
5. Nepoleanic art of warfare and his military reforms.

**UNIT-IV World War - I & II**

1. First World War - Causes of W.W., Policies and Strategic plans of the powers.
2. Role of Air Force with reference to theory of Douhet.
3. Role of Navy with reference of theory of Mahan.
4. Second World War - Causes of W.W., Objective and Strategy of Allied and Axis forces.
5. Personalities of Rommel.

#### **UNIT-V World War - II**

1. Armament and Mechanical warfare with reference to the theories of J.F.C. Fuller and Liddell Hart.
2. Role of air power, weapons, doctrines, tactics.
3. Role of naval power, weapons, doctrine tactics.
4. Tactics of Second World War.
5. Advent of Nuclear weapons and their impact on warfare.

#### **SELECTED READING :**

1. Harkabi Y. : Nuclear war and Nuclear peace
2. Earl E.M. : Makers of Modern strategy.

**DEFENCE STUDIES**  
**PAPER-II**  
**THEORY AND PRACTICE OF WAR**  
**(Paper Code-0215)**

**Aim :** The aim of this paper is to acquaint the students with the concepts of theory and practice of war.

**Note :** Questions will be set from each unit and there will be only internal choice.

- UNIT-I**
1. Sun Tzu - Founder of Military Theory and philosophy.
  2. Clausewitz - War and its relationship with politics.
  3. Machiavelli - Renaissance of Art of war.
  4. Jomini - Concept of mass armies.

- UNIT-II**
1. Churchill.
  2. Mahatma Gandhi.
  3. Kautilya.
  4. A. Hitler.

- UNIT-III**
1. Mao Tse Tung.
  2. Che Guevara.
  3. Economic and Psychological war.
  4. Collective Security.

- UNIT-IV**
1. Indo-China War - 1962 Causes of war, political & military lesson.
  2. Indo - Pak War - 1965 Causes of war, political & military lesson.
  3. Indo - Pak War - 1971 Causes of war, political & military lesson.
  4. Kargil Conflict.

- UNIT-V**
1. Internal & External threats of National Security.
  2. Insurgency and Counter-Insurgency.
  3. Terrorism-Problem and Solution.
  4. Naxalism - Problem and solution.

**REFERENCE BOOKS :**

1. Howard M. : Theory and Practice of war
2. ---,--- : Clausewitz
3. Mao Tse Tung : Guerilla warfare
4. Palit, D.K. : The lightning War Tadit Yudh
5. Mankekar : War of 1971
6. आर .सी. जाहरी : पाश्चात्य सैन्य विचारक
7. शर्मा व निगम : सैन्य विचारक

## **DEFENCE STUDIES**

### **PRACTICAL**

There shall be a practical examination of 3.5 hours duration carrying 50 Marks. The division of marks shall be as follow :

- |                                     |           |
|-------------------------------------|-----------|
| (a) Exercise based on Map-reading : | 15 marks  |
| (b) T.W.E.S.T. :                    | 15 marks  |
| (c) Sessional work :                | 10 marks  |
| (d) Viva-Voce :                     | 10 markss |

#### **PART - A**

##### **Map-reading :**

1. Scales - Definition, method of expressing, construction of simple, time, diagonal and comparative.
2. Relief and its representation.
3. Slopes and Gradient.
4. Visibility and inter-visibility by Gradient, proportionate and section method.
5. Re-section and inter-section.
6. Grid system-Map reference, Index to map. Four figure and Six figure.

#### **PART - B**

7. Organisation and equipment of infantry Platoon and Section.
8. Section Formation.
9. Indication of Target by various methods.
10. Fire control order.
11. Patrols.
12. Battle Procedures (ROFT).
13. Verbal Order.
14. Message-Writing.

#### **BOOKS RECOMMENDED :**

- 1- Manual of Map Reading : London Her
- 2- युद्ध स्थल कला : चौ. नरेन्द्र सिंह
- 3- एन. सी. सी. परिचय — विष्णु कान्त शर्मा



**MANAGEMENT**  
**PAPER - I**  
**MANAGEMENT STUDIES : PERSONNEL MANAGEMENT**  
**(Paper Code-0206)**

**Max. Marks: 75**

**UNIT-I** Evolution of the personnel function:

1. Various concepts of labour.
2. Old and new definitions of personnel management.
3. Development of personnel management in India.
4. Organisation & function of the personnel division.
5. Personnel Management as a co-ordinating function.
6. Personnel Policies.

**UNIT -II Procurement :**

1. Job analysis & Man power requirements.
2. Recruitment and Hiring.
3. Test and interviews.
4. Executive manpower planning.

**UNIT - III Development:**

1. Training operative Personnel
2. Executive Development.
3. Advancement through promotion
4. Performance appraisal.

**UNIT - IV Compensation:**

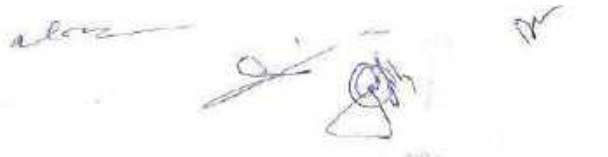
1. Base compensation for the job.
2. Incentive compensation for the man.
3. Supplementary Compensation for the group.

**UNIT - V Integration:**

1. Man in business organisation.
2. Motivation.
3. Man in conflict.
4. Human relations.
5. Collective bargaining.

**UNIT - VI Maintenance:**

1. Safety and Health.
2. Employees service programme.
3. Personnel research.



**BOOKS RECOMMENDED:**

1. Scott. Clothier&Spriegal : Personnel Management
2. Pigores&Myers : Personnel Administration
3. YoderDale : Personnel Management and IndustrialRelations
4. Flippo,Edwin : Principles of Management
5. Maroria, C.B. : Personnel Management
6. Ahuja,K.K. : Personnel Management
7. Dayat : Management Training Organisation.
8. Dinesh,K.N. : Structure of Medium Scale Industries inBhilai.



## MANAGEMENT

### PAPER - II

### STATISTICS

**Max. Marks : 75**

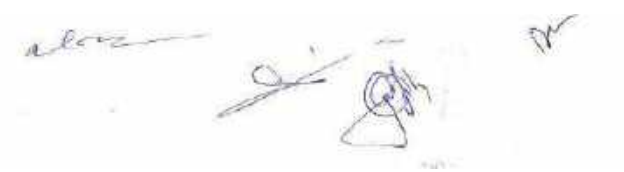
**(Paper Code-0207)**

- UNIT-I** Meaning definition, origin and growth of statistics importance, limitations and function of statistics collection of data primary data and methods of collections samples and its types.
- UNIT-II** Measure central tendency, mean, Median, mode, Quartiles, Deciles and Percentiles, Merits & Demerits of different measures, Methods of calculation.
- UNIT-III** Measures of dispersion- Mean deviation standard deviation its merits and demerits Methods of calculation. Coefficient of variation.
- UNIT-IV** Correlation : Meaning, Kari Pearson's Coefficient of correlation, Direct and shortcut methods of calculation. Regression Equation & its Co-efficient.
- UNIT-V** Index numbers and growth of statistics, Types of Index numbers and construction of index numbers. Population Statistics Statistical agencies central & state agencies, National sample survey.

#### BOOKS RECOMMENDED:

- |   |               |   |                            |
|---|---------------|---|----------------------------|
| 1 | Ethane        | : | Fundamental of Statistics. |
| 2 | S.P.Gupta     | : | Statistics                 |
| 3 | K.C. Nagar    | : | सांख्यिकी के मूल तत्व      |
| 4 | Shukla&Sahani | : | सांख्यिकी                  |

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## **EDUCATION**

There shall be two theory paper, each carrying 60 marks and Three hours duration and Viva-voce examination of 30 marks. The Viva-voce examination will be based on two theory papers. It will be for both regular and private candidates. There will be an internal choice in question.

## **INSURANCE PRINCIPLES & PRACTICE**

### **PAPER- I**

### **FIRE AND MARINE INSURANCE M.M. : 50**

#### **(Paper Code-0193)**

#### **UNIT -I FIRE INSURANCE CONTRACT:**

Origin of fire insurance its nature, risks, hazards and indemnity; Legal basis; Stipulation and conditions; contracts; Full disclosure of material facts; Inspection and termination of coverage.

#### **UNIT -II FIRE INSURANCE POLICIES :**

Issue and renewal of policies; Different kinds; Risks covered; recovery of claims-insurer's option : Ex-gratia payment and subrogation. policy conditions; Hazards not covered, contribution and average; Reinsurance. double insurance and excess insurance. Types of fire protection policies issued by the General Insurance corporation of India.

#### **UNIT -III MARINE INSURANCE CONTRACT :**

Origin and growth; History of lloyds; Evaluation of Marine insurance business in India. Basic elements Insurable interest Utmost Good Faith Implied warranties: Policy document.

**UNIT-IV** Types of marine insurance contract-freight, Cargo and vessel. Procedure for obtaining marine protection policy; Marine policies and conditions. Nature of coastal marine insurance; Perils covered, protection available; Procedure for preparation, and presentation of claim; Payment of compensation by insurer.

#### **UNIT -V MARINE LOSSES**

Total loss, Partial loss, particular average loss and general average loss; Preparation of loss statement, Payment of Marine losses-requirement of the insured documents needed procedure for presentation of claim; Valuation of loss salvage; limits of liability; Attachment and termination of risk.

**INSURANCE PRINCIPLES & PRACTICE**  
**PAPER - II**  
**INSURANCE FINANCE & LEGISLATION**  
**(Paper Code-0194)**

**UNIT - I INTRODUCTION :**

Laws of probability; Forecast of future events; Construction of mortality tables; Mortality tables for annuities.

**UNIT - II PREMIUM DETERMINATION :**

Basic factors; Use of mortality tables in premium determination; Interest, compound interest functions. Net and gross premium: Mode and periodicity of premium payment; Mode of claim payment; benefits to be provided; Mode of loading for expenses.

**UNIT - III** Gross premium-general considerations, insurer's expenses; Margin adjusting; Premium for term insurance; Temporary insurance; Endowment insurance; Level and natural premium plan; Premium calculation for study of actuarial valuation.

**UNIT - IV RESERVES AND SURPLUS :**

Nature, origin and importance of reserves and funds in life and property insurance. Retrospective and prospective reserve Computation. Statutory regulation of reserves. Nature of surrender value; concept and calculation of surrender value, reduced paid up values; Settlement options; Automatic premium loan. Nature and Sources of insurance surplus; special form of surplus; Distribution of surpluses-extra dividend, residuary dividend; Investments of surplus and reserves-basic principles.  
Investment policy of L.I.C. and GIC in India.

**UNIT - V LEGISLATION :**

A-Brief study of Indian Insurance Act, 1938.  
Detailed study of Life Insurance Corporation of India.  
Act, 1956, General Insurance Corporation of India.  
Act, 1976, Export Credit and Guarantee Corporation Act.

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## FUNCTIONAL ENGLISH

### PAPER - I

Mark: 50

(Paper Code-0208)

UNIT - I	(i)	Nouns, Gender, Number,	15
	(ii)	Modal Verbs and Auxiliaries.	
	(iii)	Synonyms and Antonyms	
UNIT - II	(i)	Active and Passive Voice.	15
	(ii)	Direct and Indirect Speech.	
	(iii)	Sentence Connectors.	
UNIT - III	(i)	Transformation of Sentences	10
	(ii)	Errors in Individual Sentences.	
UNIT - IV	(i)	Idioms and phrases.	
	(ii)	Use of Foreign words in English.	

## FUNCTIONAL ENGLISH

### PAPER - II

Mark: 50

(Paper Code-0209)

- (i) Precis writing
- (i) Report writing
- (i) Expansion of Ideas.
- (iv) Drafting Telegrams.
- (v) Letter-Writing (Personal, Business, General)
- (vi) English in Situations :-
  - (a) Greetings.
  - (b) Buying a Dress.
  - (c) Making a Telephone call.
  - (d) In the Post office.
  - (e) At the Doctor's
  - (f) At the Restaurant.
  - (g) At the Chemist.
  - (h) Booking a room at a Hotel.
  - (i) At the Airport.
  - (j) At the Bank
  - (k) At the Book Shop.
  - (l) In the Library.
  - (m) Receiving and Seeing off a Guest.

Dr. M. Chakraborty

Dr. S. Gupta

Dr. Merily Roy

## B.A. II<sup>nd</sup> Year

### HISTORY OF INDIAN PAINTING

Marks : 50

(Paper Code-0219)

SESSION – 2019-20

- (1) The time of theory paper is three hours.

pre-historic to Middle age.

**\* Pre-Historic Painting :**

Mirjapur - (U.P.)  
Shinghanpur - (M.P.)  
Housangabad - (M.P.)  
Vimbatka - (M.P.)

**\* Proto Historic Painting :**

Jogimara  
Bagha  
Ajanta

**\* Middle age : Rajthani Painting -**

Mewad Style Kishan garh Bundi  
Mugal Painting  
Akbar  
Jahangir  
Sahajahan

**\* Pahadi Painting :**

Basholi  
Kangda  
Chamba

**LIST OF THE BOOK RECOMENDED FOR THEORY :**

- |                                  |                          |
|----------------------------------|--------------------------|
| * Bharatiya Kala Ka Itihas       | : Shayam Bihari Aggrawal |
| * Bharatiya Chitra Kala Ka Vikas | : C.L.Jha                |
| * Kala Vilas                     | : R.A.Aggrawal           |

### PRACTICAL

There will be two practical paper evaluation will be made by the external and the internal examiner. Together and sessional marking is made by the class Teacher.

The time of each paper is four hour's and there will be a half hour's recess in between.

  
14/06/19

# PORTRAIT FROM HEAD

## PAPER – I

SESSION – 2019-20

Scheme of Examination.  
Time - Four Hour's  
Size - 1/2 Imp. paper  
Medium - Pencil or pastel

Total Mark - 50  
Examination-40  
Sessional - 10

**Class work-** Minimum work to be submitted Five painting size 1/2 Imp Paper portait from plaster or cement head will be drown with light and shedow.

# COMPOSITION

## PAPER – II

Scheme of Examination  
Time - Four hour's  
Size - 1/4 Imp Paper  
Medium - Poster colour

Total Mark -  
Examination -  
Sessional-

50  
40  
10

### Class work-

Minimum work to be submitted. Five painting size 1/4 Imp.

### Composition-

Minimum two human figure and Meximum four human figure will be composed.

-----0-----

  
14/06/19



# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

संशोधित पाठ्यक्रम – बी.ए. द्वितीय वर्ष के अंतर्गत

सत्र 2019 – 20

विषय – नृत्य (भरत नाट्यम)

बी.ए. भाग (2) के लिये इस विषय में प्रायोगिक और सैद्धांतिक दो भाग होंगे। प्रायोगिक 50 अंक एवं सैद्धांतिक 100 अंक का होगा। इस हेतु 50-50 अंक के दो प्रश्नपत्र होंगे। प्रत्येक वर्ष के पूर्णांक कुल मिलाकर 150 अंक के होंगे।

क्र	विवरण	पूर्णांक	उत्तीर्णांक
1	सैद्धांतिक प्रथम प्रश्न पत्र	50	17
2	सैद्धांतिक द्वितीय प्रश्न पत्र	50	17
3	प्रायोगिक	50	17
योग		150	51

सैद्धांतिक (विस्तृत पाठ्यक्रम)

सत्र 2019 – 20

प्रथम प्रश्न पत्र

शीर्षक – नृत्य का इतिहास एवं सामान्य जानकारी  
(पेपर कोड – 0220)

- नृत्य का इतिहास – 1. जैन एवं बौद्ध अभ्युदय काल 2. पूर्व मध्यकाल  
(पाणिनी काल से गुप्त काल तक नृत्य का इतिहास) 3. शुंग एवं कनिष्क काल 4. गुप्तकाल
- अभिनयभेद – आंगिक, वाचिक, आहार्य एवं सात्विक
- विभिन्न शास्त्रीय नृत्य प्रणालियाँ (संक्षिप्त परिचय) – 1. भरत नाट्यम 2. कथक 3. कथकलि 4. ओडिसी
- संगीत की व्याख्या और नृत्य का उसमें स्थान
- लोकधर्मी नाट्य परंपरा – लोकनाट्य  
संक्षिप्त जानकारी 1. जात्रा 2. तमाशा  
3. कीर्तनिया 4. डांडिया रास  
लोक नृत्य – गरबा, सरहुल

  
14/06/19

  
14/06/19

  
14/06/19

# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

सैद्धांतिक (विस्तृत पाठ्यक्रम)

सत्र 2019 – 20

द्वितीय प्रश्न पत्र

शीर्षक – शास्त्रीय नृत्य सिद्धान्त

(पेपर कोड – 0221)

1. दक्षिण भारतीय ताल पद्धति
2. संक्षिप्त टिप्पणियाँ – 1. मंगलाचरण 2. पुष्पांजलि 3. नाट्य  
4. नृत्त 5. नृत्य
3. नृत्य कलाकार के आवश्यक गुण एवं दोष
4. भरतनाट्यम पद्धति के क्रमों (मार्गम का संक्षिप्त विवरण)  
1. अलारिपु 2. जतिस्वरम् 3. शब्दम् 4. अष्टपदी 5. पदम्
5. वरिष्ठ नृत्य कलाकार की संक्षिप्त जीवनी  
1. श्रीमती गौरी अम्मा 2. श्री मीनाक्षी सुंदरम् पिल्लई

## प्रायोगिक

1. मौखिक मुद्रा प्रदर्शन –  
(1) असंयुक्त हस्त की प्रथम पंद्रह मुद्राओं (पताक से पद्मकोष तक) का विनियोग (श्लोक सहित)  
(2) देव हस्त, (3) बंधु – बांधव हस्त
2. कार्यक्रम विभाग  
(1) शारीरिक अभ्यास  
(2) दस अङ्गु (अंगसंचालन चार काल में)  
(3) जतिस्तरम्  
(4) शब्दम् या श्लोकम्

  
14/06/19

  
14/06/19

  
14/06/19



## हेमचंद्र यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका दुर्ग (छ.ग.)-491001

ई मेल : [academic@durguniversity.ac.in](mailto:academic@durguniversity.ac.in)

वेब साइट : [www.durguniversity.ac.in](http://www.durguniversity.ac.in)

दूरभाष : 0788-2359400

क्र. 1458 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रति,

प्राचार्य,

समस्त संबद्ध महाविद्यालय,

हेमचंद्र यादव विश्वविद्यालय,

दुर्ग (छ.ग.)

विषय:- स्नातक स्तर के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर के निम्नलिखित कक्षा/विषय के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2019-20 से स्नातक के तीनों वर्ष के लिए लागू किया जाता है।

1. बी.कॉम. — आधार पाठ्यक्रम-हिन्दी भाषा एवं वाणिज्य।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र-छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार

कुलसचिव

क्र. 1459 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रतिलिपि:-

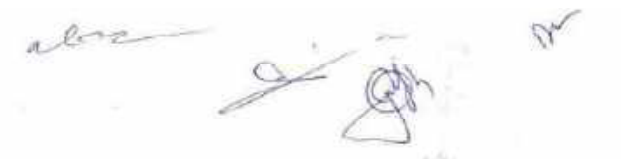
1. संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019 के परिपेक्ष्य में सूचनार्थ।
2. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद्र यादव विश्वविद्यालय, दुर्ग।
3. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद्र यादव विश्वविद्यालय, दुर्ग।

सहा. कुलसचिव (अका.)

## B.Com. - I

### INDEX

1. Revised Ordinance No. 23
2. Scheme of Examination
3. Environmental Studies
3. Foundation Course
4. Financial Accounting
5. Business Communication
6. Business Maths
7. Business Reg. Framework
8. Business Environment
9. Business Economics
10. Computer Application

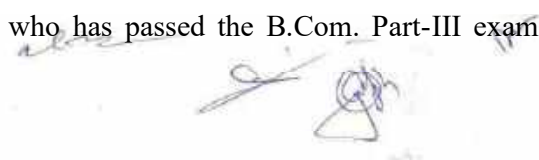
The bottom of the page features several handwritten signatures in blue ink. There is a long, flowing signature on the left, a more compact signature in the center, and a small, stylized signature on the right. A circular official stamp is partially visible in the center, overlapping the middle signature.

**REVISED ORDINANCE NO.-23**

**(As per State U.G.C. Scheme)**

**BACHELOR OF COMMERCE**

1. The three year course has been broken up into three Parts.  
Part-I known as B. Com. Part-I Examination at the end of first year. Part-II Examination at the end of the second year, and,  
Part-III Examination at the end of the third year.
2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of Chhattisgarh Board of Secondary Education, Raipur or any other examination recognized by the University or Chhattisgarh Board of Secondary Education as equivalent there to has attended a regular course of study in an affiliated college or in the Teaching Department of the University for one academic year, shall be eligible for appearing at the B.Com. Part-I examination.
3. A candidate who after passing B.Com. Part-I examination of the University or any other examination recognized by the University as equivalent thereto has attended a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-II Examination.
4. A candidate who after passing B.Com. Part-II examination of the University has completed a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-III examination.
5. Besides regular students, subject to their compliance with this ordinance, ex-students and non-collegiate students shall be eligible for admission to the examination as per provision of Ordinance No. 6 relating to examinations (General).
6. Provided that non-collegiate candidates shall be permitted to offer only such subject/ papers as are taught to the regular students at any of the University Teaching Department or College.
7. Every candidate for B.Com. Examination shall be examined in subjects as mentioned in the marking scheme and course or studies.
8. A candidate who has passed the B.Com. Part-III examination of the University shall be

A handwritten signature in blue ink is written over a circular official stamp. The stamp contains some text that is partially obscured by the signature.

allowed to present him of examination in any of the additional subjects prescribed for the B.Com. Examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B. Com. Part-I examination in the subject which he proposes to offer then the B.Com. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

9. In order to pass at any part of the three year degree course examination, an examinee must obtain not less than 33% of the total marks in each paper/group of subjects. In group where both theory and practical examinations are provided an examinee must pass in both theory and practical parts of examination separately.
10. Candidate will have to pass separately at the Part-I, Part-II and Part-III examination. No division shall be assigned on the result of the Part-I and Part-II examinations In determining the division of the Final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken into account. Candidate will not be allowed to change subjects after passing Part-I examination.
11. Provided in case of candidate who has passed the examination through the supplementary examination having failed in one subject/group only, the total aggregate mark being carried over for determining the division, shall include actual marks obtained in the subject/group in which he appeared at the supplementary examination.
12. Successful examinees at the Part - III examination obtaining 60% or more marks shall be placed in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

The image shows three handwritten signatures in blue ink. The first signature is on the left, the second is in the middle, and the third is on the right. Below the middle signature is a circular stamp, possibly a library or institutional mark, also in blue ink.

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)

## SYLLABUS

### B.COM. PART-I

#### GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION

Subject		Max.	Min.
i) Environmental Studies Field Work	75 25	100	33
A. Foundation Course			
I. Hindi Language		75	26
II. English Language		75	26
B. Three Compulsory Groups			
Group-I			
I. Financial Accounting	75	150	50
II. Business Communication	75		
Group-II			
I. Business Mathematics	75	150	50
II. Business Reg. Framework	75		
Group-III			
I. Business Environment	75	150	50
II. Business Economics	75		

Handwritten signatures and dates at the bottom of the page, including "20/6/19", "20/6/19", and "20/6/19".

**Part - I**  
**SYLLABUS FOR ENVIRONMENTAL STUDIES AND HUMAN RIGHTS**  
**(Paper code-0828)**

MM. 75

इन्वारमेंटल साईंसेस के पाठ्यक्रम को स्नातक स्तर भाग—एक की कक्षाओं में विश्वविद्यालय अनुदान आयोग के निर्देशानुसार अनिवार्य रूप से शिक्षा सत्र 2003—2004 (परीक्षा 2004) से प्रभावशील किया गया है। स्वशासी महाविद्यालयों द्वारा भी अनिवार्य रूप से अंगीकृत किया जाएगा।

भाग 1, 2 एवं 3 में से किसी भी वर्ष में पर्यावरण प्रश्न—पत्र उत्तीर्ण करना अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।

पाठ्यक्रम 100 अंकों का होगा, जिसमें से 75 अंक सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंक क्षेत्रीय कार्य (Field Work) पर्यावरण पर होंगे।

सैद्धांतिक प्रश्नों पर अंक — 75 (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें विकल्प रहेगा)

- |     |                  |   |        |
|-----|------------------|---|--------|
| (अ) | लघु प्रश्नोंत्तर | — | 25 अंक |
| (ब) | निबंधात्मक       | — | 50 अंक |

**Field Work** — 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रायोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेंगे।

उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा।

पर्यावरण विज्ञान विषय अनिवार्य विषय है, जिसमें अनुत्तीर्ण होने पर स्नातक स्तर भाग—एक के छात्र/छात्राओं को एक अन्य विषय के साथ पूरक की पात्रता होगी। पर्यावरण विज्ञान के सैद्धांतिक एवं फील्ड वर्क के संयुक्त रूप से 33: (तीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।

स्नातक स्तर भाग—एक के समस्त नियमित/भूतपूर्व/अमहाविद्यालयीन छात्र/छात्राओं को अपना फील्ड वर्क सैद्धांतिक परीक्षा की समाप्ति के पश्चात् 10 (दस) दिनों के भीतर संबंधित महाविद्यालय/परीक्षा केन्द्र में जमा करेंगे एवं महाविद्यालय के प्राचार्य/केन्द्र अधीक्षक, परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।



## **UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES**

### **Definition, Scope and**

### **Importance Natural Resources:**

### **Renewable and Nonrenewable Resources**

- (a) Forest resources: Use and over-exploitation, deforestation, Timber extraction, mining, dams and their effects on forests and tribal people and relevant forest Act.
- (b) Water resources: Use and over-utilization of surface and ground water, floods drought, conflicts over water, dam's benefits and problems and relevant Act.
- (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- (f) Land resources: Land as a resource, land degradation, man induced landslides soil erosion and desertification.

**(12 Lecture)**

## **UNIT-II ECOSYSTEM**

### **(a) Concept, Structure and Function of and ecosystem**

- Producers, consumers and decomposers.
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, Types, Characteristics Features, Structure and Function of Forest, Grass, Desert and Aquatic Ecosystem.

### **(b) Biodiversity and its Conservation**

- Introduction - Definition: genetic. species and ecosystem diversity
- Bio-geographical classification of India.
- Value of biodiversity: Consumptive use. Productive use, social ethics, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega-diversity nation.

- Hot spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wild life conflict.
- Endangered and endemic species of India.
- Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity.

**(12 Lecture)**

### **UNIT- III**

#### **(a) Causes, effect and control measures of**

- Air water, soil, marine, noise, nuclear pollution and Human population.
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Disaster Management: floods, earthquake, cyclone and landslides.

**(12 Lecture)**

#### **(b) Environmental Management**

- From Unsustainable to sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.
- Wasteland reclamation
- Environment protection Act: Issues involved in enforcement of environmental legislation.
- Role of Information Technology in Environment and Human Health.

## UNIT- IV

General background and historical perspective- Historical development and concept of Human Rights, Meaning and definition of Human Rights, Kind and Classification of Human Rights. Protection of Human Rights under the UNO Charter, protection of Human Rights under the Universal Declaration of Human Rights, 1948. Convention on the Elimination of all forms of Discrimination against women. Convention on the Rights of the Child, 1989.

## UNIT- V

Impact of Human Rights norms in India, Human Rights under the Constitution of India, Fundamental Rights under the Constitution of India, Directive Principles of State policy under the Constitution of India, Enforcement of Human Rights in India. Protection of Human Rights under the Human Rights Act, 1993- National Human Rights Commission, State Human Rights Commission and Human Rights court in India. Fundamental Duties under the Constitution of India.

### Reference/ Books Recommended

1. SK Kapoor- Human rights under International Law and Indian Law.
2. HO Agrawal- International Law and Human Rights
3. एस.के. कपूर – मानव अधिकार
4. जे.एन. पान्डेय – भारत का संविधान
5. एम.डी. चतुर्वेदी –भारत का संविधान
6. J.N.Pandey - Constitutional Law of India
7. Agarwal K.C. 2001 Environmental Biology, Nidi pub. Ltd. Bikaner
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10. Clark R.S. Marine pollution, Clanderson press Oxford (TB)
11. Cuningham, W.P.Cooper. T.H.Gorhani, E & Hepworth. M.T,200
12. Dr. A.K.- Environmental Chemistry. Wiley Eastern Ltd.
13. Down to Earth, Center for Science and Environment (R)
14. Gloick, H.P. 1993 Water in crisis. pacific institute for studies in Deve. Environment & Security. Stockholm Eng. Institute. Oxford University, Press. m 473p.
15. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R)

16. Heywood, V.H. & Watson, T.T.1995 Global Biodiversity Assessment, Cambridge Univ. Press 1140p
17. Jadhav H. & Bhosale, V.H. 1995 Environmental Protection and Law. Himalaya pub. House, Delhi 284p
18. Mckinney M.L.& School R.M.1996, environmental Science systems & solutions, web enhanced edition, 639p
19. Mhadkar A.K. Matter Hazardous, Techno-Science publication(TB)
20. Miller T.G.Jr. Environment Science, Wadsworth publication co. (TB)
21. Odum E.P.1971, Fundamentals of Ecology, W.B. Saunders Co. USA,574p
22. Rao M.N. & Datta, A.K. 1987, Waste water treatment. Oxford & IBH pub.co.pvt. Ltd 345p
23. Sharma B.K. 2001, Environmental chemistry, Goel pub. House, Meerut
24. Survey of the Environment, The Hidu(M)
25. Townsend C. Harper J. And Michael Begon, Essentials of Ecology, Blackwell Science(TB)
26. Trivedi R.K.Handbook of Environment Laws, Rules, Guidlines, Compliances and Standards, Vol land II, Environment Media(R)
27. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science publication (TB)
28. Wanger K.D.1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499

**संशोधित पाठ्यक्रम**  
बी.ए./ बी.एस-सी./ बी.कॉम./ बी.एच.एस.-सी.  
भाग - एक (आधार पाठ्यक्रम)  
प्रश्न पत्र- प्रथम (हिन्दी भाषा)  
(पेपर कोड -0101)

पूर्णांक- 75

नोट :-

1. प्रश्न पत्र 75 अंक का होगा।
2. प्रश्न पत्र अनिवार्य होगा।
3. इसके अंक श्रेणी निर्धारण के लिए जोड़े जायेंगे।
4. प्रत्येक इकाई के अंक समान होंगे।

**पाठ्य विषय :-**

**इकाई-1**

- क. पल्लवन, पत्राचार, अनुवाद, पारिभाषिक शब्दावली एवं हिंदी में पदनाम  
ख. ईदगाह (कहानी) - मुंशी प्रेमचंद

**इकाई-2**

- क. शब्द शुद्धि, वाक्य शुद्धि, शब्द ज्ञान-पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेक शब्दों के लिए एक शब्द एवं मुहावरे-लोकोक्तियाँ  
ख. भारत वंदना (कविता)- सूर्यकान्त त्रिपाठी निराला

**इकाई-3**

- क. देवनागरी लिपि - नामकरण, स्वरूप एवं देवनागरी लिपि की विशेषताएँ, हिंदी अपठित गद्यांश, संक्षेपण, हिंदी में संक्षिप्तीकरण  
ख. भोलाराम का जीव (व्यंग्य) - हरिशंकर परसाई

**इकाई-4**

- क. कम्प्यूटर का परिचय एवं कम्प्यूटर में हिंदी का अनुप्रयोग  
ख. शिकागो से स्वामी विवेकानंद का पत्र

**इकाई-5**

- क. मानक हिन्दी भाषा का अर्थ, स्वरूप, विशेषताएँ, मानक, उपमानक, अमानक भाषा  
ख. सामाजिक गतिशीलता - प्राचीन काल, मध्यकाल, आधुनिक काल

**मूल्यांकन योजना :-**

प्रत्येक इकाई से एक-एक प्रश्न पूछा जाएगा। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमशः 8 एवं 7 होंगे। प्रश्न-पत्र का पूर्णांक 75 निर्धारित है।

### पाठ्यक्रम संशोधन का औचित्य :-

व्याकरण के बुनियादी ज्ञान, संप्रेषण, कौशल, सामाजिक संदेश एवं भाषायी दक्षता को ध्यान में रखते हुए यह पाठ्यक्रम प्रस्तावित है।

## FOUNDATION COURSE

### PAPER - II

#### ENGLISH LANGUAGE (Paper Code-0102)

M.M. 75

**UNIT-1** Basic Language skills : Grammar and Usage.

Grammar and Vocabulary based on the prescribed text. To be assessed by objective / multiple choice tests.

(Grammar - 20 Marks  
Vocabulary - 15 Marks)

**UNIT-2** Comprehension of an unseen passage.

05

This should simply not only (a) an understanding of the passage in question, but also

(b) a grasp of general language skills and issues with reference to words and usage

within the passage and (c) the Power of short independent composition based on themes and issues raised in the passage.

To be assessed by both objective multiple choice and short answer type tests.

**UNIT-3** Composition : Paragraph writing

10

**UNIT-4** Letter writing (The formal and one Informal)

10

Two letters to be attempted of 5 marks each. One formal and one informal.

**UNIT-5** Texts :

15

Short prose pieces (Fiction and not fiction) short poems, the pieces should cover a range of authors, subjects and contexts. With poetry if may sometimes be advisable to include pieces from earlier periods, which are often simpler than modern examples. In all cases, the language should be accessible (with a minimum of explanation and reference to standard dictionaries) to the general body of students schooled in the medium of an Indian language.

Students should be able to grasp the contents of each place; explain specific words, phrases and allusions; and comment on general points of narrative or argument. Formal Principles of Literary criticism should not be taken up at this stage.

To be assessed by five short answers of three marks each.

### BOOKS PRESCRIBED -

English Language and Indian Culture - Published by M.P. Hindi Grant Academy Bhopal.

Dr. M. Chakraborty - Dr. S. Gupta - DR. MERILY ROY

**B. Com Part- I**  
**Compulsory**  
Group – I Paper – I - Financial Accounting

**OBJECTIVE** – To Impart basic accounting knowledge as applicable to business.

**UNIT –I**

Accounting: An Introduction: Development, Definition, Needs, objectives; Branches of accounting; Basic Accounting Principles, Concepts & Conventions.

Accounting Standard: International Accounting Standard only outlines, Accounting Standard in India.

Accounting Transaction: Concept of Double Entry System, Concept of Capital & Revenue, Book of original records: Journal; Ledger; Sub-Division of Journal: Cashbook.

**UNIT –II**

Final Accounts; Trial balance; Manufacturing account; Trading account; Profit & loss account; Balance sheet; Adjustment entries.

Rectification of errors; Classification of errors; Location of errors; Rectification of errors; Suspense account; Effect on profit.

**UNIT –III**

Depreciation, Provisions, and Reserves; Concept of depreciation; Causes of depreciation; Depreciation, depletion amortization, Depreciation accounting; Methods of recording depreciation; Methods for providing depreciation; Depreciation of different assets; Depreciation of Replacement cost; Depreciation policy; as per Indian accounting Standard : provisions and Reserves. Accounts of Non-Trading Institutions.

**UNIT –IV**

Special Accounting Areas :

Hire-purchase and installment purchase system: Meaning of hire-purchase contract, Legal provision regarding hire-purchase contract; Accounting for goods of substantial sale values, and accounting records for goods for small values ; Installment purchase system ; After sales Service.

**UNIT –V**

Partnership Account: Dissolution of a Partnership Firm, Amalgamation of Partnership Firms, Conversion of Partnership Firm into Joint Stock Company.

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### **Suggested Readings:**

1. Gupta, R.L. and Radhaswamy. M; Financial Accounting; Sultan Chand and Sons, New Delhi. (Both Hindi and English medium)
2. Monga J.R. Ahuja Girish, and Sehgal Ashok: Financial Accounting; Mayur Paper Back, Noida.
3. Shukla. M.C., Grewal T.S. and Gupta, S.C.: Advanced Accounts; S. Chand & Co. New delhi.
4. Singh B.K.; Financial Accounting; Wisdom Publishing House, Varanasi.
5. S.M. Shukla; Financial Accounting; Sahitya Bhawan Publication; Agra. (Both Hindi and English medium)
6. Karim & Khanuja; Financial Accounting; SBPD Publishing House; Agra. ( Both Hindi and English medium)
7. Agrawal & Mangal; Financial Accounting; Universal Publication. (Both Hindi and English medium)

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**बी.कॉम. भाग – एक**  
अनिवार्य  
**समूह-1 प्रश्नपत्र – 1 – वित्तीय लेखांकन**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b> लेखांकन का अर्थ एवं क्षेत्र : आवश्यकता, विकास एवं परिभाषा, लेखांकन के उद्देश्य, पुस्तपालन एवं लेखांकन में अन्तर, लेखांकन की शाखाएं। लेखांकन सिद्धांत, लेखांकन मानक : अन्तर्राष्ट्रीय लेखांकन मानक (सिर्फ रूपरेखा) : भारत में लेखांकन मानक। लेखांकन व्यवहार : लेखांकन चक्र : पंजी (जर्नल) : डेबिट (विकलन) एवं क्रेडिट (समाकलन) के नियम, संयुक्त पंजी (जर्नल) प्रविष्टि, प्रारम्भिक प्रविष्टि : जर्नल एवं खाताबाही में सम्बन्ध, पूंजी एवं आगम : आय, व्यय एवं प्राप्तियों का वर्गीकरण।</p>	<p><b>इकाई – 1</b> लेखांकन का परिचय : विकास, परिभाषा, आवश्यकता, उद्देश्य, लेखांकन की शाखाएं; लेखांकन के सिद्धांत, अवधारणा एवं परंपराएं। लेखांकन मानक : अन्तर्राष्ट्रीय लेखांकन मानक (सिर्फ रूपरेखा) : भारत में लेखांकन मानक। लेखांकन व्यवहार; दोहरी प्रविष्टि प्रणाली की अवधारणा। पूँजी एवं आगम की अवधारणा, मूल प्रविष्टि की पुस्तकें: जर्नल, खाताबही, जर्नल का विभाजन : रोकड़ पुस्तक।</p>
<p><b>इकाई – 2</b> तलपट, अन्तिम खाते : निर्माणी खाता, व्यापार खाता, लाभ-हानि खाता, चिट्ठा एवं समायोजन प्रविष्टियाँ। अशुद्धियों का सुधार या संशोधन, अशुद्धियों का वर्गीकरण, अशुद्धियों की स्थिति, अशुद्धियों का सुधार, उचंत खाता लाभ पर प्रभाव।</p>	<p><b>इकाई – 2</b> तलपट, अन्तिम खाते : निर्माणी खाता, व्यापार खाता, लाभ-हानि खाता, चिट्ठा एवं समायोजन प्रविष्टियाँ। अशुद्धियों का सुधार या संशोधन, अशुद्धियों का वर्गीकरण, अशुद्धियों की स्थिति, अशुद्धियों का सुधार, उचंत खाता लाभ पर प्रभाव।</p>
<p><b>इकाई – 3</b> मूल्य ह्रास (अवक्षयण), आयोजन एवं संचय; ह्रास की अवधारणा, ह्रास के कारण, ह्रास रिक्तता, अपलेखन ह्रास लेखांकन, ह्रास अभिलेखन की विधियाँ; विभिन्न सम्पत्तियों पर ह्रास आयोजन की विधियाँ; प्रतिस्थापन लागत पर ह्रास, भारतीय लेखांकन मानक के अनुसार लेखांकन नीतियाँ, आयोजन एवं संचय; गैर-व्यापारिक संस्थाओं के खाते।</p>	<p><b>इकाई – 3</b> मूल्य ह्रास (अवक्षयण), आयोजन एवं संचय; ह्रास की अवधारणा, ह्रास के कारण, ह्रास रिक्तता, अपलेखन ह्रास लेखांकन, ह्रास अभिलेखन की विधियाँ; विभिन्न सम्पत्तियों पर ह्रास आयोजन की विधियाँ; प्रतिस्थापन लागत पर ह्रास, भारतीय लेखांकन मानक के अनुसार लेखांकन नीतियाँ, आयोजन एवं संचय; गैर-व्यापारिक संस्थाओं के खाते।</p>
<p><b>इकाई – 4</b> विशेष लेखांकन क्षेत्र: (क) शाखा खाते : आश्रित शाखा, देनदार पद्धति, स्कन्ध एवं देनदार पद्धति। (ख) किराया क्रय एवं किस्त क्रय पद्धति : किराया क्रय अनुबन्ध का अर्थ, किराया क्रय अनुबन्ध संबंधित प्रौवधान, अधिक मूल्य की वस्तुओं के लिए लेखांकन अभिलेख, किस्त क्रय पद्धति एवं क्रय पश्चात् सेवा।</p>	<p><b>इकाई – 4</b> विशेष लेखांकन क्षेत्र: किराया क्रय एवं किस्त क्रय पद्धति : किराया क्रय अनुबन्ध का अर्थ, किराया क्रय अनुबन्ध संबंधित प्रौवधान, अधिक मूल्य की वस्तुओं के लिए लेखांकन अभिलेख, किस्त क्रय पद्धति एवं क्रय पश्चात्</p>

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 5</b></p> <p>(क) साझेदारी खाते : साझेदारी की सारभूत विशेषताएँ, साझेदारी संलेख ; अन्तिम खाते , खाते बंद होने के पश्चात् समायोजन; स्थिर एवं परिवर्तनशील पूँजी, ख्याति-लेखांकन मानक 10 संयुक्त जीवन बीमा पॉलिसी, लाभ विभाजन अनुपात में परिवर्तन, (ख) साझेदारी फर्म का पुनर्निर्माण; फर्म में साझेदार का प्रवेश; साझेदार का अवकाश ग्रहण; साझेदार की मृत्यु, फर्म का विघटन, लेखांकन प्रविष्टियाँ, साझेदारी फर्म का दिवालिया होना, फर्म के विघटन की विधियाँ, लेखांकन प्रविष्टियाँ, साझेदार का दिवलिया होना, वितरण ।</p>	<p><b>इकाई – 5</b></p> <p>साझेदारी खाते : साझेदारी फर्म का विघटन, साझेदारी फर्मों का एकीकरण, साझेदारी फर्म की संयुक्त स्कन्ध प्रमण्डल में परिवर्तन।</p>

### Suggested Readings:

1. Gupta, R.L. and Radhaswamy. M; Financial Accounting; Sultan Chand and Sons, New Delhi. (Both Hindi and English medium)
2. Monga J.R. Ahuja Girish, and Sehgal Ashok: Financial Accounting; Mayur Paper Back, Noida.
3. Shukla. M.C., Grewal T.S. and Gupta, S.C. : Advanced Accounts; S. Chand & Co.. New delhi.
4. Singh B.K.; Financial Accounting; Wisdom Publishing House, Varanasi.
5. S.M. Shukla; Financial Accounting; Sahitya Bhawan Publication; Agra. ( Both Hindi and English medium)
6. Karim & Khanuja; Financial Accounting; SBPD Publishing House; Agra. ( Both Hindi and English medium)
7. Agrawal & Mangal; Financial Accounting; Universal Publication. ( Both Hindi and English medium)


  
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## **B.Com Part- I**

### **Compulsory**

#### **Group – I Paper – II - BUSINESS COMMUNICATION**

#### **Proposed Syllabus**

**OBJECTIVE** – To develop effective business communication skills among the students.

#### **UNIT –I**

Introducing Business Communication: Definitions, concept and Significance of communication, Basic forms of communicating; Communication models and process; principles of effective communication; Theories of communication; Self-Development and Communication; Development of positive personal attitudes, SWOT analysis.

#### **UNIT –II**

Corporate Communication: Formal and Informal communication networks; Grapevine; Miscommunication (Barriers); improving communication. Practices in business communication; Group discussions; Seminars; Effective Listening: Principles of effective listening; Factor affecting listening exercises; Oral, Written, and video session, Audience analysis and feedback.

#### **UNIT –III**

Writing skill: Business letters – Definition, concepts, structure, advantages disadvantage, need and kinds of business letter, Essentials of effective business letter. Good news and bad news letters; Office memorandum. Writing Resume and Letter of Job Application.

#### **UNIT –IV**

Report Writing: Introduction to a proposal, Short report and formal report, report preparation.

Oral Presentation: Principles of oral presentation, factor affecting presentation, sales presentation, training presentation, conducting surveys, speeches to motivate, presentation skill.

#### **UNIT –V**

Non-Verbal Aspects of Communicating. Body Language: Kinesics, Proxemics, Para Language.

Interviewing skills: Appearing in interviews; conducting interviews; mock interview.

Modern Forms of Communicating: Fax; E-Mail; video conferencing; etc.

International Communication for global business.



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### **Suggested Readings:**

1. Dr. P. K. Agrawal, Dr. A.K. Mishra ; Business Communication ; Sahitya Bhawan Publication; Agra (Hindi medium)
2. Balasubramanyam: Business Communication; Vikas Publishing House, Delhi. (English medium)
3. Dr. Vinod Mishra: Business Communication; Sahitya Bhawan Publication; Agra. (Hindi medium)
4. Kaul: Effective Business Communication; Prentice Hall, New Delhi. (English medium).
5. Patri VR: Essentials of Communication; Greenspan Publications, New Delhi. (English medium)
6. Senguin J: Business Communication; The Real World and Your Career, Allied Publishers, New Delhi. (English medium)
7. Dr. Mishra, Shukla & Patel; Business Communication; SBPD Publishing House, Agra. (Both Hindi and English medium)

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**बी.कॉम. भाग – एक**  
**अनिवार्य**  
**समूह-1 प्रश्नपत्र – 2 – व्यावसायिक संचार**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b> व्यावसायिक संचार परिचय: परिभाषा , अवधारणाएं एवं संचार का महत्व, संचार के आधारभूत प्रकार एवं मॉडल एवं प्रभावी संचार के सिद्धांत, प्रक्रिया , श्रोता विश्लेषण। आत्म विकास एवं संचार, सकारात्मक व्यक्तिगत दृष्टिकोण का विकास, स्वीट विश्लेषण, मतों की परस्पर निर्भरता का प्रतिरूप।</p> <p><b>इकाई – 2</b> व्यावसायिक संस्था का संचार तंत्र:- औपचारिक एवं अनौपचारिक संचार तंत्र, अंगूरी लता संचार, संचार की बाधाएं एवं सुधार। व्यवहार में व्यावसायिक संचार:- सामूहिक परिचर्चा, साक्षात्कार, संगोष्ठी, प्रभावपूर्ण सूचना, व्यक्तिगत एवं सामूहिक प्रस्तुतीकरण एवं रिपोर्ट लेखन।</p> <p><b>इकाई – 3</b> लेखन कुशलता : व्यावसायिक संदेश की योजना एवं उसे संशोधित करना, प्रथम मसौदा, अंतिम मसौदा का पुनर्निर्माण, व्यावसायिक पत्र एवं ज्ञापन, प्रारूप: निवेदन पत्र , अनुकूल एवं प्रतिकूल संवाद पत्र, प्रेरक पत्र, विक्रय संबंधी पत्र, तकादे का पत्र या संग्रहण पत्र, कार्यालयीन ज्ञापन व पत्र।</p> <p><b>इकाई – 4</b> रिपोर्ट लेखन – एक प्रस्ताव का परिचय, लघु रिपोर्ट एवं औपचारिक रिपोर्ट ,रिपोर्ट लेखन की तैयारी। मौखिक प्रस्तुती: मौखिक प्रस्तुती के सिद्धांत , प्रस्तुतीकरण को प्रभावित करने वाले कारक, विक्रय प्रस्तुतीकरण , प्रशिक्षण प्रस्तुतीकरण, सर्वेक्षण आयोजित करना, प्रेरक भाषण, प्रभावी प्रस्तुती कौशल।</p> <p><b>इकाई – 5</b> अशाब्दिक संचार के पहलू – दैहिक भाषा : समय एवं पार्श्व भाषा , प्रभावपूर्ण सूचना : प्रभावपूर्ण सूचने के सिद्धांत,</p>	<p><b>इकाई – 1</b> व्यावसायिक संचार परिचय : परिभाषा , अवधारणाएं एवं संचार का महत्व, संचार के आधारभूत प्रकार एवं मॉडल, प्रक्रिया एवं प्रभावी संचार के सिद्धांत। आत्म विकास एवं संचार , सकारात्मक व्यक्तिगत दृष्टिकोण का विकास , स्वीट विश्लेषण।</p> <p><b>इकाई – 2</b> व्यावसायिक संस्था का संचार तंत्र:- औपचारिक एवं अनौपचारिक संचार तंत्र, अंगूरी लता संचार, संचार की बाधाएं एवं सुधार। व्यवहार में व्यावसायिक संचार:- सामूहिक परिचर्चा, संगोष्ठी , प्रभावपूर्ण सूचना : प्रभावपूर्ण सूचने के सिद्धांत, प्रभावपूर्ण सूचने के कारक, मौखिक , लिखित एवं विडियो सत्र का व्यवहारिक अध्ययन, श्रोता विश्लेषण एवं प्रतिपुष्टी।</p> <p><b>इकाई – 3</b> लेखन कुशलता : व्यावसायिक पत्र – परिभाषा, अवधारणा, संरचना, गुण दोष , आवश्यकता एवं विभिन्न प्रकार के व्यावसायिक पत्र , प्रभावी व्यापारिक पत्र व्यवहार के मूल तत्व। अनुकूल एवं प्रतिकूल संवाद पत्र, कार्यालयीन ज्ञापन व पत्र। जीवनवृत्त लेखन एवं नौकरी के लिए आवेदन पत्र।</p> <p><b>इकाई – 4</b> रिपोर्ट लेखन – एक प्रस्ताव का परिचय , लघु रिपोर्ट एवं औपचारिक रिपोर्ट ,रिपोर्ट लेखन की तैयारी। मौखिक प्रस्तुती : मौखिक प्रस्तुती के सिद्धांत , प्रस्तुतीकरण को प्रभावित करने वाले कारक, विक्रय प्रस्तुतीकरण , प्रशिक्षण प्रस्तुतीकरण, सर्वेक्षण आयोजित करना, प्रेरक भाषण, प्रभावी प्रस्तुती कौशल।</p> <p><b>इकाई – 5</b> अशाब्दिक संचार के पहलू – दैहिक भाषा , समय एवं पार्श्व भाषा ,</p>

<p>प्रभावपूर्ण सूनने के कारक, मौखिक , लिखित एवं विडियो सत्र का व्यवहारिक अध्ययन। साक्षात्कार कुशलता : साक्षात्कार में शामिल होना, साक्षात्कार का आयोजन, जीवनवृत्त – सारांश लेखन एवं आवेदन पत्र। संचार के आधुनिक रूप – फ़ैक्स, ई मेल, वीडियो कॉन्फ़ेसिंग आदि</p> <p>अंतराष्ट्रीय संचार: सांस्कृतिक संवेदनशीलता एवं सांस्कृतिक संदर्भ, अंतराष्ट्रीय स्थितियों में लेखन और प्रस्तुतीकरण करना: अंतराष्ट्रीय क्रियाओं में अंतराष्ट्रीय सांस्कृतिक कारक, वैश्विक व्यापार के संदर्भ में।</p>	<p>साक्षात्कार कुशलता : साक्षात्कार में शामिल होना, साक्षात्कार का आयोजन, मॉक साक्षात्कार। संचार के आधुनिक रूप – फ़ैक्स , ई मेल, वीडियो कॉन्फ़ेसिंग आदि</p> <p>अंतराष्ट्रीय संचार : सांस्कृतिक संवेदनशीलता एवं सांस्कृतिक संदर्भ , भूमण्डलीय व्यावसाय के लिए अंतराष्ट्रीय संप्रेषण।</p>
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### Suggested Readings:

1. Dr. P. K. Agrawal, Dr. A.K. Mishra ; Business Communication ; Sahitya Bhawan Publication; Agra (Hindi medium)
2. Balasubramanyam: Business Communication; Vikas Publishing House, Delhi. (English medium)
3. Dr. Vinod Mishra: Business Communication; Sahitya Bhawan Publication; Agra. (Hindi medium)
4. Kaul: Effective Business Communication; Prentice Hall, New Delhi. (English medium).
5. Patri VR: Essentials of Communication; Greenspan Publications, New Delhi. (English medium)
6. Sengun J: Business Communication; The Real World and Your Career, Allied Publishers, New Delhi. (English medium)
7. Dr. Mishra, Shukla & Patel; Business Communication; SBPD Publishing House, Agra. (Both Hindi and English medium)


  
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**B.Com Part- I**  
**Compulsory**  
**Group – II**  
**Paper – I - Business Mathematics**  
**Proposed Syllabus**

**OBJECTIVE** – To enable the students to have such minimum knowledge of mathematics as is applicable to business and economic situations.

**UNIT –I**

Simultaneous Equations– Meaning, Characteristics, Methods of Solving Equations in Two Variables– Graphical, Substitution, Elimination and Cross Multiplication.

Linear Programming –Formulation of LLP : Graphical method of solution ; Problems relating to two variables including the case of mixed constraints .

**UNIT –II**

Matrices and Determinants : Definition of a matrix ; Type of a matrices ; Algebra of matrices ; Properties of determinants ; Calculation of values of determinants upto third order ; Logarithm's & Antilogarithm's.

**UNIT –III**

Simple interest and Compound Interest .

Annuities : Types of annuities ; Present value and amount of an annuity, including the case of continuous compounding ; Valuation of simple loans and debentures; Problems relating to sinking funds.

**UNIT –IV**

Ratio & Proportion.

Average, Percentage.

**UNIT –V**

Commission, Brokerage, Discount, Profit and loss.

Transportation Problems.

**Suggested Readings:**

1. Dr. Amarnath Dikshit, Dr. Jinendra Kumar Jain; Business Mathematics ;Himalaya Publishing House, Mumbai. (Both Hindi and English medium)
2. N.K. Nag : Business Mathematics; Kalyani publication, New Delhi. .
3. Dr. V.K. Shukla. : Business Mathematics; Madhya Pradesh hindi Granth Academy: Bhopal.
4. S.M. Shukla; Business Mathematics; Sahitya Bhawan Publication ; Agra. (Both Hindi and English medium)
5. Dr. Karim & Agrawal ; Business Mathematics; SBPD Publishing House ; Agra. (Both Hindi and English medium)
6. Dr. Ramesh Mangal; Business Mathematics; Satish Printer and Publishers, Indore.

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**बी,कॉम. भाग – एक**  
**अनिवार्य**  
**समूह-2 प्रश्नपत्र – 1 – व्यावसायिक गणित**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b>  कलन : अवकलन : आंशिक अवकलज— द्वितीय क्रम तक, फलनो की समघातीयता एवं यूलर प्रमेय, उच्चिष्ठ एवं निम्निष्ठ – एक चर के द्वितीय या उच्च क्रम से जुड़े सवाल । लघुगणक ।</p>	<p><b>इकाई – 1</b>  युगपद् समीकरण – अर्थ, विशेषताएँ, दो चर वाले समीकरण को हल करने की विधियाँ – रेखीय विधि, प्रतिस्थापन विधि, विलोपन विधि, वज्रगुणन विधि ।  रेखीय प्रक्रमन : रेखीय प्रक्रमन समस्या को गणितीय रूप में लिखना : ग्राफीक विधि से हल, द्विचर से संबंधित मिश्रित निबाध समस्याएं ।</p>
<p><b>इकाई – 2</b>  आव्यूह एवं सारणिक : आव्यूह की परिभाषा , आव्यूह के प्रकार, आव्यूह बीजगणित, सारणिक के गुण, तृतीयक्रम के सारणिकों के मान की गणना, आव्यूह का सहखण्डज , पंक्ति या स्तम्भ मूल क्रियाएं, मूल पंक्ति या स्तम्भ क्रियाओं द्वारा आव्यूह का व्युत्क्रम ज्ञात करना , अद्वितीय हल रखने वाली तथा तीन से अधिक चर न रखने वाली युगपत् समीकरणों का हल ।</p>	<p><b>इकाई – 2</b>  आव्यूह एवं सारणिक : आव्यूह की परिभाषा , आव्यूह के प्रकार, आव्यूह बीजगणित, सारणिक के गुण, तृतीयक्रम के सारणिकों के मान की गणना ।  लघुगणक एवं प्रतिलघुगणक ।</p>
<p><b>इकाई – 3</b>  रेखीय प्रक्रमन : रेखीय प्रक्रमन समस्या को गणितीय रूप में लिखना : ग्राफीक विधि से हल, समस्या का कोई सम्भव हल नहीं, अनेक हल, असीम समस्या का हल, व्यर्थ निबाध ।  परिवहन समस्या , अनुपात एवं समानुपात ।</p>	<p><b>इकाई – 3</b>  साधारण ब्याज एवं चक्रवृद्धि ब्याज ।  वार्षिकी : वार्षिकी के प्रकार , वार्षिकी का वर्तमान मूल्य एवं मिश्रधन, ब्याज का सतत संयोजन, साधारण ऋण एवं ऋणपत्र का मूल्यांकन , शोधन निधि के प्रश्न ।</p>
<p><b>इकाई – 4</b>  चक्रवृद्धि ब्याज एवं वार्षिकी : विभिन्न प्रकार की ब्याज दरें, वर्तमान मूल्य एवं मिश्रधन की गणना, वार्षिकी के प्रकार , वार्षिकी का वर्तमान मूल्य एवं मिश्रधन, ब्याज का सतत संयोजन, साधारण ऋण एवं ऋणपत्र का मूल्यांकन , शोधन निधि के प्रश्न ।</p>	<p><b>इकाई – 4</b>  अनुपात एवं समानुपात ।  औसत : साधारण, भारित एवं सांख्यिकीय औसत (समान्तर माध्य) ।  प्रतिशतता ।</p>
<p><b>इकाई – 5</b>  औसत, प्रतिशतता, कमीशन एवं दलाली, लाभ एवं हानि</p>	<p><b>इकाई – 5</b>  कमीशन, दलाली, बट्टा, लाभ एवं हानि ।  परिवहन समस्या ।</p>

### **Suggested Readings:**

1. Dr. Amarnath Dikshit, Dr. Jinendra Kumar Jain; Business Mathematics ;Himalaya Publishing House, Mumbai. (Both Hindi and English medium)
2. N.K. Nag : Business Mathematics; Kalyani publication, New Delhi. .
3. Dr. V.K. Shukla. : Business Mathematics; Madhya Pradesh hindi Granth Academy: Bhopal.
4. S.M. Shukla; Business Mathematics; Sahitya Bhawan Publication ; Agra. (Both Hindi and English medium)
5. Dr. Karim & Agrawal ; Business Mathematics; SBPD Publishing House ; Agra. (Both Hindi and English medium)
6. Dr. Ramesh Mangal; Business Mathematics; Satish Printer and Publishers, Indore.

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**B.Com Part- I**  
**Compulsory**  
**Group – II**  
**Paper – II – BUSINESS REGULATORY FRAMEWORK**  
**Proposed Syllabus**

**OBJECTIVE** – To provide a brief idea about the framework of Indian business laws.

**UNIT –I**

Law of Contract (1872) –I : Nature of contract ; Classification ; Offer and acceptance; Capacity of parties to contract, free consent, Considerations, Legality of object; Agreement declared void.

**UNIT –II**

Law of Contract (1872) - II : Performance of contract, Discharge of contract; Remedies for breach of contract.  
Special contracts; Indemnity ; Guarantee; Bailment and pledge; Agency.

**UNIT –III**

Sale of Goods Act (1930) ;Formation of contracts of sale ;Goods and their classification, price, Conditions and warranties; Transfer of property in goods; Performance of the contract of sales; Unpaid seller and his rights; sale by auction; Hire purchase agreement.

**UNIT –IV**

Negotiable Instrument Act (1881) : Definition of negotiable instrument; Feature; Promissory note; Bill of exchange & cheque; Holder and holder in the due course; Crossing of a cheque, types of crossing; Negotiation; Dishonor and discharge of negotiable instrument.

**UNIT –V**

The Consumer Protection Act 1986 : Main Provision, Definition of consumer ,Consumer Disputes , Grievance redressal machinery ; Indian Partnership Act 1932.  
Limited Liabilities Partnership Act 2008.  
Introduction of Intellectual Property Right Act – Copyright, Patent & Trademark.

**Suggested Readings:**

1. Kuchal M.C. ; Business Law ; Vikas Publishing House, Delhi. (English medium)
2. Kapoor N.D. : Business Law ; Sultan Chand & Sons, New Delhi. (English medium)
3. Chandha P.R. : Business Law; Galgotia ,New Delhi. (English medium)
4. Dr. J.K. Vaishnav : Business Law; Sahitya Bhawan publication, Agra. (English medium)
5. Prof. R. C. Agrawal; Business Regulatory Framework; SBPD Publishing House, Agra. (Hindi medium)
6. K.R. Bulchandani; Business Law; Himalaya Publishing House , Mumbai. (Both Hindi and English medium)
7. R.L. Navlakha; Business Law; Ramesh Book depot, Jaipur. (Both Hindi and English medium)
8. Arun Kumar Gangele; Business Regulatory Framework; Ram Prasad & Sons, Agra. (Hindi medium)

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## बी,कॉम. भाग – एक

### अनिवार्य

#### समूह-2 प्रश्नपत्र – 2 – व्यावसायिक नियमन रूपरेखा

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b> भारतीय अनुबंध अधिनियम (1872) : अनुबंध की प्रकृति : वर्गीकरण , प्रस्ताव तथा स्वीकृति, अनुबंध के योग्य पक्षकार , पक्षकारों की स्वतंत्र सहमति , प्रतिफल, उद्देश्य की वैधता , व्यर्थ घोषित ठहराव : अनुबंध का निष्पादन , अनुबंधों की समाप्ति , अनुबंध भंग के उपाय एवं परिणाम।</p> <p><b>इकाई – 2</b> विशिष्ट अनुबंध : क्षतिपूर्ति , प्रतिभूति, निक्षेप, गिरवी अनुबंध, एजेंसी।</p> <p><b>इकाई – 3</b> वस्तु विक्रय अधिनियम (1930) : वस्तु विक्रय अनुबंध का निर्माण , माल का वर्गीकरण , कीमत, शर्तें और आश्वासन , माल के स्वामित्व का हस्तांतरण, विक्रय अनुबंध का निष्पादन , अदत्त विक्रेता के अधिकार , नीलाम द्वारा विक्रय , किराया क्रय ठहराव।</p> <p><b>इकाई – 4</b> विनिमय साध्य विलेख अधिनियम (1881) : परिभाषाएं, विशेषताएं , प्रतिज्ञा पत्र, विनिमय विपत्र और धनादेश (चैक) : धारक तथा यथाविधिधारी , रेखांकित चैक, रेखांकन के प्रकार, परक्रामण, विनिमय साध्य विलेख का अनदारण व मुक्ति।</p> <p><b>इकाई – 5</b> उपभोक्ता संरक्षण अधिनियम (1986) : मुख्य विशेषताएं , उपभोक्ता की परिभाषा , उपभोक्ता विवाद निवारण अभिकरण। मुख्य प्रावधान , सूचना का अधिकार अधिनियम (2005) – मुख्य प्रावधान।</p>	<p><b>इकाई – 1</b> भारतीय अनुबंध अधिनियम (1872) : अनुबंध की प्रकृति : वर्गीकरण , प्रस्ताव तथा स्वीकृति, अनुबंध के योग्य पक्षकार , पक्षकारों की स्वतंत्र सहमति , प्रतिफल, उद्देश्य की वैधता , व्यर्थ घोषित ठहराव।</p> <p><b>इकाई – 2</b> अनुबंध का निष्पादन , अनुबंधों की समाप्ति , अनुबंध भंग के उपाय एवं परिणाम। विशिष्ट अनुबंध : क्षतिपूर्ति , प्रतिभूति, निक्षेप , गिरवी अनुबंध, एजेंसी।</p> <p><b>इकाई – 3</b> वस्तु विक्रय अधिनियम (1930) : वस्तु विक्रय अनुबंध का निर्माण , माल का वर्गीकरण , कीमत, शर्तें और आश्वासन , माल के स्वामित्व का हस्तांतरण, विक्रय अनुबंध का निष्पादन , अदत्त विक्रेता के अधिकार , नीलाम द्वारा विक्रय , किराया क्रय ठहराव।</p> <p><b>इकाई – 4</b> विनिमय साध्य विलेख अधिनियम (1881) : परिभाषाएं, विशेषताएं , प्रतिज्ञा पत्र, विनिमय विपत्र और धनादेश (चैक) : धारक तथा यथाविधिधारी , रेखांकित चैक, रेखांकन के प्रकार, परक्रामण, विनिमय साध्य विलेख का अनदारण व मुक्ति।</p> <p><b>इकाई – 5</b> उपभोक्ता संरक्षण अधिनियम (1986) : मुख्य विशेषताएं , उपभोक्ता की परिभाषा , उपभोक्ता विवाद निवारण अभिकरण। भारतीय साझेदारी अधिनियम 1932। सीमित दायित्व वाली साझेदारी अधिनियम 2008। बौद्धिक संपदा अधिकार अधिनियम का परिचय – कॉपीराइट, पेटेंट एवं ट्रेडमार्क।</p>

## Suggested Readings:

1. Kuchal M.C. ; Business Law ; Vikas Publishing House, Delhi. (English medium)
2. Kapoor N.D. : Business Law ; Sultan Chand & Sons, New Delhi. (English medium)
3. Chandha P.R. : Business Law; Galgotia ,New Delhi. (English medium)
4. Dr. J.K. Vaishnav : Business Law; Sahitya Bhawan publication, Agra. (English medium)
5. Prof. R. C. Agrawal; Business Regulatory Framework; SBPD Publishing House, Agra. (Hindi medium)
6. K.R. Bulchandani; Business Law; Himalaya Publishing House , Mumbai. (Both Hindi and English medium)
7. R.L. Navlakha; Business Law; Ramesh Book depot, Jaipur. (Both Hindi and English medium)
8. Arun Kumar Gangele; Business Regulatory Framework; Ram Prasad & Sons, Agra. (Hindi medium)

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**B.Com Part- I**  
**Compulsory**  
**Group – III**  
**Paper – I – BUSINESS ENVIRONMENT**  
**Proposed Syllabus**

**OBJECTIVE** – To acquainting the students with the emerging issues in business at the national and international level in the light of the policies of liberalization and globalization.

**UNIT –I**

Business Environment : Concept, Components and Importance ,Economic Trends (overview) : Income : Saving and investment ; Trade and balance of payment, Money and Finance .

**UNIT –II**

Problems of Growth : Unemployment ; Poverty ; Regional imbalances ; Social Injustice; Inflation ; Parallel economy ; Industrial sickness.

**UNIT –III**

Role of Government ; Monetary and fiscal policy ; Industrial policy ; Industrial licensing. Privatization ; Liberalisation, Globalisation Devaluation; Demonitisation; Export-Import policy.

**UNIT –IV**

Economic Planning in India : Need, objectives, Strategy; Review of Previous Plans, Planning Commission.

Foreign Exchange Management Act 2000 : Basic Concept and Main Provisions.

**UNIT –V**

International Environment ; Trends in World trade and the problems of developing countries; Foreign trade and economic growth; International economic groupings – GATT. ,WTO ,UNCTAD, World Bank, IMF; FDI.

**Suggested Readings:**

1. Agarwal A. N. : Indian Economy, Vikas Publishing House Delhi. (English medium)
2. Khan Farooq A : Business and Society; S. Chand , Delhi. (English medium)
3. Dutt R. and Sundharam K. Pm. ; Indian Economy; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. Dr. V.C. Sinha; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)
6. Dr. J. K. Jain; Business Environment; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Gupta & Pathak; Business Environment; Ram Prasad & Sons, Raipur. (Hindi medium)
8. S.K. Singh; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)

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**बी.कॉम. भाग – एक**  
**अनिवार्य**  
**समूह-3 प्रश्नपत्र – 1 – व्यावसायिक पर्यावरण**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b> भारतीय व्यावसायिक पर्यावरण : अवधारणा, संघटक व महत्व। आर्थिक प्रवृत्तियों : आय, बचत एवं विनियोग, औद्योगिक प्रवृत्तियों; व्यापार एवं भुगतान सन्तुलन, मुद्रा , वित्त तथा कीमत।</p> <p><b>इकाई – 2</b> विकास की समस्याएँ : बेरोजगारी ,निर्धनता एवं क्षेत्रीय असन्तुलन, सामाजिक अन्याय, मुद्रास्फीति, समान्तर अर्थव्यवस्था , औद्योगिक रुग्णता।</p> <p><b>इकाई – 3</b> शासन की भूमिका : मौद्रिक एवं राजकोषीय नीति, औद्योगिक नीति, औद्योगिक लाइसेंसिंग नीति ,निजीकरण , अवमूल्यन, निर्यात-आयात नीति, विदेशी विनियोग का नियमन।</p> <p><b>इकाई – 4</b> पुर्व योजनाओं की समीक्षा , चालू पंचवर्षीय योजना : मुख्य रणनीति, संसाधनों आबंटन।</p> <p><b>इकाई – 5</b> अंतराष्ट्रीय पर्यावरण : अंतराष्ट्रीय व्यापारिक पर्यावरण , विश्व व्यापार की प्रवृत्ति एवं विकासशील देशों की समस्याएँ, विदेशी व्यापार एवं आर्थिक विकास , अंतराष्ट्रीय आर्थिक समूह- अंतराष्ट्रीय अर्थव्यवस्था की संस्थाये, विश्व व्यापार संगठन , व्यापार एवं प्रशुल्क एवं व्यापार संबंधि सामान्य समझौता (गैट) , विश्व बैंक , अंतराष्ट्रीय मुद्रा कोष , अंतराष्ट्रीय पुनर्निर्माण एवं विकास बैंक, प्रति व्यापार , एफ. डी. आई.।</p>	<p><b>इकाई – 1</b> व्यावसायिक पर्यावरण : अवधारणा, संघटक व महत्व, आर्थिक प्रवृत्तियों : आय, बचत एवं विनियोग; व्यापार एवं भुगतान सन्तुलन, मुद्रा एवं वित्त।</p> <p><b>इकाई – 2</b> विकास की समस्याएँ : बेरोजगारी ,निर्धनता एवं क्षेत्रीय असन्तुलन, सामाजिक अन्याय, मुद्रास्फीति, समान्तर अर्थव्यवस्था , औद्योगिक रुग्णता।</p> <p><b>इकाई – 3</b> शासन की भूमिका (वर्तमान परिदृश्य में ) : मौद्रिक एवं राजकोषीय नीति, औद्योगिक नीति, औद्योगिक लाइसेंसिंग नीति ,निजीकरण , उदारीकरण, भूमण्डलीकरण, अवमूल्यन, विमुद्रिकरण निर्यात-आयात नीति, विदेशी विनियोग का नियमन।</p> <p><b>इकाई – 4</b> भारत में आर्थिक नियोजन : आवश्यकता , उद्देश्य एवं ब्युह्रचना, पुर्व पंचवर्षीय योजनाओं की समीक्षा , चालू पंचवर्षीय योजना। विदेशी विनिमय प्रबंध अधिनियम 2000 : अवधारणा एवं मुख्य प्रवधान।</p> <p><b>इकाई – 5</b> अंतराष्ट्रीय पर्यावरण : विश्व व्यापार की प्रवृत्ति एवं विकासशील देशों की समस्याएँ, विदेशी व्यापार एवं आर्थिक विकास , अंतराष्ट्रीय आर्थिक समूह- प्रशुल्क एवं व्यापार संबंधि सामान्य समझौता (गैट) , विश्व व्यापार संगठन, विश्व बैंक , अंतराष्ट्रीय मुद्रा कोष ,प्रत्यक्ष विदेशी निवेश, संयुक्त राष्ट्र व्यापार एवं विकास संगठन (अंकटाड)।</p>

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## Suggested Readings:

1. Agarwal A. N. : Indian Economy, Vikas Publishing House Delhi. (English medium)
2. Khan Farooq A : Business and Society; S. Chand , Delhi. (English medium)
3. Dutt R. and Sundharam K. Pm. ; Indian Economy; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. Dr. V.C. Sinha; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)
6. Dr. J. K. Jain; Business Environment; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Gupta & Pathak; Business Environment; Ram Prasad & Sons, Raipur. (Hindi medium)
8. S.K. Singh; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)

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## **B.Com Part- I**

### **Compulsory**

Group – III – Business Economics

Paper – II– BUSINESS ECONOMICS

### **Proposed Syllabus**

**OBJECTIVE** – To acquaint the students with the principles of Business Economics as are applicable in business.

#### **UNIT –I**

**Introduction** : Definition ,Nature and Scope of Economics, Difference Between Micro and Macro Economics, Method of Economic Study : Inductive and Deductive Methods.

Basic problem of Economy, Working of Price Mechanism.

Utility Analysis: Measurements of Utility, Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility.

#### **UNIT-II**

Law of demand: Meaning and Definitions, Effecting Factors, Types ; Exception of Law of demand.

Elasticity of Demand : Concept, Definitions, Importance, Types and Measurement of Elasticity of Demand, Factors affecting the Elasticity of Demand.

#### **UNIT –III**

Production : Factors of Production ,their characteristics and importance.

Production Functions : Law of Variable Proportions, Return to scale and Equal Product Curve Analysis. Internal and external economies and diseconomies.

#### **UNIT –IV**

Market Structure – Concept , Characteristics, Classification. Determination of Price under condition of Perfect Competition, Imperfect Competition and Monopoly, Monopolistic Competition, Oligopoly and Duopoly.

#### **UNIT –V**

Theories of distribution, Marginal Productivity theory of distribution, Concept and theories of Wages, Rent, Interest & Profit.

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### **Suggested Readings:**

1. John P. Gould, Jr. and Edward P. Lazear: Micro economic theory; All India Traveller, Delhi. (English medium)
2. Koutsoyianni A. : Modern Microeconomics; Macmillan, New Delhi. (English medium)
3. Khan Faroog A : Business and Society; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. M. L. Jhingan : Micro Economics, Vrinda publication, Delhi. (Both English and Hindi medium)
6. Dr. J. K. Jain; Business Economics; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Dr. V.C. Sinha; Business Economics; SBPD Publishing House, Agra. (Both English and Hindi medium)
8. Dr. Jai Prakash Misra; Business Economics; Sahitya Bhawan Publication, Agra. (Hindi medium)

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**बी,कॉम. भाग – एक**  
**अनिवार्य**  
**समूह-3 प्रश्नपत्र – 2 – व्यावसायिक अर्थशास्त्र**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
<p><b>इकाई – 1</b>  परिचय : अर्थशास्त्र की मुख्य समस्याएं , कीमत संयंत्र के कार्य, मांग की लोच , मांग की लोच मापने की विधियां एवं अवधारणाएं : कीमत , आय तथा आडी लोच, औसत आगम, सीमान्त आगम एवं मांग की लोच , मांग की लोच का निर्धारण तथा मांग की लोच का महत्व।</p> <p><b>इकाई – 2</b>  उत्पादन फलन, परिवर्तन अनुपात का नियम , समोत्पाद , विस्तार पथ, पैमाने के प्रतिफल ,  आंतरिक एवं बाह्य मितव्ययिता एवं अपमितव्ययिता।</p> <p><b>इकाई – 3</b>  लागत अवधारणाएं , अल्पकालीन एवं दीर्घकालीन लागत वक्र, परम्परागत एवं आधुनिक विचारधारा।  बाजार संरचना तथा व्यावसायिक निर्णयन, व्यावसायिक फर्म के उद्देश्य।  (अ) पूर्ण प्रतियोगिता , लाभ अधिकतमीकरण तथा फर्म का साम्य , औद्योगिक अल्पकालीन एवं दीर्घकालीन पूर्ति वक्र, कीमत एवं उत्पाद निर्धारण।  (ब) एकाधिकार : एकाधिकार में मूल्य निर्धारण , फर्म का साम्य , पूर्ण प्रतियोगिता एवं एकाधिकार में अन्तर ,एकाधिकार के अंतर्गत कीमत विभेद।</p> <p><b>इकाई – 4</b>  बाजार संरचना:  (अ)एकाधिकृत प्रतियोगिता : आशय एवं विशेषताएं , कीमत एवं उत्पाद निर्धारण , उत्पाद विभेद , विक्रय लागत, पूर्ण प्रतिस्पर्धा से तुलना , अतिरिक्त क्षमता सिद्धांत।  (ब) अल्पाधिकार : विशेषताएं , कीमत एवं उत्पाद निर्धारण , परंपरागत मॉडल, कीमत नेतृत्व , कपटपूर्ण अल्पाधिकार।</p> <p><b>इकाई – 5</b>  कीमत कारक— I सीमान्त उत्पादकता सिद्धांत तथा मांग कारक, पूर्ति की प्रकृति, पूर्ण प्रतियोगिता एवं एकाधिकार में मजदूरी दर का निर्धारण ,श्रम का शोषण।  कीमत कारक – II – लगान अवधारणा , रिकार्डों का</p>	<p><b>इकाई – 1</b>  परिचय: अर्थशास्त्र की परिभाषा, प्रकृति एवं क्षेत्र, व्यष्टि एवं समष्टि अर्थशास्त्र में भेद, आर्थिक अध्ययन की प्रणालियां : निगमन एवं आगमन।  अर्थव्यवस्था की मूल समस्याएं, कीमत संयंत्र का कार्यकरण।  उपयोगिता विश्लेषण – उपयोगिता की माप, सीमांत उपयोगिता ह्रास नियम , समसीमांत उपयोगिता नियम।</p> <p><b>इकाई – 2</b>  मांग का नियम : अर्थ, परिभाषा , प्रभावित करने वाले घटक, मांग के रूप, मांग के नियम के अपवाद।  मांग की लोच : अवधारणा, परिभाषा, महत्व, प्रकार एवं मापन की विधियां, मांग की लोच को प्रभावित करने वाले घटक।</p> <p><b>इकाई – 3</b>  उत्पादन : उत्पादन के कारक ,उनकी विशेषताएं एवं महत्व।  उत्पादन फलन : परिवर्तनशील अनुपातों का नियम , पैमाने का प्रतिफल ,समोत्पाद वक्र विश्लेषण। आंतरिक एवं बाह्य मितव्ययिता एवं अपमितव्ययिता।</p> <p><b>इकाई – 4</b>  बाजार संरचना: अवधारणा, परिभाषाएं, विशेषताएं एवं वर्गीकरण। पूर्ण प्रतियोगिता, अपूर्ण प्रतियोगिता, एकाधिकारी प्रतियोगिता, एकाधिकृत प्रतियोगिता ,अल्पाधिकार एवं द्वयाधिकार में कीमत निर्धारण।</p> <p><b>इकाई – 5</b>  वितरण का सिद्धांत : सीमान्त उत्पादकता का सिद्धांत , मजदूरी, लगान, ब्याज एवं लाभ की अवधारणा एवं सिद्धांत।</p>

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
लगान सिद्धांत तथा लगान का आधुनिक सिद्धांत , ब्याज अवधारणा तथा ब्याज का सिद्धांत लाभ की प्रकृति , अवधारणा तथा लाभ के सिद्धांत।	

### Suggested Readings:

1. John P. Gould, Jr. and Edward P. Lazear: Micro economic theory; All India Traveller, Delhi. (English medium)
2. Koutsoyianni A. : Modern Microeconomics: Macmillan, New Delhi. (English medium)
3. Khan Farooq A : Business and Society; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. M. L. Jhingan : Micro Economics, Vrinda publication, Delhi. (Both English and Hindi medium)
6. Dr. J. K. Jain; Business Economics; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Dr. V.C. Sinha; Business Economics; SBPD Publishing House, Agra. (Both English and Hindi medium)
8. Dr. Jai Prakash Misra; Business Economics; Sahitya Bhawan Publication, Agra. (Hindi medium)

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## B. COM - I (COMPUTER APPLICATION)

### PAPER - I

### COMPUTER FUNDAMENTALS

MAX MARKS : 50

**Note :-** The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

#### UNIT-I INTRODUCTION TO COMPUTERS

**Computer System:** Characteristics and capabilities. Computer Hardware and Software: Block Diagram of Computer, Different Data Processing: Data, Data Processing System, Storing Data, Processing Data. Types of Computers: Analog, Digital, Hybrid General and Special Purpose Computers. Generation of Computers. Computer Systems: Micro, Minis & Main-Frames. Limitations of Micro Computer. **Number systems:** Decimal number system. Binary number system. Octal and Hexadecimal number system. 1's and 2's complement. **Codes:** ASCII, EBCDI codes, Gray code and BCD. **Logic Gates:** AND, OR, NOT GATES and their Truth tables, NOR NAND and XOR gates.

#### UNIT-II COMPUTER PERIPHERALS

**Introduction to Input Devices:** Categorizing Input Hardware, Keyboard, Direct Entry- Card Readers Scanning Devices - O.M.R. Character Readers, Thumb Scanner, MICR Smart Cards, Voice Input Devices Pointing Devices - Mouse Light Pen, Touch Screen. **Computer Output :** Output Fundamentals, Hardcopy Output Devices, Impact Printers, Non-Impact Printers, Plotters, Computer output Microfilm/Microfiche (COM) System, Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies, Projectors, Speakers.

#### UNIT-III BASIC COMPONENTS AND STORAGE

**Central Processing Unit :** The Microprocessor, control unit, A.L.U., Registers, Buses, Main Memory, Main Memory(RAM) for microcomputers, Read Only Memory(ROM). Storage Devices: Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods – Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers - Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer systems, Mass storage systems and Optical Disks, CD ROM.

#### UNIT-IV COMPUTER SOFTWARE AND LANGUAGES

**System Software:** System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems, Boot Loader, Diagnostic programs, BIOS, Utility Programs, **Application Software :** Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages. **Computer Language:** Definition, Generations of Computer languages, Types of Languages, **Language Processors:** Assembler, Interpreter, Compiler, Linker and Loader, Programming constructs, Algorithm and flowchart.

#### UNIT-V INTRODUCTION TO MS-DOS AND WINDOWS

**Introduction to DOS:** History and Versions of DOS Fundamentals of DOS: Physical Structure of the Disk, Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. Getting Started with DOS: Booting Process (DOS, Windows ,UNIX), System Files and Command.com, Internal DOS files & Directories, Elementary External DOS Commands, Creating a Batch Files, Additional Commands. **Microsoft Windows: Operating** system, Definition and functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel-display properties, adding and removing software and hardware setting date and time, screen saver and appearance. Using windows accessories.

#### TEXT BOOK

1. Introduction to Information Technology, V. Rajaraman, PHI Sixth Edition.
2. Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
3. Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
4. Computers Today, Suresh K. Basandra, Galgotia Publications.



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## B. COM - I (COMPUTER APPLICATION)

### PAPER - II

#### PC S/W & MM

MAX MARKS: 50

**Note :-** The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

#### UNIT-I USING OFFICE MS-WORD

Introduction to word processing software and its features, Creating new document, Saving documents, Opening and printing documents. **Home Tab:** Setting fonts, Paragraph settings, various styles (Normal, No spacing, Heading1, Heading2, Title Strong), Find & replace, Format Painter, Copy paste and paste special. **Insert Tab:** Pages, Tables, pictures, clipart, shapes, header & footer, word art, equation and symbols. **Page Layout Tab:** Page setup, page Background, Paragraph (indent and spacing). **Mailing Tab:** Create envelopes and Labels, Mail merge. **Review Tab:** Spelling and grammar check, new comment, Protect document. **View Tab:** Document views, zoom, Window (New window, Split, Switch window).

#### UNIT-II WORKING WITH MS-EXCEL

Introducing Excel, Use of Excel sheet, Creating new sheet, Saving, Opening & Printing workbook. **Home Tab:** Font, Alignment, Number, Styles and cells and editing, Conditional Formatting. **Insert Tab:** Table, Charts (Column Chart, Pie chart, Bar chart, Line chart) and Texts (heading & Footer, word art, signature line). **Page Layout Tab:** Page setup options, Scale to fit (width, height, scale) **Formulas Tab :** Autosum (sum, average, min, max). Logical (IF, and, or, not, true, false), Math & trig (sin, cos, tan, ceiling, floor, fact, mod, log), watch window. **Data Tab:** Get external data from MS Access, Sort and filter options, Data validation, Group and ungroup. **Review Tab:** Protect sheet, Protect workbook and Share workbook. **View Tab:** Page break, Page layout, Freezing panes, Split and hide.

#### UNIT-III WORKING WITH MS-POWERPOINT

Introducing power point, Use of power point presentation, Creating new slides saving, Opening and printing. **Home Tab:** New slide, Layout, Reset, Delete, Setting text direction, Align text, Convert to smart art, drawing options. **Insert Tab:** Table picture, clipart, photo album, smart art, shapes and chart, movie and sound, hyperlink and action, text box, word art, object **Design Tab:** Page setup option, slide orientation, applying various themes, selecting background style and formatting it. **Animation Tab:** Custom animation for entrance, exit and emphasis, applying slide transition, setting transition speed and sound, animation on rehearsing timing. **Slide show & View Tab:** Start slide show options, setup option. **View Tab:** Presentation views, colours and window option.

#### UNIT-IV WORKING WITH MS-ACCESS

Front end and back end of application, Introduction to DBMS, features of dbms, Creating blank databases, Saving it in accdb format. Defining data type in MS Access. **Home Tab:** Datasheet view, design view, pivot chart view, pivot table view, sort and filter options. **Create Tab:** Creating tables, creating reports, query wizard. **External Data Tab:** Importing data from access and excel sheet, exporting data to excel and MS word. **Datasheet Tab:** Relationships, fields and columns options, Data type and formatting options.

#### UNIT-V ANIMATION AND GRAPHICS

Basic concept of 2D/3D Animation, Principle of animation, application of Multimedia, hardware and Software resources requirement for animation, introduction of various file formats (.mpeg, .gif, .jpeg, .mp4, .tif, .flv) **Creating a new movie in flash :** Get set Up, Input Text, Animate Text, Drawing and painting with tools, brush, create basic shapes like oval, Rectangle & Polystar Tools, Tools working with object & filling the object. Transformation object properties dialog box, creating layers motion tweening, shape tweening, Mask layers, basic action scripts, importing sound through Flash.

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- Signature: [illegible], Date: 19/11/19
- Signature: [illegible], Date: 19/11/19
- Signature: [illegible], Date: 19/11/19

## TEXT BOOK

1. Microsoft Office 2007 Fundamentals, L. Story, D. Walls.
2. MS Office, S.S. Shrivastava, Firewall Media.
3. Office 2000 made easy, Alan Neubauer, Tata McGraw Hill.
4. FLASHMX Bible, Robert Reinhart.
5. Sams Teach Yourself Macromedia Flash 8 in 24 Hours, Phillip Kerman
6. How to do everything with Macromedia, Bonnie Blake, Doug Sahlin
7. Multimedia Making it works, Tay Vaughan Tata McGraw Hill.

*Shrivastava*  
19/10/19  
*P. S. S.*  
19/10/19

*M*  
19/10/19

*Alan Neubauer*  
19/10/19  
*H*  
19/10/19

*Phillip Kerman*  
19/10/19



## हेमचंद्र यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

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वेब साइट : [www.durguniversity.ac.in](http://www.durguniversity.ac.in)

दूरभाष : 0788-2359400

क्र. 1458 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रति,

प्राचार्य,  
समस्त संबद्ध महाविद्यालय,  
हेमचंद्र यादव विश्वविद्यालय,  
दुर्ग (छ.ग.)

विषय:- स्नातक स्तर के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर के निम्नलिखित कक्षा/विषय के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2019-20 से स्नातक के तीनों वर्ष के लिए लागू किया जाता है।

1. बी.कॉम. — आधार पाठ्यक्रम-हिन्दी भाषा एवं वाणिज्य।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र-छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार


  
कुलसचिव

क्र. 1459 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रतिलिपि:-

1. संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019 के परिपेक्ष्य में सूचनार्थ।
2. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद्र यादव विश्वविद्यालय, दुर्ग।
3. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद्र यादव विश्वविद्यालय, दुर्ग।

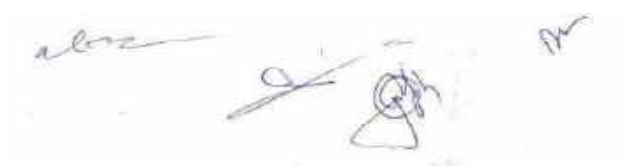
  
सहा. कुलसचिव (अका.)



## **B. Com. - II**

### **INDEX**

1. Revised Ordinance No.-23
2. Scheme of Examination
3. Hindi Language
4. English Language
5. G-I
  1. Corporate Accounting
  2. Company Law
6. G-II
  1. Cost Accounting
  2. Principle of Business Management
7. G-III
  1. Business Statistics
  2. Fundamental of Entrepreneurship
8. Computer Application

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**REVISED ORDINANCE NO.-23**

**(As per State U.G.C. Scheme)**

**BACHELOR OF COMMERCE**

1. The three year course has been broken up into three Parts.  
Part-I known as B. Com. Part-I Examination at the end of first year. Part-II Examination at the end of the second year, and,  
Part-III Examination at the end of the third year.
2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of Chhattisgarh Board of Secondary Education, Raipur or any other examination recognized by the University or Chhattisgarh Board of Secondary Education as equivalent there to has attended a regular course of study in an affiliated college or in the Teaching Department of the University for one academic year, shall be eligible for appearing at the B.Com. Part-I examination.
3. A candidate who after passing B.Com. Part-I examination of the University or any other examination recognized by the University as equivalent thereto has attended a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-II Examination.
4. A candidate who after passing B.Com. Part-II examination of the University has completed a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-III examination.
5. Besides regular students, subject to their compliance with this ordinance, ex-students and non-collegiate students shall be eligible for admission to the examination as per provision of Ordinance No. 6 relating to examinations (General).
6. Provided that non-collegiate candidates shall be permitted to offer only such subject/ papers as are taught to the regular students at any of the University Teaching Department or College.
7. Every candidate for B.Com. Examination shall be examined in subjects as mentioned in the marking scheme and course or studies.
8. A candidate who has passed the B.Com. Part-III examination of the University shall be

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allowed to present him of examination in any of the additional subjects prescribed for the B.Com. Examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B. Com. Part-I examination in the subject which he proposes to offer then the B.Com. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

9. In order to pass at any part of the three year degree course examination, an examinee must obtain not less than 33% of the total marks in each paper/group of subjects. In group where both theory and practical examinations are provided an examinee must pass in both theory and practical parts of examination separately.
10. Candidate will have to pass separately at the Part-I, Part-II and Part-III examination. No division shall be assigned on the result of the Part-I and Part-II examinations In determining the division of the Final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken into account. Candidate will not be allowed to change subjects after passing Part-I examination.
11. Provided in case of candidate who has passed the examination through the supplementary examination having failed in one subject/group only, the total aggregate mark being carried over for determining the division, shall include actual marks obtained in the subject/group in which he appeared at the supplementary examination.
12. Successful examinees at the Part - III examination obtaining 60% or more marks shall be placed in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

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**Hemchand Yadav Vishwavidyalaya, Durg (C.G.)**  
**SYLLABUS**  
**B.COM. PART-II**  
**GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION**

Subject			Max.	Min.
<b>A. Foundation Course</b>				
I.	Hindi Language		75	26
II.	English Language		75	26
<b>B. Three Compulsory Groups</b>				
<b>Group-I</b>				
I.	Corporate Accounting	75	150	50
II.	Company Law	75		
<b>Group-II</b>				
I.	Cost Accounting	75	150	50
II.	Principles of Bus. Management	75		
<b>Group-III</b>				
I.	Business Statistics	75	150	50
II.	Fundamental of Entrepreneurship	75		

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20/6/19

*[Signature]*  
20/6/19  
SKA

*[Signature]*

*[Signature]*  
20/6/19

संशोधित पाठ्यक्रम  
बी.ए./बी.एस-सी./बी.कॉम./बी.एच.एस.-सी.  
भाग - दो, आधार पाठ्यक्रम  
प्रश्न पत्र - प्रथम (हिन्दी भाषा) (पेपर कोड - 0171)

पूर्णांक- 75

खण्ड - क निम्नलिखित 5 लेखकों के पाठ शामिल होंगे -

अंक-35

- |                        |   |                          |
|------------------------|---|--------------------------|
| 1. महात्मा गांधी       | — | चोरी और प्रायश्चित       |
| 2. आचार्य नरेंद्र देव  | — | युवकों का समाज में स्थान |
| 3. वासुदेव शरण अग्रवाल | — | मातृभूमि                 |
| 4. हरि ठाकुर           | — | डॉ. खूबचंद बघेल          |
| 5. पं. माधवराव सप्रे   | — | सम्भाषण-कुशलता           |

खण्ड-ख हिन्दी भाषा और उसके विविध रूप

अंक-16

1. कार्यालयीन भाषा
2. मीडिया की भाषा
3. वित्त एवं वाणिज्य की भाषा
4. मशीनी भाषा

खण्ड-ग हिन्दी की व्याकरणिक कोटियाँ

अंक-24

संज्ञा, सर्वनाम, विशेषण, क्रिया विशेषण,  
समास, संधि एवं संक्षिप्तियाँ  
अनुवाद व्यवहार : अंग्रेजी से हिन्दी में अनुवाद

इकाई विभाजन-

- इकाई- 1 चोरी और प्रायश्चित : महात्मा गांधी / कार्यालयीन भाषा, मीडिया की भाषा
- इकाई- 2 युवकों का समाज में स्थान : आचार्य नरेन्द्र देव / वित्त एवं वाणिज्य की भाषा, मशीनी भाषा
- इकाई- 3 मातृभूमि: वासुदेवशरण अग्रवाल / संज्ञा सर्वनाम, विशेषण, क्रिया विशेषण
- इकाई- 4 डॉ. खूबचंद बघेल : हरि ठाकुर/समास, संधि,
- इकाई- 5 सम्भाषण-कुशलता : पं. माधवराव सप्रे, / अनुवाद - अंग्रेजी से हिन्दी में अनुवाद, संक्षिप्तियाँ

मूल्यांकन योजना -

प्रत्येक इकाई से एक-एक प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक इकाई को दो-दो खण्डों (क्रमशः 'क' और 'ख' में) विभक्त करते हुए निर्धारित पाठ से 8 एवं शेष पाठ्य सामग्री से 7 अंक के प्रश्न होंगे। इस प्रकार पूरे प्रश्न-पत्र के पूर्णांक 75 होंगे।

**पाठ्यक्रम संशोधन का औचित्य :** विद्यार्थी चर्चित एवं सुप्रसिद्ध व्यक्तियों के लेख के माध्यम से समाज एवं राष्ट्रहित के साथ-साथ व्यक्तित्व विकास विषयक मुद्दों से परिचित हो सकें तथा व्याकरणक एवं भाषा विषयक प्रस्तावित पाठ्यक्रम के माध्यम से हिन्दी भाषा संबंधित प्रयोग पक्ष से परिचित होते हुए प्रतियोगी परीक्षाओं की दृष्टि से ज्ञानार्जन कर सकें।

ENGLISH LANGUAGE (Paper Code-1132)

B.A. / B.Sc. /B.COM. /B.H. Sc. - II

M.M.75

The question paper for B.A. /B.Sc./B.Com./B.H.Sc., English Language and cultural values shall comprise the following units:

UNIT-I Short answer questions to be passed by (Five short answer questions of three marks each) 15 Marks

UNIT-II (a) Reading comprehension of an unseen passage 05 Marks  
(b) Vocabulary

UNIT-III Report-Writing 10 Marks

UNIT-IV Expansion of an idea 10 Marks

UNIT-V Grammar and Vocabulary based on the prescribed text book. 20+15Marks

Note: Question on all the units shall asked from the prescribed text which will  
Comprise Specimens of popular creative/writing and the following it any

a Matter & technology

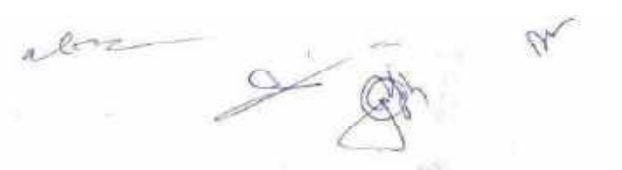
- i. State of matter and its structure
- ii. Technology (Electronics Communication, Space Science)

b Our Scientists & Institutions

- I. Life & work of our eminent scientist Arya Bhatt. Kaard  
Charak Shusruta, Nagarjuna, J.C. Bose and C.V. Raman, S.  
Rmanujam, Homi J. Babha Birbal Sahani.
- II. Indian Scientific Institutions (Ancient & Modern)

Books Prescribed:

Foundation English for U.G. Second Year - Published by M.P. Hindi Granth  
Academy, Bhopal.



**B.Com. II year**  
**C O M P U L S O R Y**  
**Group - I PAPER - I (CORPORATE ACCOUNTING)**  
(As per company act 2013)  
**Proposed Syllabus**

**OBJECTIVE**

This course enable the students to develop awareness about corporate accounting in conformity with the provisions of companies Act.

- UNIT-I** Issue, Forfeiture, and Re-issue of Shares : Redemption of preference shares; Issue and redemption of debentures.
- UNIT-II** Final Accounts (as per company act 2013)  
Liquidation of Company.
- UNIT-III** Valuation of Goodwill and Shares.
- UNIT-IV** Accounting for Amalgamation of Companies as per Indian Accounting Standard 14; Accounting for internal reconstruction - excluding intercompany holdings and re-construction schemes.
- UNIT-V** Consolidated Balance Sheet of holding companies with one subsidiary only.

**SUGGESTED READINGS :**

1. Dr. S.M. Shukla, Sahitya Bhawan Agra.
2. Dr. Mangal Mehta & Agrawal Published - Indore.
3. Dr. Karim Khanuja - Published - Agra.
4. Gupta R.L., Radhaswamy M; Company Accounts; Sultan Chand & Sons, New Delhi.



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## **Group - I - PAPER – II**

### **COMPANY LAW**

#### **Proposed Syllabus**

#### **OBJECTIVE**

This objective of this course is to provide basic knowledge of the provisions Companies

Act. 2013, along with relevant case law.

**UNIT-I** Corporate personalities; Kinds of Companies, Nature & Scope, promotion on and incorporation of companies.

**UNIT-II** Memorandum of Association; Articles of Association; Prospectus, Shares; share capital - transfer and transmission.


**UNIT-III** Capital management - borrowing powers, mortgages and charges, debentures.

Directors - Managing Director, whole time director, Appointment, Remuneration, and duties.

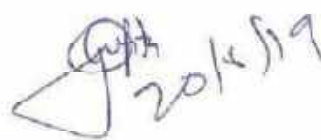
**UNIT-IV** Company meetings - kinds, Notice, quorum, voting, proxy, resolutions, minutes.

**UNIT-V** Majority powers and minority rights; Prevention of oppression and mismanagement. Winding up - kinds and conduct.

  
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### **SUGGESTED READINGS :**

1. Singh Avtar : Company Law; Eastern Book Co., Lucknow.
2. Dr. S.M. Shukla, Shahitya Bhawan Agra.
3. Dr. R.C. Agrawal, Shahitya Bhawan Agra.
4. Kapoor N.D. : Company Law - Incorporating the Provisions of the Companies Amendment Act, 2013 Chand & Sons, New Delhi

  
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# **Group - II PAPER – I**

## **(COST ACCOUNT)**

### **Proposed Syllabus**

#### **OBJECTIVE**

This course exposes the students to the basic concepts and the tools used in cost accounting.


- UNIT-I** Introduction : Nature and scope of cost accounting ; Cost concepts and classification; Methods and techniques; Installation of costing system; Concept of cost audit. Accounting for Material : Material Control; Concept and techniques; Pricing of material issues; Treatment of material losses.
- UNIT-II** Accounting for Labour : Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment - time and piece rates; Incentive schemes. Accounting for overheads; Classification and departmentalization; Absorption of overheads; Determination of overhead rates; Under and over absorption, and its treatment.
- UNIT-III** Cost Ascertainment : Unit costing; Job, batch and contract costing.
- UNIT-IV** Operating costing; Process Costing - excluding inter - process profits, and joint and by - products.
- UNIT-V** Cost Records : Intergal and non - integral system; Reconciliation of cost and financial accounts; Break Even Point.

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**SUGGESTED READINGS :**

1. M.L. Agrawal : Sahitya Bhawan Agra.
2. Maheshwari S.N. : Advanced Problems and Solutions in Cost Accounting; Sultan Chand, New Delhi.
3. Arora M.N. : Cost Accounting - Principles and Practice; Vikas, New Delhi.
4. Jain S.P. and Narang K.L. : Cost Accounting; Kalyani New Delhi.

  
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## Group - II - PAPER - II

### PRINCIPLES OF BUSINESS MANAGEMENT

#### Proposed Syllabus

#### OBJECTIVE

This Course familiarizes the students with the basics basics of principles of management.


- UNIT-I** Introduction : Concept, nature, process, and significance of management; management roles (Mintzberg); An overview of functional areas of management; Development management thought; Classical and neo-classical systems; Concept approaches.
- UNIT-II** Planning : Concept, process and types.  
Decision making - concept and Bounded rationality; Management by objectives; Corporate planning; Environment analysis and diagnosis; Strategy formulation.
- UNIT-III** Organizing : Concept, nature, process and significance; Authority and resident relationships; Centralization and decentralization; Departmentation; Organization structure - forms and contingency factors.
- UNIT-IV** Motivating and Leading People at work : Motivation - concept; Theories Herzberg, McGregor, and Ouchi; Financial and non- financial incentives.  
Leadership - concept and leadership styles; Leadership theories (Tannenb Schmidt.); Likert's System Management;  
Communication - nature, process, networks, and barriers, Effective Communication.
- UNIT-V** Managerial Control : Concept and process; Effective control system; Technical control - traditional and modern. Management of Change : Concept, nature, and process of planned Resistance to change; Emerging horizons of management in a environment.

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### **SUGGESTED READINGS :**

1. Dr. R.C. Agrawal, Agra.
2. Dr. S.C. Saxena, Agra.
3. Weihrich and Koontz, et al : Essentials of Management; Tata McGraw Hill, New Delhi.

  
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**Group - III - PAPER – I**  
**BUSINESS STATISTICS**

**Proposed Syllabus**

**OBJECTIVE**

It enable the students to gain understanding of statistical techniques as are applicable to business.

- UNIT-I** Introduction : Statistics as a subject; Descriptive Statistics - compared to Inferential Statistics; Types of data; Summation operation; Rules of Sigma E operations, Analysis of University Data; Construction of a frequency distribution; Concept of central tendency.
- UNIT-II** Dispersion - and their measures; Partition values; Skewness and measures;
- UNIT-III** Analysis of Bivariate Data : Linear regression two variables and correlation.
- UNIT-IV** Index Number; Meaning, types, and uses; Methods of Constructing price and quantity indices (simple and aggregate); Tests of adequacy; Chain - base index numbers; Base shifting, splicing and deflating; Problems in constructing index numbers; Consumer price index. Analysis of Time Series : Cause of Variation in time series data; Components of a time series; Decomposition - Additive and Multiplicative models; Determination of trend - Moving Averages Method and method of least squares (including linear, second degree, parabolic, and exponential trend); Computation of seasonal indices by simple averages, ratio - to - trend, ratio - to - moving average, and link relative methods.
- UNIT-V** Forecasting and Methods : Forecasting - concept, types and importance; General approach to forecasting; Methods of forecasting; demand; Industry Vs Company sales forecast; Factors affecting company sales. Theory of Probability : as a concept; The three approaches to defining probability; Addition and multiplication laws of probability; Conditional Probability; Bayes' Theorem; Expectation and Variance of a random variable.

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### **SUGGESTED READINGS :**

1. S.M.Shukla, Shahitya Bhawan,Agara.
2. Statistical Analysis, Dr. Rajesh Shukla and J.B. Agrawal

  
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**Group - III PAPER – II**  
**FUNDAMENTALS OF ENTREPRENEURSHIP**

Proposed Syllabus

**OBJECTIVE**

It Provides exposure to the students to the entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.


- UNIT-I** Introduction : The entrepreneur; Definition; Emergence of entrepreneurial class; Theories of entrepreneurship; Role of socio - economic environment; Characteristics.
- UNIT-II** Promotion of a Venture; Opportunities analysis; External environmental analysis economic, social and technological; Competitive factors; Legal requirements for establishment of a new unit, and raising of funds; Venture capital sources and documentation required.
- UNIT-III** Entrepreneurial Behavior : Innovation and entrepreneur; Entrepreneurial behavior and Psycho - Theories, Social responsibility.
- UNIT-IV** Entrepreneurial Development Programs (EDP) : EDP, their role, relevance, and achievements; Role of Government in organizing EDPs; Critical evaluation.
- UNIT-V** Role of Entrepreneur : Role of an entrepreneur in economic growth as an innovator, generation of employment opportunities, complementing and supplementing economic growth, bringing about social stability and balanced regional development of industries; Role in export promotion and import substitution, forex earnings, and augmenting and meeting local demand.

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### **SUGGESTED READINGS :**

1. Srivastava S.B. : A Practical Guide to industrial Entrepreneurs; Sultan Chand and Sons, New Delhi.
2. Tandon B.C. : Environment and Entrepreneur; Chugh Publications, Allahabad.
3. Prasanna Chandra : Project Preparation, Appraisal, Implementation; Tata McGraw Hill, New Delhi.

  
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# COMPUTER APPLICATION

## MARKSDISTRIBUTION PAPER - I

### INTERNET APPLICATION & E-COMMERCE

#### Proposed Syllabus

#### UNIT - I Introduction to HTML

Introduction to Internet & World Wide Web

**Internet-** Indian and the Internet, Profile of Indian Surfer, History of the Internet, Indian Internet History, Technological Foundation of Internet, Application in Internet Environment, Movement of files/data between two computers, TCP/IP, IP Addresses, Domain Name System, Domain Name Services, allocation of second level domains in India, Internet & India.

**World Wide Web (WWW)** - WWW consortium browsing and Information retrieval, exploring the WWW, address : URL.

#### UNIT - II Introduction to HTML & Designing Web Page

Concept to Website, Web standards, What is HTML, HTML documents / file, HTML Editor, Explanation of the structure of Homepage, Elements in HTML Documents, HTML Elements, HTML Tags & Basic HTML Tags, viewing the source of web page & downloading the web page source, Extensible HTML, CSS, XML, XSL.

##### HTML Document Structure - Head Section

Illustration of Document Structure, Mark-up elements within the Head : BASE, ISINDEX, LINK, META, TITLE, SCRIPT.

#### UNIT - III HTML Document Structure & HTML Forms

##### Body Section - Illustration, Body

elements, Background, TEXT BODY element, ADDRESS, BLOCKQUOTE, TABLE, COMMENTS, CHARACTER Emphasis modes, Logical styles, Physical Styles, FONT, BASEFONT and CENTER.

##### Image, Internal and External Linking

**Between Web Pages** - IMG Elements,

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HEIGHT, WIDTH, ALT, ALIGN, Illustration of IMG elements, Hypertext Anchors, NAME attribute in Anchor.

**HTML Forms** - Forms, Form tag, Form

Structure, Input types, Drop down menu or select menu tags, image buttons.

#### **UNIT – IV Introduction to E-Commerce & Business**

##### **Strategy in Electronic Age**

**E-Commerce** - Scope & definition of language, E-commerce & Trade cycle, E-markets, E-Data Interchange, Internet Commerce, E-commerce in Perspective.

**Business Strategy** - The value chain, competitive advantage, business strategy, Case-Study : e-commerce in Passenger Air Transport.

#### **UNIT – V B to B e-Commerce & B to C e-Commerce Business to Business e-**

**Commerce** - Inter- organisational Transactions, Electronic markets, Electronic Data Interchange (EDI) - the nuts and bolts, EDI and business, Inter roganizational e-Commerce.

**Business to Consumer e-Commerce** - Consumer trade transactions.

**The elements of e-Commerce** - elements, e-visibility, e-shop online payments, delivering the goods, after sales service, Internet e-Commerce Security A web site evaluation model.

**e-Business** - Introduction, Internet Bookshops, Software Supplies & support, e-newspapers, internet banking, virtual auctions, online share dealing, gambling on net, e-diversity.

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**COMPUTER APPLICATION**  
**PAPER – II**  
**RELATIONAL DATABASE MANAGEMENT SYSTEM**

Proposed Syllabus

**UNIT – I    DATABASE SYSTEM CONCEPT & ENTITY RELATIONSHIP MODEL :**

Operational data, why database, data independence, an Architecture for a Data base system, DDL & DML, Data Dictionary, Data Structures and Corresponding Operators, Data Models, The Relational approach, The Network approach, DBMS storage structure and access method. Entity-Relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; strong and weak entities Generalization; Specialization and aggregation. Converting an ER-model into relational.

**UNIT – II    Relational Database Management System Relational Model :**

Structure to Relational Database, Relational Algebra, The Domain Relational, Calculus, Extended Relational-Algebra Operation, Modification of database, Views. **Relational Database Design :-** Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization : 1NF, 2NF, BCNF, 3NF, 4NF, 5NF operations not involving cursors, Operations involving cursors, dynamic statements, security & integrity security specification in SQL.

**UNIT – III    RELATIONAL DATABASE DESIGN :**

Relational Algebra, Traditional Set Operations, Attributes Names for Derived Relations, special relational operations, further normalization, functional dependence. First, second and third normal forms, BCNF Forms, relations with more than one candidate key, Good and bad decompositions, fourth normal form, fifth normal form, Denormalization.

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## UNIT – IV Introduction to RDBMS Software - Oracle

(a) **Introduction** : Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL \* PLUS.

(b) **DDL and DML** : Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views : What is Views, Create, Drop and Retrieving data from views.

UNIT – V (a) **Security** : Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

(b) **PL/SQL** : Block Structure in PL/SQL, Variable and constants, Running PL/SQL in the SQL\*PLUS, Data base Access with PL/SQL, Exception Handling, Record Data type in PL/S!L, Triggers in PL/SQL.

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## हेमचंद्र यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका दुर्ग (छ.ग.)-491001

ई मेल : [academic@durguniversity.ac.in](mailto:academic@durguniversity.ac.in)

वेब साइट : [www.durguniversity.ac.in](http://www.durguniversity.ac.in)

दूरभाष : 0788-2359400

क्र. 1458 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रति,

प्राचार्य,

समस्त संबद्ध महाविद्यालय,

हेमचंद्र यादव विश्वविद्यालय,

दुर्ग (छ.ग.)

विषय:- स्नातक स्तर के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर के निम्नलिखित कक्षा/विषय के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2019-20 से स्नातक के तीनों वर्ष के लिए लागू किया जाता है।

1. बी.कॉम. — आधार पाठ्यक्रम-हिन्दी भाषा एवं वाणिज्य।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र-छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार

कुलसचिव

क्र. 1459 / अका./2019

दुर्ग, दिनांक 04/07/2019

प्रतिलिपि:-

1. संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019 के परिपेक्ष्य में सूचनार्थ।
2. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद्र यादव विश्वविद्यालय, दुर्ग।
3. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद्र यादव विश्वविद्यालय, दुर्ग।

सहा. कुलसचिव (अका.)

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)


## SYLLABUS

### B.COM. PART-III


#### INDEX

<b>Revised Ordinance No. 23</b> <b>Scheme of Examination</b>
<b>Foundation Course</b> I. Hindi Language II. English Language
<b>Compulsory Groups</b>
<b>Group-I</b> I. Income Tax II. Auditing
<b>Group-II</b> I. Indirect Taxes with GST II. Management Accounting
<b>Group-III Optional</b> <b>Option Group A (Finance Area)</b> I. Financial Management II. Financial Market Operations <b>Option Group B (Marketing Area)</b> I. Principles of Marketing II. International Marketing <b>Option Group C (Commercial Area)</b> I. Information Technology and its Applications in Business II. Essential of e-Commerce <b>Option Group D (Money Banking &amp; Insurance Area)</b> I. Fundamental of Insurance II. Money & Banking System
<b>Computer Application</b>

  
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**REVISED ORDINANCE NO.-23**

**(As per State U.G.C. Scheme)**

**BACHELOR OF COMMERCE**

1. The three year course has been broken up into three Parts.  
Part-I known as B. Com. Part-I Examination at the end of first year. Part-II Examination at the end of the second year, and,  
Part-III Examination at the end of the third year.
2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of Chhattisgarh Board of Secondary Education, Raipur or any other examination recognized by the University or Chhattisgarh Board of Secondary Education as equivalent there to has attended a regular course of study in an affiliated college or in the Teaching Department of the University for one academic year, shall be eligible for appearing at the B.Com. Part-I examination.
3. A candidate who after passing B.Com. Part-I examination of the University or any other examination recognized by the University as equivalent thereto has attended a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-II Examination.
4. A candidate who after passing B.Com. Part-II examination of the University has completed a regular course of study for one academic year in an affiliated College or in the Teaching Department of the University, shall be eligible for appearing at the B.Com. Part-III examination.
5. Besides regular students, subject to their compliance with this ordinance, ex-students and non-collegiate students shall be eligible for admission to the examination as per provision of Ordinance No. 6 relating to examinations (General).
6. Provided that non-collegiate candidates shall be permitted to offer only such subject/ papers as are taught to the regular students at any of the University Teaching Department or College.
7. Every candidate for B.Com. Examination shall be examined in subjects as mentioned in the marking scheme and course or studies.
8. A candidate who has passed the B.Com. Part-III examination of the University shall be

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allowed to present him of examination in any of the additional subjects prescribed for the B.Com. Examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B. Com. Part-I examination in the subject which he proposes to offer then the B.Com. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

9. In order to pass at any part of the three year degree course examination, an examinee must obtain not less than 33% of the total marks in each paper/group of subjects. In group where both theory and practical examinations are provided an examinee must pass in both theory and practical parts of examination separately.
10. Candidate will have to pass separately at the Part-I, Part-II and Part-III examination. No division shall be assigned on the result of the Part-I and Part-II examinations In determining the division of the Final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken into account. Candidate will not be allowed to change subjects after passing Part-I examination.
11. Provided in case of candidate who has passed the examination through the supplementary examination having failed in one subject/group only, the total aggregate mark being carried over for determining the division, shall include actual marks obtained in the subject/group in which he appeared at the supplementary examination.
12. Successful examinees at the Part - III examination obtaining 60% or more marks shall be placed in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

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# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)


## SYLLABUS

### B.COM. PART-III

#### GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION

Subject		Max.	Min.
<b>Foundation Course</b>			
I. Hindi Language		75	26
II. English Language		75	26
<b>Compulsory Groups</b>			
<b>Group-I</b>			
I. Income Tax	75	150	50
II. Auditing	75		
<b>Group-II</b>			
I. Indirect Taxes with GST	75	150	50
II. Management Accounting	75		
<b>Group-III Optional</b>			
<b>Option Group A (Finance Area)</b>			
I. Financial Management	75	150	50
II. Financial Market Operations	75		
<b>Option Group B (Marketing Area)</b>			
I. Principles of Marketing	75	150	50
II. International Marketing	75		
<b>Option Group C (Commercial Area)</b>			
I. Information Technology and its Applications in Business	75	150	50
II. Essential of e-Commerce	75		
<b>Option Group D (Money Banking &amp; Insurance Area)</b>			
I. Fundamental of Insurance	75	150	50
II. Money & Banking System	75		

  
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(संशोधित पाठ्यक्रम)

बी.ए./बी.एस-सी./बी.कॉम./बी.एच.एस.-सी.

भाग - तीन, आधार पाठ्यक्रम

प्रश्न पत्र - प्रथम (हिन्दी भाषा)

(पेपर कोड - 0231)

पूर्णांक- 75

- इकाई-एक (क) भारत माता : सुमित्रानंदन पंत  
(ख) कथन की शैलियों  
1. विवरणात्मक शैली  
2. मूल्यांकन शैली  
3. व्याख्यात्मक शैली  
4. विचारात्मक शैली
- इकाई-दो (क) सूखी डाली : उपेन्द्रनाथ अशक  
(ख) विभिन्न संरचनाएँ  
1. विनम्रता सूचक संरचना  
2. विधि सूचक संरचना  
3. निषेध परक संरचना  
4. काल-बोधक संरचना  
5. स्थान-बोधक संरचना  
6. दिशा बोधक संरचना  
7. कार्य-कारण सम्बन्ध संरचना  
8. अनुक्रम संरचना
- इकाई-तीन (क) वसीयत : मालती जोशी  
(ख) कार्यालयीन पत्र और आलेख  
1. परिपत्र  
2. आदेश  
3. अधिसूचना  
4. ज्ञापन  
5. अनुस्मारक  
6. पृष्ठांकन
- इकाई-चार (क) योग की शक्ति : हरिवंश राय बच्चन  
(ख) अनुवाद : स्वरूप एवं परिभाषा, उद्देश्य  
स्त्रोत भाषा और लक्ष्य भाषा,  
अच्छे अनुवाद की विशेषताएँ,  
अनुवाद प्रक्रिया, अनुवादक

इकाई—पांच (क) संस्कृति और राष्ट्रीय एकीकरण : योगेश अटल  
(ख) घटनाओं, समारोहों आदि का प्रतिवेदन, विभिन्न प्रकार के निमंत्रण पत्र

**मूल्यांकन योजना :** प्रत्येक इकाई से एक-एक प्रश्न पूछा जाएगा। प्रत्येक प्रश्न में आंतरित विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। इसलिए प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमशः 8 एवं 7 अंक होंगे। प्रश्नपत्र का पूर्णांक 75 निर्धारित है।

### **पाठ्यक्रम संशोधन का औचित्य —**

निर्धारित पाठ का अध्ययन एवं हिन्दी भाषा प्रयोग की व्यावहारिक प्रणालियों से विद्यार्थियों को परिचित कराना तथा भाषा प्रयोग की सामान्य अशुद्धियों को दूर करने की दृष्टि से पाठ्यक्रम तैयार किया गया है। विद्यार्थियों के लिए पाठ्यक्रम का विस्तार बहुत ज्यादा न हो इसका ध्यान रखा गया है।

Foundation Course - III English  
Language (Paper Code-1152)  
B.A./B.Sc./B.Com./B.H.Sc./III

M.M. 75

The question paper for B.A./B.Sc./B.Com./B.H.Sc. III Foundation course, English Language and General Answers shall comprise the following items :

Five question to be attempted, each carrying 3 marks.

UNIT-I Essay type answer in about 200 words. 5 essay type question to be asked three to be attempted.	15
UNIT-II Essay writing	10
UNIT-III Precise writing	10
UNIT-IV (a) Reading comprehension of an unseen passage	05
(b) Vocabulary based on text	10
UNIT-V Grammar Advanced Exercises	25

Note: Question on unit I and IV (b) shall be asked from the prescribed text. Which will comprise of popular create writing and the following items. Minimum needs housing and transport Geo-economic profile of M.P. communication Educate and culture. Women and Worm in Empowerment Development, management of change, physical quality of life. War and human survival, the question of human social value survival, the question of human social value, new Economic Philosophy Recent Diberaliation Method) Demoration decentralization (with reference to 73, 74 constitutional Amendment.

Books Prescribed:

Aspects of English Language and Development - Published by M.P. Hindi Granth Academy, Bhopal.

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**B.COM PART III**  
**COMPULSORY CORE COURSE**  
**TITLE OF PAPER - Group-I**  
**PAPER – I - INCOME TAX**  
**Proposed Syllabus**

**OBJECTIVE**

It enables the students to know the basics of Income Tax Act and its implications.

**M.M. 75**

- UNIT- I**      Basic Concepts: Income, agricultural Income, casual income, assessment year, previous year, gross total income, total income, person.  
Basis of charge: Scope of total income, residence and tax liability, income which does not form part of total income.
- UNIT- II**      Heads of Income: Salaries; Income from house property.
- UNIT- III**      Profit and gains of business or profession, including provisions relating to specific business; Capital gains, Income from other sources.
- UNIT-IV**      Computation of Tax Liability: Set-off and carry forward of losses; Deduction from gross total income. Aggregation of income; Computation of total income and tax liability of individual and HUF.
- UNIT-V**      Tax Management: Tax deduction at source; Advance payment of tax; Assessment procedures; Tax planning for individuals.  
Tax evasion, Tax Avoidance and Tax planning. Tax Administration: Authorities, appeals, penalties.  
Preparation of return of income  
-Manually and on line

**Suggested Reading:**

1. Singhanian V.K. : Students Guide to Income Tax; Taxmann, Delhi.
2. Prasad, Bhagwati : Income Tax Law & Practice; Wily Publication, New Delhi.
3. Mehrotra H.C. : Income Tax Law & Accounts : Sahitya Bhawan, Agra.
4. Girish Ahuja and Ravi Gupta : Systematic approach to income tax : Sahitya Bhawan Publications, New Delhi.
5. Chandra Mahesh and Shukla D.C. : Income Tax Law and Practice; Pragati Publications, New Delhi.
6. R.K. Jain : Income Tax & Law (Hindi & English) Shahitya Bhavan, Publication, Agra.

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**B.COM PART III**  
**COMPULSORY CORE COURSE**  
**TITLE OF PAPER - Group-I**  
**PAPER – II- AUDITING**  
**Proposed syllabus**

**OBJECTIVE**

This course aims at imparting knowledge about the principles and methods of auditing and their applications.

M.M. 75

- UNIT-I** Introduction: Meaning and objectives of auditing; Types of audit; Internal audit. Audit Process: Audit programme; Audit note books; Working papers and evidences.
- UNIT-II** Internal Check System: Internal control.  
Audit Procedure: Vouching: Verification of assets and liabilities.
- UNIT-III** Audit of Limited Companies:  
a. Company auditor – Qualification, Appointment, powers, duties, Resignation and liabilities.  
b. Divisible profits and dividend.  
c. Auditor's report - standard report and qualified report.  
d. Special audit of banking companies.  
e. Audit of educational institutions.  
f. Audit of Insurance companies.
- UNIT-IV** Investigation: Investigation; Audit of non profit companies,  
a. Where fraud is suspected, and  
b. When a running a business is proposed.  
c. Verifications & Valuation of assets.
- UNIT-V** Recent Trends in Auditing : Nature and significance of cost audit; Tax audit; Management audit .

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## Suggested Reading :

1. Gupta KaPal : Contemporary Auditing : Tata Mcgraw Hill, New Delhi.
2. Tandon B.N. : Principles of Auditing : S. Chand & Co., New Delhi.
3. PagareDinkar : Principles and Practice of Auditing : Sultan Chand, New Delhi.
4. Sharma T.R. : Auditing Principles and Problems, SahityaBhawan, Agra.
5. Shukla S.M. : Auditing - ShahityaBhavan, Agra, (Hindi)
6. Batliboy : Auditing.

  
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**B.COM PART III**  
**COMPULSORY CORE COURSE**  
**PAPER – II**  
**Group-II -PAPER – I - INDIRECT TAXES WITH GST**  
**Proposed syllabus**

**OBJECTIVE**

This course aims at imparting basic knowledge about GST and apply the provisions of GST law to various situations.

M.M. 75

- UNIT-I** Customs : Role of customs in international trade; Important terms and definitions; goods; Duty; Exporter; Foreign going vessel; Aircraft goods; Import; Import Manifest; Importer; Prohibited goods; Shipping bill; Store; Bill of lading; Export manifest; Letter of credit; Kinds of duties - basic, auxiliary, additional or countervailing; Basics of levy ad valorem, specific duties; Prohibition of export and import of goods, and provisions regarding notified & specified goods; Import of goods - Free import and restricted import; Type of import - import of cargo, import of personal baggage, import of stores. Clearance Procedure - For home consumption, for warehousing for re-export; Clearance procedure for import by post; Prohibited exports; Canalised exports; Export against licensing; Type of exports export of cargo, export of baggage; Export of cargo by land, sea, and air routes.
- UNIT-II** State Excise, CENVAT. Detail study of State Excise during calculation of Tax.
- UNIT-III** INTRODUCTION TO GOODS AND SERVICES TAX (GST) -Objectives and basic scheme of GST, Meaning – Salient features of GST – Subsuming of taxes – Benefits of implementing GST, Structure of GST (Dual Model) – Central GST – State / Union Territory GST – Integrated GST  
GST Council: Structures Power and Functions. Provisions for amendments.

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**UNIT-IV** Registration under GST: Procedure for registration, Persons liable for registration, Persons not liable for registration, Compulsory registration. Exempted goods and services - Rates of GST.  
Procedure relating to Levy: (CGST & SGST): Scope of supply, Tax liability on Mixed and Composite supply, Time of supply of goods and services, Value of taxable supply.

Eway-Billing

**UNIT-V** ASSESSMENT AND RETURNS -  
Input tax Credit: Eligibility, Apportionment, Inputs on capital goods, Distribution of credit by Input Service Distributor (ISD)  
Furnishing details of outward supplies and inward supplies, First return, Annual return and Final return.

### **Suggested Reading :**

1. Deloitte: GST Era Beckons, Wolters Kluwer.
2. Madhukar N Hiregange: Goods and Services Tax, Wolters Kluwer.
3. All About GST: V.S Datey - Taxman's.
4. Guide to GST: CA. Rajat Mohan,
5. Goods & Services Tax – Indian Journey: N.K. Gupta & Sunnania Batia, Barat's Publication
6. Goods & Services Tax – CA. Rajat Mohan,
7. Goods & Services Tax: Dr. Sanjiv Agrawal & CA. Sanjeev Malhotra.
8. GST - Law & Practice: Dr. B.G. Bhaskara, Manjunath. N & Naveen Kumar IM,
9. Understanding GST: Kamal Garg, Barat's Publication.

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**B.COM PART III**  
**COMPULSORY CORE COURSE**  
**TITLE OF PAPER -Group-II**  
**PAPER – II -MANAGEMENT ACCOUNTING**  
**Proposed syllabus**

**OBJECTIVE**

This course provides the students an understanding of the application of accounting techniques for management.

M.M. 75

- UNIT-I** Management Accounting : Meaning, nature, scope, and functions of managementAccounting; Role of management accounting in decision making; Managementaccounting vs financial accounting; Tools and techniques of management accounting;Financial statement; Objectives and methods of financial statements analysis; Ratioanalysis; Classification of ratios - Profitability ratios, turnover ratios, liquidity ratios,turnover ratios; Advantages of ratio analysis; Limitations of accounting ratios.
- UNIT-II** Funds Flow Statement as per Indian Accounting Standard 3, cash flow statement.
- UNIT-III** Absorption and Marginal Costing : Marginal and differential costing as a tool fordecision making - make or buy; Change of product mix; Pricing, Break-even analysis; Exploring new markets; Shutdown decisions.
- UNIT-IV** Budgeting for profit Planning and control : Meaning of budget and budgetary control;Objectives; Merits and limitations; Types of budgets; Fixed and flexible budgeting; Control ratios; Zero base budgeting; Responsibility accounting; Performance budgeting.
- UNIT-V** Standard Costing and Variance Analysis : Meaning of standard cost and standardcosting; Advantages and application; Variance analysis - material; Labour and overhead (Two-way analysis); Variances.

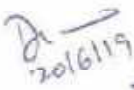
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## Suggested Reading :

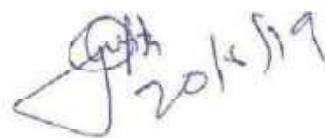
1. Arora M.N. : Cost Accounting - Principles and Practice, Vikas, New Delhi.
2. Jain S.P. & Narang K.L. : Cost Accounting; Kalyani, New Delhi.
3. Anthony, Rogert & Reece, at al : Principles of Management Accounting; Richard Irwin Inc.
4. Horngren, Charles, Foster and Datar et al : Cost Accounting - A Managerial Emphasis; Prentice Hall, New Delhi.
5. Khan M.Y. and Jain P.K. : Management Accounting : Tata McGraw Hill, New Delhi.
6. Kaplan R.S. and Atkonson A.A. : Advanced Management Accounting; Printice Hall India, New Delhi.
7. J.K. Agrawal & R.K. Agrawal : Jaipur (English & Hindi ).
8. Dr. M.R. Agrawal : Minakshi Prakashan Meruth.
9. Dr. S.P. Gupta - Agra (Hindi & English).

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**B.COM PART III**  
**OPTIONAL GROUP A (Finance Area)**  
**TITLE OF PAPER - FINANCIAL MANAGEMENT**  
**PAPER – I**  
**Proposed syllabus**

**OBJECTIVE**

The objective of this course is to help students understand the conceptual framework of financial management.

M.M. 75

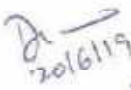
- UNIT-I** Financial Management : Financial goals; Profit vs wealth maximization; Financial functions-investment, financing, and dividend decisions; Financial planning.
- UNIT-II** Capital Budgeting : Nature of investment decisions, Investment evaluation criteria, payback period, accounting rate of return, net present value, internal rate of return  
profitability index; NPV and IRR comparison.
- UNIT-III** Cost of Capital : Significance of cost of capital; Calculating cost of debt; Preference shares, equity capital, and retained earnings; Combined (weighted) cost of capital. Operating and financial Leverage : Their measure; Effects on profit, analyzing alternate financial plans, combined financial and operating leverage.
- UNIT-IV** Capital Structure: Theories and determinants. Dividend Policies: Issues in dividend policies; Walter's model; Gordon's model; M.M. Hypothesis, forms of dividends and stability in dividends, determinants.
- UNIT-V** Management of Working Capital: Nature of working capital, significance of working capital, operating cycle and factors determining working capital requirements,  
Management of working capital - cash, receivables, and inventories.

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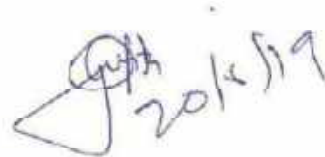
## Suggested Reading :

1. Van Home J.C. : Financial Management and Policy; Prentice Hall of India, New Delhi.
2. Khan M.Y. and Jain P.K. : Financial Management, Text and Problems; Tata McGrow Hill, New Delhi.
3. Prasanna Chandra L Financial Management Theory and practice; Tata McGrow Hill, New Delhi.
4. Pandey I.M. : Financial Management Vikas Publishing Hous, New Delhi.
5. Brigham E.F. Gapenski L.C., and Ehrhardt M.C. : Financial Management - Theory And Practice; Harcourt College Publishers, Singapore.
6. Bhalla V.K. : Modern Working Capital Management, Anmol Pub. Delhi.

  
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**B.COM PART III**  
**OPTIONAL GROUP A (Finance Area)**  
**TITLE OF PAPER - FINANCIAL MARKET OPERATIONS**  
**PAPER – II**  
**Proposed Syllabus**

**OBJECTIVE**

This course aims at acquainting the students with the working of financial markets in India.

M.M. 75

- UNIT-I** Money Market : Indian money market's composition and structure; (a) Acceptance houses, (b) Discount houses and (c) Call money market; Recent trends in Indian money market.
- UNIT-II** Capital Market : Security market - (a) New issue market, (b) Secondary market;  
Functions and role of stock exchange; listing procedure and legal requirements; Public issue - pricing and marketing; Stock exchanges - National Stock Exchange, Bombay stock exchange
- UNIT-III** Securities contract and Regulations Act : Main provisions. Investors Protection : Grievances concerning stock exchange dealings and their removal; Grievance cells in stock exchanges; SEBI; Company Law Board; Press; Remedy through courts.
- UNIT-IV** Functionaries on Stock Exchanges : Brokers, sub brokers, market makers, jobbers, portfolio consultants, institutional investors, and NRIs.
- UNIT-V** Financial Services : Merchant banking - Functions and roles; SEBI guide-lines; Credit rating - concept, functions, and types.

  
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## Suggested Reading :

1. Chandler M.V. and Goldfeld S.M. : Economics of money and Banking, Harper and Row, New Delhi.
2. Gupta Suraj B. Monetary Economics; s. chand and Co. New Delhi.
3. Gupta Suraj B. Monetary Planning in India; Oxford, Delhi.
4. Bhole L.M. : Financial Markets and Institutions : Tata McGraw Hill, New Delhi.
5. Hooda R.P. : Indian Securities Market - Investors view point; Excell Books, New Delhi.
6. R.B.I. : Functions and Working.
7. R.B.I. : Report in Currency and Finance.
8. R.B.I. : Report of the Committee to Review the working of the Monetary system Chakravarty committee.
9. R.B.I. : Report of the Committee on the Financial System, Narsimham Committee.

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**B.COM PART III**  
**OPTIONAL GROUP B(Marketing Area)**  
**TITLE OF PAPER -PRINCIPLES OF MARKETING**  
**PAPER – I**  
**Proposed syllabus**

**OBJECTIVE**

The Objective of this course is to help students to understand the concept of marketing and its applications.

M.M. 75

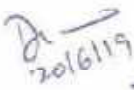
- UNIT-I** Introduction : Nature and scope of marketing; Importnace of marketing as a businessfunction, and in the economy; Marketing concepts - traditional and modern; Sellingvs. marketing; Marketing mix; Marketing environment.
- UNIT-II** Consumer Behaviour and Market Segmentation : Nature, scope, and significance ofconsumer behaviour; Market segmentation - concept and importance; Bases for market segmentation.
- UNIT-III** Product : Concept of product, consumer, and industrial goods; Product planning anddevelopment; Packaging role and functions; Brand name and trade mark; after salesservice; Product life cycle concept. Price : Importance of price in the marketing mix; Factors affecting price of a product/service; Discounts and rebates.
- UNIT-IV** Distributions Channels and Physical Distribution; Distribution channels - Concept androle; Types of distribution channels. Factors affecting choice of a distribution channel;  
Retailer and holesaler; Physical distribution of goods; Transportation, Warehousing, Inverntory control; Order processing.
- UNIT-V** Promotion : Methods of promotion; Optimum promotion mix; Advertising media – theirralative merits and limitations; Characteristics of an effective advertisement; Personalselling; Selling as a career; Classification of successful sales person; Functions ofsalesman.  
Recent development in marketing –social marketing, online marketing, Direct marketing , Services marketing, Green marketing.

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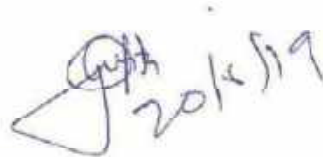
## Suggested Reading :

1. Philip Kotler : Marketing Management Englewood Cliffs; Prentice Hall, N.J.
2. William M. Pride and O.C. Ferrell : Marketing : Houghton - Mifflin Boston.
3. Stanton W.J. Etzel Michael J., and Walker Bruce J. Fundamentals of Marketing; McGrawHill, New York.
4. Lamb Charies W., Hair Joseph F. and McDaniel Carl : Principles of Marketing; South-Western-Publishing, Cincinnati, Ohio.
5. Cravens David W. Hills Gerald E., Woodruff Robert B : Marketing management : RichardD. Inwin, Home wood Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice Hall of India, New Delhi.
7. Dr. R.C. Agrawal, Agra.
8. Dr. S.C. Saxena Agra.
9. Dr. S.K. Jain, Hindi GranthAcademi. M.P.
10. Dr. N.C. jain

  
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**B.COM PART III**  
**OPTIONAL GROUP B(Marketing Area)**  
**TITLE OF PAPER -INTERNATIONAL MARKETING**  
**PAPER – II**  
**Proposed syllabus**

**OBJECTIVE**

This course aims at acquainting student with the operations of marketing in international environment.

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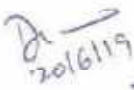
- UNIT-I** International Marketing : Nature, definition, and scope of international marketing;  
Domestic marketing vs. International marketing; International environment external and internal.
- UNIT-II** Identifying and Selecting Foreign Market: Foreign market entry mode decisions. Product Planning for international Market: Product designing; Standardization vs. adaptation; Branding and packaging; Labeling and quality issues; After sales service. International Pricing: Factors influencing International price; Pricing process-process and methods; International price quotation and payment terms.
- UNIT-III** Promotion of Product/Services Abroad: Methods of international promotion; Direct mail and sales literature; Advertising; Personal selling; Trade fairs and exhibitions.
- UNIT-IV** International Distribution: Distribution channels and logistics decisions; Selection and appointment of foreign sales agents.
- UNIT-V** Export Policy and Practices in India: Exim policy - an overview; Trends in India's foreign trade; Steps in starting an export business; Product selection; Market selection; Export pricing; Export finance; Documentation; Export procedures; Export assistance and incentives.  
Marketing Control Process

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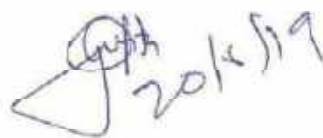
## Suggested Reading :

1. Bhattacharya R.L. and Varshney B. : International Marketing Management; Sultan Chand, New Delhi.
2. Bhattacharya B. : Export Marketing Strategies for Success; Global Press, New Delhi.
3. Keegan W.J. : Multinational Marketing Management; Prentice Hall, New Delhi.
4. Kriplani V. : International marketing; Prentice Hall New Delhi.
5. Taggart J.H. and Moder Mott. M.C.: The Essence of International Business; Prentice Hall New Delhi.
6. Kotler Phillip : Principles of Marketing; Prentice Hall New Delhi.
7. Fayer Weather John : International Marketing; Prentice Hall N.J.
8. Caterora P.M. and Keavenay S.M.: Marketing an international Perspective; Erwin Homewood, Illinois.
9. Paliwala, Stanely J. The Essence of International marketing; Prentice Hall, New Delhi.

  
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**B.COM PART III**  
**OPTIONAL GROUP C(Commercial Area)**  
**TITLE OF PAPER - INFORMATION TECHNOLOGY AND ITS APPLICATIONS**  
**IN BUSINESS**  
**PAPER – I**  
**Proposed syllabus**

**OBJECTIVE**

The objective of the course is to famillatize the students with the innovation informationtechnology and how it affects business. An understanding of the group rules of thesetechnologies will enable the students to appreciate the nitty-gritty Commerce.

M.M. 75

**UNIT-I** Information Revolution and information Technology (IT) : Deployment of Business;Basic features of IT; Impact of IT on business environment and social fabric; Inventionof writing; Written books; Printing Press and movable type Gutenberg's invention;Radio; telephone, wireless and satelite communication computing and disseminationof information and knowledge and convergence technologies (Internet with Wireless-WAP).

**UNIT-II** Fundamentals of Computer: Data, information and EDP : Data, information and concept of data and information; Levels of information from data; processing;Electronic data processing; Electronic machines;

- a. Number Systems and Codes: Different number systems - binary, octal decimal, hexagonal, and their conversion codes used in computers; Bed, EBCDIC, ASCII;Gray and conversions.
- b. Computer Arithmetic and Gates : Binary arithmetic, complements, addition subtraction; Conversion from one system to another; Logic Gates, truthable and applicationsminimisation, and K-maps.
- c. Computer Processing System : Definition of computer; Hardware/Software concepts; Generation of computers; Types of computers; Elements of computer;CPU and its functions, Various computer systems.

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- d. I/O devices : Basic concepts of I/O devices; Various input devices Keyboard,mouse; MICR, OCR, microphones.
- e. Various output devices : VDU, printer, plotter,spooling, L.S.
- f. Storage Devices : Primary and secondary memory; Types of memory capacityand its enhancement; Memory devices and comparisons; Auxiliary storage,tapes, disks (magnetic and potical); various devices and their comparison.
- g. System Software - Roale of Software, Different System Software :O.S.,utilization element of O.S. - Its types and variations; DOS and windows.
- h. Computer and Networks : Need of communication; Data transmission; Baud; Bandwidth; Communication Channel; Multiplexing; Basic network concepts;O.S.I. model; Types of topologies; LAN, WAN, Client server concept.

### UNIT-III Computer-based Business Applications

- a. Word Processing : Meaning and role of word processing in creating of documents, editing, formatting, and printing documents, using tools such as spelling check, thesaurus, etc. in word processors (MS-Word).
- d. Electronic Spreadsheet : Structure of spreadsheet and its applications to accounting, finance, and marketing functions of business; Crating a dynamic/sensitive worksheet; Concept of absolute and relative cell reference; Using builtinfunctions; Goal seeking and solver tool; Using graphics and formatting of worksheet; Sharing data with other desktop applications; Strategies of cratingerror-free worksheet (MS-Excel, Lotus 123). Practical knowledge on WingsAccounting (Software).


  
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- c. Programming under a DBMS environment : The concept of data basemanagement system; Data field, records, and files, Sorting and indexing data;Searching records, designing queries, and reports; Linking of data files;Understanding programming environment in DBMS; Developing menu drivenapplications in query language (MS-Access).

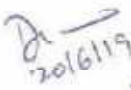
**UNIT-IV**      Electronic Data Interchange (EDI)  
Introduction to EDI; Basics of EDI; EDI standards; Financial EDI (FEDI); FEDI for international trade transaction; Applications of EDI; Advantages of EDI; Future of EDI.

**UNIT-V**      The Internet and its Basic ConceptsInternet-concept, history development in India; Technological foundation of internet;

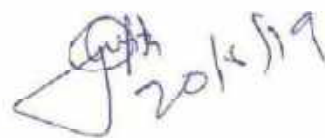
Distributed computing; Client-server computing; Internet protocol suite; Application of distributed computing; Client-server computing; Internet protocol suite in the internet environment; Domain Name System (DNS); Domain Name Service (DNS); Generic top-lelveldomian (gTLD); Country code top-level domain (ccTLD); - India; Llocation of second-level doomains; IP addresses; Internet protocol; Applications of Internet

in business, education, governance, etc.Information System AuditBasic idea of information audit; Difference with the traditional concepts of audit;Conduct and applications of IS audit in internet environment.

  
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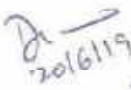
  
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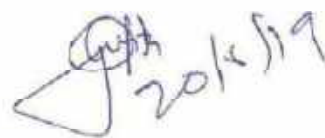
## Suggested Reading :

1. AgrawalaKamlesh N. and AgarwalaDeeksha : Business on the Net - Introduction to Ecommerce, Macmillan India, New Delhi.
2. AgarwalaKamlesh, N. and Agarwala Deeksha : Bulls, Bears and The mouse; and introduction to On-line Service Market Trading; Macmillan India, New Delhi.
2. AgarwalaKamlesh, N. and AgarwalaPrateek Amar; WAP the Net; An Introduction on Wireless Application Protocol; Macmillan India, New Delhi.
3. Bajaj Kamlesh K. and Nag Debjanl : E-Commerce; The cutting Edge of Business; Tata McGraw Hill, New Delhi.
4. Edwards, Ward and Bytheway : The Essence of Information Systems; Prentice Hall, NewDelhi.
5. Garg &Srinivasan : Work Book on Systems Analysis & Design; Prentice Hall New Delhi.
7. Kanter : Managing with Information; Prentice Hall New Delhi.
8. Minoli Daniel, MinoliEmma : Web Commerce Technology Handbook; Tata McGraw Hill, New Delhi.
9. MinoliDaniel : Internet & Internet Engineering; Tata McGraw Hill, New Delhi.
10. Yeats : Systems Analysis & Design; Macmillan India, New Delhi.
11. Goyal : Management information System; Macmillan India, New Delhi.
12. Timothy J O'Leary : Microsoft Office 2000; Tata McGraw Hill, New Delhi.

  
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**B.COM PART III**  
**OPTIONAL GROUP C (E-Commerce Area)**  
**TITLE OF PAPER -ESSENTIAL OF E-COMMERCE**  
**PAPER – II**  
**Proposed syllabus**

**OBJECTIVE**

The objective of this course is to familiarize the students with the basics of e-commerce and to comprehend its potential.

M.M. 75

- UNIT-I** Internet and Commerce : Business operations; E-Commerce practices; Concepts b2b,b2c, b2g, g2h; Benefits of e commerce to organization, consumers, and society;  
Limitation of e-commerce; Management issues relating to e-commerce.  
Operations of E-Commerce : Credit card transaction; Secure Hypertext Transfer  
Protocol (SHTTP); Electronic payment systems; Secure electronic transaction (SET);  
Set's encryption; Process; Cybercash; Smart cards; Indian payment models.
- UNIT-II** Applications in B2C : Consumer's shopping procedure on the internet; Impact on disintermediation and re-inermediation; Global market; Strategy of traditional  
department stores; Products in b2c model; Success factors of e-brokers; Broker based  
services on-line; Online travel tourism services; Benefits and impact of e-commerce  
on travel industry; Real estate market; Online stock trading and its benefits; Online  
banking and its benefits; Online financial services and their future; Educations  
benefits, implementation, and impact.

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- UNIT-III** Applications in B2B; Applications of b2b, Key technologies for b2b; Architectural models of b2b; Characteristics of the supplier-oriented marketplace, buyer-oriented marketplace, and intermediary-oriented marketplace; Benefits of b2b on procurement re-engineering; Just in Time delivery in b2b; Internet-based EDI from traditional EDI; Integrating EC with back-end information systems; Marketing issues in b2b.
- UNIT-IV** Applications in Governance: EDI in governance; E-government; E-governance applications of the internet; Concept of government to business, business to government and citizen-to-government; E-governance models; Private sector interface in e-governance.
- UNIT-V** Emerging Business Models : Retail model; Media model; Advisory model, Mode-to-order manufacturing model; Do-it yourself model; Information service model; Emerging hybrid models; Emerging models in India. Security and Legal aspects of E-commerce.

### Suggested Reading:

1. Agarwala Kamlesh. N. and Agarwala Deeksha: Bridge to Online Storefront; Macmillan India, New Delhi.
2. Agarwala Kamlesh. N. and Agarwala Deeksha: Business on the Net Introduction to the E-commerce; Macmillan India New Delhi.
3. Agarwala Kamlesh N. and Agarwala Deeksha: Bulls, Bears and The Mouse: An Introduction to Online Stock Market Trading; Macmillan India New Delhi.
4. Tiwari Dr. Murli D.: Education and E-Governance; Macmillan India, New Delhi.
5. Minoli Daniel, Minoli Emma: Web Commerce Technology Handbook; Tata McGraw Hill, New Delhi.
6. Minoli Deniel, Internet & Internet Engineering: Tata McGraw Hill, 1999.
7. Bhatnagar Subhash and Schwabe Robert (Eds): Information and Communication Technology in Development; Sage Publications India, New Delhi.
7. Amor, Daniel: E-business Reevaluation, The : Living and Working in an Interconnected World; Prentice Hall, U.S.
8. Afuah, A., and Tuccu, C.: Internet business models and Strategies; McGraw Hill, New York.

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**B.COM PART III**  
**OPTIONAL GROUP D (Money Banking & Insurance Area)**  
**TITLE OF PAPER FUNDAMENTAL OF INSURANCE**  
**PAPER – I**  
**Proposed syllabus**

**OBJECTIVE**

This course enables the students to know the fundamentals of insurance.

M.M. 75

- UNIT-I** Introduction to Insurance: Purpose and need of insurance; Insurance as a social security tool; Insurance and economic development.
- UNIT-II** Fundamentals of Agency Law: Definition of an agent; Agents regulations; Insurance intermediaries; Agents compensation.
- UNIT-III** Procedure for Becoming an Agent : Prerequisite for obtaining a license; Duration of license; Cancellation of incense; Revocation or suspension/termination of agent appointment; Code of conduct; Unfair practices. Functions of the Agent : Proposal form and other forms for grant of cover; Financial and medical underwriting ; Material information; Nomination and assignment; Procedure regarding settlement of policy claims.
- UNIT-IV** Company Profile : organizational set-up of the company; Promotion strategy; Market share; Important activities; Structure; Product; Actuarial profession; Product pricing actuarial aspects; Distribution channels.
- UNIT-V** Fundamentals/Principles of Life insurance/ Marine /Fire /Medical/General Insurance; Contracts of various kinds; Insurable Interest.  
Online insurance procedure

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## Suggested Reading :

1. Mishra M.N. : Insurance Principle and Practice; S. Chand and Co., New Delhi.
2. Insurance Regulatory Development Act. 1999.
3. Life Insurance Corporation Act. 1956.
4. Gupta OS : Life Insurance; Frank brothers, New Delhi.
5. Vinayakam N., Radhaswamy and VasudevanSV : Insurance - Principles and Practice,  
S. Chand and Co. New Delhi.
6. Mishra MN : Life Insurance Corporation of India, Vols I, II & III; Raj Books, Jaipur.
7. BalchandShriwastava, Agra.
8. Dr. M.L. Singhai, RAmesh Book Depot, Jaipur.

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**B.COM PART III**  
**OPTIONAL GROUP D (Money Banking & Insurance Area)**  
**TITLE OF PAPER - MONEY & BANKING SYSTEM**  
**PAPER -II**  
**Proposed Syllabus**

**OBJECTIVE**

This course enables the students to know the working of the Indian Money & banking system.

M.M. 75

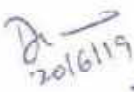
- UNIT-I** Money: Function, Alternative Measures to money supply in India - their different components. Meaning and changing relative importance of each.
- UNIT-II** Indian Banking System : Structure and organization of banks; Reserve Bank of India; Apex banking Institutions; Commercial banks; Regional rural banks; Cooperative banks; Development banks.
- UNIT-III** Banking Regulation Act, 1947 : History; Social control; Banking Regulation Act as applicable to banking companies and public sector banks; Banking Regulation Act as applicable to Cooperative banks.
- UNIT-IV** Regional Rural and Cooperative Banks in India: Functions; Role of regional rural and cooperative banks in rural India; Progress and performance.
- UNIT-V** Reserve Bank of India: Objectives; Organization; Functions and working; Monetary policy; Credit control measures and their effectiveness.
- State Bank of India, Project History, Objectives, Functions & Organization working & progress.
- Internet banking system

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## Suggested Reading:

1. Basu A.K.: Fundamentals of Banking-Theory and Practice; A Mukherjee and Co., Calcutta.
2. Sayers R.S.: Modern Banking: Oxford University Press.
3. Panandikar S.G. And Mithani D.M.: Banking in India; orient Longman.
4. Reserve Bank of India: Functions and Working.
5. Dekock: Central Banking; Crosby lockwood Staples, London.
6. Tannan M.L. : Banking - Law and Practice in India : India Law House, New Delhi.
7. Knubchandani B.S.: Practice and Law of Banking; Macmillan, New Delhi.
8. Shekhar and Shekhar: Banking Theory and Practice; Vikas Publishing House, New Delhi.
9. Harishchandra Sharma.
10. M.L. Singhai.

  
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**B.Com-III**  
**PAPER - I**  
**PROGRAMMING IN VISUAL BASIC**  
**(Paper Code-1165)**

**UNIT-I Introduction to Visual Basic, Programs, Variables**

Editions of Visual Basic, Event Driven Programming, Terminology, Working environment, project and executable files, Understanding modules, Using the code editor window, Other code navigation features, Code documentation and formatting, environment options, code formatting option automatic code completion features. Introduction to objects, Controlling objects, Properties, methods and events, Working with forms, interacting with the user: MsgBox function, InputBox function, Code statements, Managing forms, Creating a program in Visual Basic, Printing, Overview of variables, User-defined data types, constants working with procedures, Working with dates and times, Using the Format Function, Manipulating text string.

**UNIT-II Controlling Program Execution, Working with Control**

Comparison and logical operators, If....Then statements, Select Case Statements looping structures, Using Do....Loop structures, For....Next statement, Exiting a loop. Types of controls, Overview of standard controls, ComboBox and ListBox, OptionButton and Frame controls Menu, Status bars, Toolbars, Advanced standard controls, ActiveX controls, Insertable objects, Arrays, Dynamic Arrays.

**UNIT-III Procedure, Function Error Trapping & Debugging**

Procedure, Function, call by value, call by reference, Type definition, with object, Validation, Overview of run-time errors, error handling process, The Error object, Errors and calling chain, Errors in an error-handling routine, Inline error handling, Error handling styles, General error-trapping options Type of errors, Break mode Debug toolbar, Watch window, Immediate window, Local window, Tracing Program flow with the Call Stack.

**UNIT-IV Sequential and Random Files :**

Saving data to file, basic filling, data analysis and file, the extended text editor, File organization Random access file, The design and coding, File Dialog Box, Picture Box, Image box, Dialog Box, using clipboard, Copy, Cut, Paste of Text & Picture in Clipboard, Use of Grid Control Multiple document interface, Single document interface.

**UNIT-V Data Access Using the ADO Data Control & Report Generation**

Overview of ActiveX data Objects, Visual Basic data access features, Relational database concepts Using the ADO Data control to access data, Overview of DAO, RDO, Data Control, structured query language (SQL), Manipulating data Using Data Form Wizard. Overview of Report, Data Report, Add groups, Data Environment, Connection to database Introduction to Crystal Report Generator.

**BOOK REFERENCE :**

1. Visual Basic Programming – Reeta Sahu, B.P.B. Publication.
2. Mastering in Visual Basic - By BPB Publications.
3. Visual Basic Programming - Mark Brit.



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**B.Com-III**  
**PAPER - II**  
**SYSTEM ANALYSIS, DESIGN & MIS**  
**(Paper Code-1166)**

**UNIT-I Introduction -**

Systems Concepts and the information systems environment : Definition of system, Characteristics of system, elements of system, types of system, The system Development life cycle : consideration of candidates system. The Role of system Analyst : Introduction, the multiphase role of the analyst, the analyst / user interface, the place of the analyst in the MIS Organization

**UNIT-II System Analysis, Tools of Structured Analysis, Feasibility Study-**

System Planning and initial investigation : Basis for planning in systems analysis, initial investigation, fact finding, fact analysis, determination of feasibility.

Information Gathering : Kind of information, Information gathering tools.

Structured Analysis, Flow chart, DFD, Data Dictionary, Decision Tree, Structured English, Decision Table. System Performance, Feasibility Study. Data Analysis.

**UNIT-III System Design & System Implementation -**

The process of Design Methodologies. Input Design, Output Design, Form Design, File Structure, File organization, data base design, System Testing, the test plan, quality assurance, data processing auditor. Conversion, Post implementation review, Software Maintenance.

**UNIT-IV Introduction to MIS & Other Subsystem-**

Evolution of MIS, Need of MIS, Definition & Benefits of MIS, Characteristic, Role component of Information system, data base as a future of MIS, Decision making, logic of Management Information system, Structure of MIS.

**UNIT-V Information System Concept -**

Difference between Transaction Processing. System (TPS) and Management Information System, How MIS works, MIS and Information Resource Management, Quality information Building Blocks for the information system, information system concept, Other system characteristic (Open & Closed System), difference between MIS & Strategic System, Adaptive system, Business function information system.

**BOOK REFERENCE :**

1. System Analysis and Design - Elias M. Awad.
2. System Analysis and Design - Alan Dennis & Barbara Haley Wixom.
3. Management Information systems - C.S.V. Murthy, Himalaya Publication House.

The bottom of the page contains four handwritten signatures and dates. From left to right: 1. A signature that appears to be 'S. Kumar' with the date '19/10/19'. 2. A signature that appears to be 'M. S. S.' with the date '19/10/19'. 3. A signature that appears to be 'K. S. S.' with the date '19/10/19'. 4. A signature that appears to be 'P. S. S.' with the date '19/10/19'.

## **B.Com-III**

### **PAPER – III**

#### **PRACTICAL EXERCISES BASED ON PAPER I & II**

##### **Practicals to be done –**

1. At least 20 practical - exercises covering the contents of paper - I (e.g. Designing calculator, sorting of elements, Generating Fibonacci series)
2. Design the Project on one of the following - Application Software / Website Design/Accounting software / Inventory control System / System Software & other (e.g. Library Management System, Medical management, Stock Management, Hotel Management, Website for your institute / Website of any Organization)
3. The Project Report cover the following topic - Objective, Hardware & Software Requirements, Analysis, Design, Coding, input forms, testing, Reports, Future enhancement of s/w.
4. Practical exam is based on the Project Demonstration & report.

  
P. S. Srinivas  
19/10/19

  
M. S. Srinivas  
19/10/19

  
K. S. Srinivas  
19/10/19

  
P. S. Srinivas  
19/10/19



## हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका दुर्ग (छ.ग.)-491001

ई मेल : [academic@durguniversity.ac.in](mailto:academic@durguniversity.ac.in)

वेब साइट : [www.durguniversity.ac.in](http://www.durguniversity.ac.in)

दूरभाष : 0788-2359400

क्र. 1460 /अका./2019

दुर्ग, दिनांक 04/07/2019

प्रति,

प्राचार्य,  
समस्त संबद्ध महाविद्यालय,  
हेमचंद यादव विश्वविद्यालय,  
दुर्ग (छ.ग.)

विषय:- स्नातक स्तर भाग-एक के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर भाग-एक के निम्नलिखित कक्षा/विषयों के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2019-20 से लागू किये जाते हैं:-

1. बी.ए. — आधार पाठ्यक्रम-हिन्दी भाषा, हिन्दी साहित्य, राजनीतिशास्त्र, अर्थशास्त्र, नृत्य, दर्शनशास्त्र, समाजशास्त्र, इतिहास, मानवविज्ञान, संस्कृत, सांख्यिकी, प्राचीन भारतीय इतिहास, भूगोल, मनोविज्ञान, लाईब्रेरी साईंस
2. बी.एस-सी. — आधार पाठ्यक्रम-हिन्दी भाषा, जीव विज्ञान, मानवविज्ञान, बायोटेक्नोलॉजी, कम्प्यूटर साईंस, गणित, भौतिक शास्त्र, प्राणीशास्त्र, सूक्ष्मजीव विज्ञान, वनस्पतिशास्त्र, भूविज्ञान, इलेक्ट्रॉनिक्स, रसायन शास्त्र, सांख्यिकी, भूगोल।
3. बी.एस.सी- (गृह विज्ञान) — आधार पाठ्यक्रम — हिन्दी भाषा एवं गृह विज्ञान।
4. विधि — एल.एल.बी.
5. प्रबंध — बी.बी.ए.

उपरोक्त विषयों को शिक्षा सत्र 2019-20 से संशोधित रूप में स्नातक स्तर भाग-एक के लिए लागू किया जाता है स्नातक स्तर भाग दो एवं तीन के पाठ्यक्रम यथावत रहेंगे।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र-छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार।

कुलसचिव

**B. Sc. Part-I**

**विषय-सूची**

1. Revised Ordinance No. 21
2. Scheme of Examination
3. Environmental Studies
4. Foundation Course : आधार पाठ्यक्रम  
प्रथम हिन्दी  
द्वितीय – अंग्रेजी भाषा  
Physics (भौतिक शास्त्र)
6. Chemistry (रासायन शास्त्र)
7. Zoology (प्राणी शास्त्र)
8. Botany (वनस्पति शास्त्र)
9. Mathematics (गणित)
10. Microbiology (सूक्ष्म जीव विज्ञान)
11. Geology (भू – विज्ञान)
12. Anthropology (मानव विज्ञान)
13. Statistics (सांख्यिकी)
14. Defense Studies (रक्षा अध्ययन)
15. Industrial Chemistry (औद्योगिक रसायन)
16. Computer Science
17. Electronics Equipment Maintenance
18. Electronics
19. Information Technologies
20. Industrial Microbiology
21. Bio Chemistry
22. Biotechnology

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**REVISED ORDINANCE NO. 21**  
**BACHELOR OF SCIENCE**

1. The three year course has been broken up into three Parts. Part-I known as B.Sc. Part-I examination at the end of the first year, Part-II known as B.Sc. Part-II examination at the end of the second year and Part-III known as B.Sc. Part-III examination at the end of the third year.
2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of C.G. Board of Secondary Education Bhopal or any other Examination recognized by the University or C.G. Board of Secondary Education as equivalent thereto, has attended a regular course of study in an affiliated College or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.Sc. Part-I examination.
3. A candidate who, after passing the B.Sc.-I examination of the University or any other examination recognized by the University as equivalent thereto, has attended a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-II examination.
4. A candidate who, after passing the B.Sc. Part-II examination of the University, has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-III examination.
5. Besides regular students, subject to their compliance with this Ordinance ex-student and non-collegiate candidates shall be permitted to offer only such subjects/papers as are taught to the regular student at any of the University Teaching Department or College.
6. Every candidate appearing in B.Sc. Part-I, Part-II and Part-III examination shall be examined in-
  - (i) Foundation Course:
  - (ii) Any one of the following combinations of three subjects:-
    1. Physics, Chemistry & Mathematics.
    2. Chemistry, Botany & Zoology.
    3. Chemistry, Physics & Geology.
    4. Chemistry, Botany & Geology.
    5. Chemistry, Zoology & Geology.
    6. Geology, Physics & Mathematics.
    7. Chemistry, Mathematics & Geology.
    8. Chemistry, Botany & Defense Studies.
    9. Chemistry, Zoology & Defense Studies
    10. Physics, Mathematics & Defense Studies.
    11. Chemistry, Geology & Defense Studies

12. Physics, Mathematics & Statistics
13. Physics, Chemistry & Statistics
14. Chemistry, Mathematics & Statistics.
15. Chemistry, Zoology & Anthropology.
16. Chemistry, Botany & Anthropology.
17. Chemistry, Geology & Anthropology.
18. Chemistry, Mathematics & Statistics.
19. Chemistry, Anthropology & Defense Studies.
20. Geology, Mathematics & Statistics.
21. Mathematics, Defense Studies & Statistics
22. Anthropology, Mathematics & Statistics
23. Chemistry, Anthropology & Applied Statistics
24. Zoology, Botany & Anthropology
25. Physics, Mathematics & Electronics.
26. Physics, Mathematics & Computer Application
27. Chemistry, Mathematics & Computer Application
28. Chemistry, Bio-Chemistry & Pharmacy
29. Chemistry, Zoology & Fisheries.
30. Chemistry, Zoology & Agriculture
31. Chemistry, Zoology & Sericulture
32. Chemistry, Botany & Environmental Biology
33. Chemistry, Botany & Microbiology
34. Chemistry, Zoology & Microbiology
35. Chemistry, Industrial Chemistry & Mathematics
36. Chemistry, Industrial Chemistry & Zoology
37. Chemistry, Biochemistry, Botany
38. Chemistry, Biochemistry, Zoology
39. Chemistry, Biochemistry, Microbiology
40. Chemistry, Biotechnology, Botany
41. Chemistry, Biotechnology, Zoology
42. Geology, Chemistry & Geography
43. Geology, Mathematics & Geography
44. Mathematics, Physics & Geography
45. Chemistry, Botany & Geography

(iii) Practical in case prescribed for core subjects.

7. Any candidate who has passed the B.Sc. examination of the University shall be allowed to present himself for examination in any of the additional subjects prescribed for the B.Sc. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.Sc. Part-I examination in the subjects which he proposes to offer and then the B.Sc. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

8. In order to pass at any part of the three year degree course examination an examinee must obtain not less than 33% of the total marks in each subject/ group of subjects. In subject/ group of subjects where both theory and practical examination are provided an examinee must pass in both theory and practical parts of the examination separately.
9. Candidate will have to pass separately at the Part-I, Part-II and Part-III examinations. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken in to account. Provided in case of candidate who has passed the examination through supplementary examination having failed in one subject/ group only, the total aggregate marks being carried over for determining the division shall include actual marks obtained in the subject/ group in which he appeared at the supplementary examination.
10. Successful examinee at the Part-III examination obtaining 60% or more marks shall be places in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

## SCHEME OF EXAMINATION

Subject	Paper	Max. Mark	Total Marks	Min. Marks
<b>Environmental Studies</b>		<b>75</b>	<b>100</b>	<b>33</b>
<b>Field Work</b>		<b>25</b>		
<b>Foundation Course</b>				
Hindi Language	I	75	75	26
English Language	I	75	75	26
<b>नोट— प्रत्येक खंड में से 2 दो प्रश्न हल करने होंगे। सभी प्रश्नपत्र समान अंक के होंगे।</b>				
Three Elective Subject:				
1. Physics	I		50	
	II		50	100
	Practical			50
				17
2. Chemistry	I		33	
	II		33	100
	III		34	
	Practical			50
				17
3. Mathematics	I		50	
	II		50	150
	III		50	
4. Botany	I		50	
	II		50	100
	Practical			50
				17
5. Zoology	I		50	
	II		50	100
	Practical			50
				17
6. Geology	I		50	



		II	50	100	33
		Practical		50	17
7. Statistics	I		50		
	II		50	100	33
	Practical			50	17
8. Anthropology	I		50		
	II		50	100	33
	Practical			50	17
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Subject	Paper	Max. Marks	Total Marks	Min. Marks	
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9. Defense Studies	I	50			
	II	50	100	33	
	Practical		50	17	
10. Micro Biology	I	50			
	II	50	100	33	
	Practical		50	17	
11. Computer Science	I	50			
	II	50	100	33	
	Practical		50	17	
12. Information Technology	I	50			
	II	50	100	33	
	Practical		50	17	
13. Industrial Chemistry	I	34			
	I	33	100	33	
	II	33			
	Practical		50	17	
14. Bio Chemistry	I	50			
	II	50	100	33	
	Practical		50	17	
15. Bio Technology	I	50			
	II	50	100	33	
	Practical		50	17	
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### **USE OF CALCULATORS**

The Students of Degree/P.G. Classes will be permitted to use of Calculators in the examination hall from annual 1986 examination on the following conditions as per decision of the standing committee of the Academic Council at its meeting held on 31-1-1986.

1. Student will bring their own Calculators.
2. Calculators will not be provided either by the University or examination centres.
3. Calculators with, memory and following variables be permitted +, −, x, , square, reciprocal, exponentials log, square root, trigonometric functions, wize, sine, cosine, tangent etc. factorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

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Part - I  
**SYLLABUS FORENVIRONMENTAL STUDIES AND HUMAN RIGHTS**  
**(Paper code-0828)**

**MM. 75**

इन्वायरमेंटल साईंसेस के पाठ्यक्रम को स्नातक स्तर भाग—एक की कक्षाओं में विश्वविद्यालय अनुदान आयोग के निर्देशानुसार अनिवार्य रूप से शिक्षा सत्र 2003—2004 (परीक्षा 2004) से प्रभावशील किया गया है। स्वशासी महाविद्यालयों द्वारा भी अनिवार्य रूप से अंगीकृत किया जाएगा।

भाग 1, 2 एवं 3 में से किसी भी वर्ष में पर्यावरण प्रश्न—पत्र उत्तीर्ण करना अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।

पाठ्यक्रम 100 अंकों का होगा, जिसमें से 75 अंक सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंक क्षेत्रीय कार्य (Field Work) पर्यावरण पर होंगे।

सैद्धांतिक प्रश्नों पर अंक — 75 (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें विकल्प रहेगा)

- |                      |   |        |
|----------------------|---|--------|
| (अ) लघु प्रश्नोंत्तर | — | 25 अंक |
| (ब) निबंधात्मक       | — | 50 अंक |

Field Work- 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रायोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेंगे।

उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा। पर्यावरण विज्ञान विषय अनिवार्य विषय है, जिसमें अनुत्तीर्ण होने पर स्नातक स्तर भाग—एक के छात्र/छात्राओं को एक अन्य विषय के साथ पूरक की पात्रता होगी। पर्यावरण विज्ञान के सैद्धांतिक एवं फील्ड वर्क के संयुक्त रूप से 33: (तीनतीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।

स्नातक स्तर भाग—एक के समस्त नियमित/भूतपूर्व/अमहाविद्यालयीन छात्र/छात्राओं को अपना फील्ड वर्क सैद्धांतिक परीक्षा की समाप्ति के पश्चात् 10 (दस) दिनों के भीतर संबंधित महाविद्यालय/परीक्षा केन्द्र में जमा करेंगे एवं महाविद्यालय के प्राचार्य/केन्द्र अधीक्षक, परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।

## **UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES**

### **Definition, Scope and**

### **Importance Natural Resources:**

### **Renewable and Nonrenewable Resources**

- (a) Forest resources: Use and over-exploitation, deforestation, Timber extraction, mining, dams and their effects on forests and tribal people and relevant forest Act.
- (b) Water resources: Use and over-utilization of surface and ground water, floods drought, conflicts over water, dams benefits and problems and relevant Act.
- (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- (f) Land resources: Land as a resource, land degradation, man induced landslides soil erosion and desertification.

**(12 Lecture)**

## **UNIT-II ECOSYSTEM**

### **(a) Concept, Structure and Function of and ecosystem**

- Producers, consumers and decomposers.
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, Types, Characteristics Features, Structure and Function of Forest, Grass, Desert and Aquatic Ecosystem.

### **(b) Biodiversity and its Conservation**

- Introduction - Definition: genetic, species and ecosystem diversity
- Bio-geographical classification of India.
- Value of biodiversity: Consumptive use, Productive use, social ethics, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega-diversity nation.

- Hot spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wild life conflict.
- Endangered and endemic species of India.
- Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity.

**(12Lecture)**

### **UNIT- III**

#### **(a) Causes, effect and control measures of**

- Air water, soil, marine, noise, nuclear pollution and Human population.
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Disaster Management: floods, earthquake, cyclone and landslides.

**(12Lecture)**

#### **(b) Environmental Management**

- From Unsustainable to sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, water shed management.
- Resettlement and rehabilitation of people, its problems and concerns.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.
- Wasteland reclamation
- Environment protection Act: Issues involved in enforcement of environmental legislation.
- Role of Information Technology in Environment and Human Health.

#### **UNIT- IV**

General background and historical perspective- Historical development and concept of Human Rights, Meaning and definition of Human Rights, Kind and Classification of Human Rights.

Protection of Human Rights under the UNO Charter, protection of Human Rights under the Universal Declaration of Human Rights, 1948.

Convention on the Elimination of all forms of Discrimination against women.

Convention on the Rights of the Child, 1989.

#### **UNIT-V**

Impact of Human Rights norms in India, Human Rights under the Constitution of India, Fundamental Rights under the Constitution of India, Directive Principles of State policy under the Constitution of India, Enforcement of Human Rights in India.

Protection of Human Rights under the Human Rights Act, 1993- National Human Rights Commission, State Human Rights Commission and Human Rights court in India.

Fundamental Duties under the Constitution of India.

## Reference/ Books Recommended

1. SK Kapoor- Human rights under International Law and Indian Law.
2. HO Agrawal- International Law and Human Rights
3. एस.के. कपूर —मानव अधिकार
4. जे.एन. पान्डेय — भारत का संविधान
5. एम.डी. चतुर्वेदी —भारत का संविधान
6. J.N.Pandey - Constitutional Law of India
7. Agarwal K.C. 2001 Environmental Biology, Nidi pub. Ltd. Bikaner
8. Bharucha Erach, the Biodiversity of India, Mapin pub. Ltd. Ahmedabad 380013, India, Email: mapin@icenet.net(R)
9. Bruinner R.C. 1989, Hazardous Waste Incineration. McGraw Hill Inc. 480p
10. Clark R.S. Marine pollution, Clanderson press Oxford (TB)
11. Cuningham, W.P. Cooper. T.H. Gorhani, E & Hepworth. M.T, 200
12. Dr. A.K.- Environmental Chemistry. Wiley Eastern Ltd.
13. Down to Earth, Center for Science and Environment (R)
14. Gloick, H.P. 1993 Water in crisis. Pacific Institute for Studies in Development, Environment & Security. Stockholm Eng. Institute. Oxford University, Press. 473p.
15. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R)
16. Heywood, V.H. & Watson, T.T. 1995 Global Biodiversity Assessment, Cambridge Univ. Press 1140p
17. Jadhav H. & Bhosale, V.H. 1995 Environmental Protection and Law. Himalaya pub. House, Delhi 284p
18. McKinney M.L. & School R.M. 1996, Environmental Science systems & solutions, web enhanced edition, 639p
19. Mhadkar A.K. Matter Hazardous, Techno-Science publication (TB)
20. Miller T.G. Jr. Environment Science, Wadsworth publication co. (TB)
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22. Rao M.N. & Datta, A.K. 1987, Waste water treatment. Oxford & IBH pub. co. pvt. Ltd 345p
23. Sharma B.K. 2001, Environmental chemistry, Goel pub. House, Meerut
24. Survey of the Environment, The Hindu (M)
25. Townsend C. Harper J. And Michael Begon, Essentials of Ecology, Blackwell Science (TB)
26. Trivedi R.K. Handbook of Environment Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Environment Media (R)
27. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science publication (TB)
28. Wanger K.D. 1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p

**संशोधित पाठ्यक्रम**  
बी.ए./ बी.एस-सी./ बी.कॉम./ बी.एच.एस.-सी.  
भाग - एक (आधार पाठ्यक्रम)  
प्रश्न पत्र- प्रथम (हिन्दी भाषा)  
(पेपर कोड -0101)

पूर्णांक- 75

नोट :-

1. प्रश्न पत्र 75 अंक का होगा।
2. प्रश्न पत्र अनिवार्य होगा।
3. इसके अंक श्रेणी निर्धारण के लिए जोड़े जायेंगे।
4. प्रत्येक इकाई के अंक समान होंगे।

**पाठ्य विषय :-**

**इकाई-1**

- क. पल्लवन, पत्राचार, अनुवाद, पारिभाषिक शब्दावली एवं हिंदी में पदनाम  
ख. ईदगाह (कहानी) - मुंशी प्रेमचंद

**इकाई-2**

- क. शब्द शुद्धि, वाक्य शुद्धि, शब्द ज्ञान-पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेक शब्दों के लिए एक शब्द एवं मुहावरे-लोकोक्तियाँ  
ख. भारत वंदना (कविता)- सूर्यकान्त त्रिपाठी निराला

**इकाई-3**

- क. देवनागरी लिपि - नामकरण, स्वरूप एवं देवनागरी लिपि की विशेषताएँ, हिंदी अपठित गद्यांश, संक्षेपण, हिंदी में संक्षिप्तीकरण  
ख. भोलाराम का जीव (व्यंग्य) - हरिशंकर परसाई

**इकाई-4**

- क. कम्प्यूटर का परिचय एवं कम्प्यूटर में हिंदी का अनुप्रयोग  
ख. शिकागो से स्वामी विवेकानंद का पत्र

**इकाई-5**

- क. मानक हिन्दी भाषा का अर्थ, स्वरूप, विशेषताएँ, मानक, उपमानक, अमानक भाषा  
ख. सामाजिक गतिशीलता - प्राचीन काल, मध्यकाल, आधुनिक काल

**मूल्यांकन योजना :-**

प्रत्येक इकाई से एक-एक प्रश्न पूछा जाएगा। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमशः 8 एवं 7 होंगे। प्रश्न-पत्र का पूर्णांक 75 निर्धारित है।



### पाठ्यक्रम संशोधन का औचित्य :-

व्याकरण के बुनियादी ज्ञान, संप्रेषण, कौशल, सामाजिक संदेश एवं भाषायी दक्षता को ध्यान में रखते हुए यह पाठ्यक्रम प्रस्तावित है।

**FOUNDATION COURSE  
PAPER - II  
ENGLISH LANGUAGE  
(Paper code - 0792)**

**M.M. 75**

- UNIT-1**    **Basic Language skills : Grammar and Usage.**  
Grammar and Vocabulary based on the prescribed text.  
To be assessed by objective / multiple choice tests.  
(Grammar - 20 Marks  
Vocabulary - 15 Marks)
- UNIT-2**    **Comprehension of an unseen passage.**    **05**  
This should simply not only (a) an understanding of the passage in question, but also.  
(b) a grasp of general language skills and issues with reference to words and usage within the passage and (c) the Power of short independent composition based on themes and issues raised in the passage.  
To be assessed by both objective multiple choice and short answer type tests.
- UNIT-3**    **Composition : Paragraph writing**    **10**
- UNIT-4**    **Letter writing (The formal and one Informal)**    **10**  
Two letters to be attempted of 5 marks each. One formal and one informal.
- UNIT-5**    **Texts :**    **15**  
Short prose pieces (Fiction and not fiction) short poems, the pieces should cover a range of authors, subjects and contexts. With poetry if may sometimes be advisable to include pieces from earlier periods, which are often simpler than modern examples. In all cases, the language should be accessible (with a minimum of explanation and reference to standard dictionaries) to the general body of students schooled in the medium of an Indian language.  
Students should be able to grasp the contents of each piece ; explain specific words, phrases and allusions; and comment on general points of narrative or argument. Formal Principles of Literary criticism should not be taken up at this stage.  
To be assessed by five short answers of three marks each.

**BOOKS PRESCRIBED -**

English Language and Indian Culture - Published by M.P. Hindi Grant Academy Bhopal.

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Session:-  
2019-20

## PHYSICS

### OBJECTIVES OF THE COURSE

The undergraduate training in physics is aimed at providing the necessary inputs so as to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in physics becomes in tune with the changing scenario and incorporate new and rapid advancements and multi disciplinary skills, societal relevance, global interface, self sustaining and supportive learning.

It is desired that undergraduate i.e. B.Sc. level besides grasping the basic concepts of physics should in addition have broader vision. Therefore, they should be exposed to societal interface of physics and role of physics in the development of technologies.


### EXAMINATION SCHEME:


1. There shall be 2 theory papers of 3 hours duration each and one practical paper of 4 hours duration. Each paper shall carry 50 marks.
2. Numerical problems of at least 30% will compulsorily be asked in each theory paper.
3. In practical paper, each student has to perform two experiments one from each groups as listed in the list of experiments.
4. Practical examination will be of 4 hours duration- one experiment to be completed in 2 hours.

The distribution practical marks as follows:

Experiment	: 15+15=30
Viva voce	: 10
Internal assessment	: 10

5. The external examiner should ensure that at least 16 experiments are in working order at the time of examination and submit a certificate to this effect.

  
H. P. S. B.  
20/5/19

  
P. S. B.  
20/5/19

  
A. S.  
20/5/19

  
J. K. M.  
20/5/19

Session 2019-20

PHYSICS

B.Sc. Part-I

Paper-I

**MECHANICS, OSCILLATIONS AND PROPERTIES OF MATTER**

(Paper code 0793)

**Unit-1** Cartesian, Cylindrical and Spherical coordinate system, Inertial and non-inertial frames of reference, uniformly rotating frame, Coriolis force and its applications. Motion under a central force, Kepler's laws. Effect of Centrifugal and Coriolis forces due to earth's rotation, Center of mass (C.M.), Lab and C.M. frame of reference, motion of C.M. of system of particles subject to external forces, elastic, and inelastic collisions in one and two dimensions, Scattering angle in the laboratory frame of reference, Conservation of linear and angular momentum, Conservation of energy.

**Unit-2** Rigid body motion, rotational motion, moments of inertia and their products, principal moments & axes, introductory idea of Euler's equations. Potential well and Periodic Oscillations, case of harmonic small oscillations, differential equation and its solution, kinetic and potential energy, examples of simple harmonic oscillations: spring and mass system, simple and compound pendulum, torsional pendulum.

**Unit-3** Bifilar oscillations, Helmholtz resonator, LC circuit, vibrations of a magnet, oscillations of two masses connected by a spring. Superposition of two simple harmonic motions of the same frequency, Lissajous figures, damped harmonic oscillator, case of different frequencies. Power dissipation, quality factor, examples, driven (forced) harmonic oscillator, transient and steady states, power absorption, resonance.

**Unit-4** E as an accelerating field, electron gun, case of discharge tube, linear accelerator, E as deflecting field- CRO sensitivity, Transverse B field,  $180^\circ$  deflection, mass spectrograph, curvatures of tracks for energy determination, principle of a cyclotron. Mutually perpendicular E and B fields: velocity selector, its resolution. Parallel E and B fields, positive ray parabolas, discovery of isotopes, elements of mass spectrography, principle of magnetic focusing lens.

**Unit-5** Elasticity: Strain and stress, elastic limit, Hooke's law, Modulus of rigidity, Poisson's ratio, Bulk modulus, relation connecting different elastic- constants, twisting couple of a cylinder (solid and hollow), Bending moment, Cantilever, Young modulus by bending of beam.

Viscosity: Poiseuille's equation of liquid flow through a narrow tube, equations of continuity. Euler's equation, Bernoulli's theorem, viscous fluids, streamline and turbulent flow. Poiseuille's law, Coefficient of viscosity, Stoke's law, Surface tension and molecular interpretation of surface tension, Surface energy, Angle of contact, wetting.

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#### TEXT AND REFERENCE BOOKS:

1. E M Purcell, Ed Berkely physics course, vol. Mechanics (Mc. Gr. Hill) R P Feynman.
2. R B Lighton and M Sands, the Feynman lectures in physics, vol I (B) publications, Bombay, Delhi, Calcutta, Madras.
3. D P Khandelwal, Oscillations and waves (Himalaya Publishing House Bombay).
4. R. K. Ghosh, The Mathematics of waves and vibrations (Macmillan 1975).
5. J.C. Upadhyaya- Mechanics (Hindi and English Edition.)
6. D.S. Mathur- Mechanics and properties of matter.
7. Brijlal and Subramaniam- Oscillations and waves. Resnick and Halliday- Volume I
8. Physics Part -1: Resnick and Halliday.

*Myar*

*MS*

*AS*

*Subman*



Session 2019-20

## PHYSICS

### Paper-II

#### ELECTRICITY, MAGNETISM AND ELECTROMAGNETIC THEORY

**Unit-1** Repeated integrals of a function of more than one variable, definition of a double and triple integral. Gradient of a scalar field and its geometrical interpretation, divergence and curl of a vector field, and their geometrical interpretation, line, surface and volume integrals, flux of a vector field. Gauss's divergence theorem, Green's theorem and Stoke's theorem and their physical significance. Kirchhoff's law, Ideal Constant-voltage and Constant-current Sources. Thevenin theorem, Norton theorem, Superposition theorem, Reciprocity theorem and Maximum Power Transfer theorem.

**Unit-2** Coulomb's law in vacuum expressed in Vector forms, calculations of E for simple distributions of charges at rest, dipole and quadrupole fields. Work done on a charge in a electrostatic field expressed as a line integral, conservative nature of the electrostatic field. Relation between Electric potential and Electric field, torque on a dipole in a uniform electric field and its energy, flux of the electric field.

Gauss's law and its application: E due to (1) an Infinite Line of Charge, (2) a Charged Cylindrical Conductor, (3) an Infinite Sheet of Charge and Two Parallel Charged Sheets, capacitors, electrostatic field energy, force per unit area of the surface of a conductor in an electric field, conducting sphere in a uniform electric field.

**Unit-3** Dielectric constant, Polar and Non Polar dielectrics, Dielectrics and Gauss's Law, Dielectric Polarization, Electric Polarization vector P, Electric displacement vector D. Relation between three electric vectors, Dielectric susceptibility and permittivity, Polarizability and mechanism of Polarization, Lorentz local field, Clausius Mossotti equation, Debye equation,

Ferroelectric and Paraelectric dielectrics, Steady current, current density J, non-steady currents and continuity equation, rise and decay of current in LR, CR and LCR circuits, decay constants, AC circuits, complex numbers and their applications in solving AC circuit problems, complex impedance and reactance, series and parallel resonance, Q factor, power consumed by an a AC circuit, power factor.

**Unit-4** Magnetization Current and magnetization vector M, three magnetic vectors and their relationship, Magnetic permeability and susceptibility, Diamagnetic, paramagnetic and ferromagnetic substances. B.H. Curve, cycle of magnetization and hysteresis, Hysteresis loss.

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Biot-Savart's Law and its applications: B due to (1) a Straight Current Carrying Conductor and (2) Current Loop. Current Loop as a Magnetic Dipole and its Dipole Moment (Analogy with Electric Dipole). Ampere's Circuital law (Integral and Differential Forms).

**Unit-5** Electromagnetic induction, Faraday's law, electromotive force, integral and differential forms of Faraday's law Mutual and self inductance, Transformers, energy in a static magnetic field. Maxwell's displacement current, Maxwell's equations, electromagnetic field energy density. The wave equation satisfied by E and B, plane electromagnetic waves in vacuum, Poynting's vector.

**TEXT AND REFERENCE BOOKS:**

1. Berkeley Physics Course, Electricity and Magnetism, Ed. E.M. Purcell (Mc Graw - Hill).
2. Halliday and Resnik, Physics, Vol. 2.
3. D J Griffith, Introduction to Electrodynamics (Prentice-Hall of India).
4. Raitz and Milford, Electricity and Magnetism (Addison-Wesley).
5. A S Mahajan and A A Rangwala, Electricity and Magnetism (Tata Mc Graw-hill).
6. A M Portis, Electromagnetic fields.
7. Pugh & Pugh, Principles of Electricity and Magnetism (Addison-Wesley).
8. Panofsky and Phillips, Classical Electricity and Magnetism, (India Book House).
9. S S Atwood, Electricity and Magnetism (Dover).

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Session 2019-20

## PHYSICS

### PRACTICALS

Minimum 16 (Eight from each group)

Experiments out of the following or similar experiments of equal standard

#### GROUP-A

1. Study of laws of parallel and perpendicular axes for moment of inertia.
2. Moment of inertia of Fly wheel.
3. Moment of inertia of irregular bodies by inertia table.
4. Study of conservation of momentum in two dimensional oscillations.
5. Study of a compound pendulum.
6. Study of damping of a bar pendulum under various mechanics.
7. Study of oscillations under a bifilar suspension.
8. Study of modulus of rigidity by Maxwell's needle.
9. Determination of  $Y$ ,  $k$ ,  $\eta$  by Searl's apparatus.
10. To study the oscillation of a rubber band and hence to draw a potential energy curve from it.
11. Study of oscillation of a mass under different combinations of springs.
12. Study of torsion of wire (static and dynamic method).
13. Poisson's ratio of rubber tube.
14. Study of bending of a cantilever or a beam.
15. Study of flow of liquids through capillaries.
16. Determination of surface tension of a liquid.
17. Study of viscosity of a fluid by different methods.

#### GROUP-B

1. Use of a vibration magnetometer to study a field.
2. Study of magnetic field  $B$  due to a current.
3. Measurement of low resistance by Carey-Foster bridge.
4. Measurement of inductance using impedance at different frequencies.
5. Study of decay of currents in LR and RC circuits.
6. Response curve for LCR circuit and response frequency and quality factor.
7. Study of waveforms using cathode-ray oscilloscope.
8. Characteristics of a choke and Measurement of inductance.
9. Study of Lorentz force.
10. Study of discrete and continuous LC transmission line.
11. Elementary FORTRAN programs, Flowcharts and their interpretation.
18. To find the product of two matrices.
19. Numerical solution of equation of motion.
20. To find the roots of quadratic equation.





TEXT AND REFERENCE BOOKS:

1. B. Saraf et al Mechanical Systems (Vikas publishing House, New Delhi).
  2. D.P. Khandelwal, A Laboratory Manual of Physics for Undergraduate classes (Vani Publication House, New Delhi).
  3. C. G. Lamb, Elements of statistics (Longmans Green and Co London New York, Toronto).
  4. C. Dixon, Numerical analysis.
  5. S. Lipschutz and A. Poe, Schaum's outline of theory and problems of programming with Fortran (Mc Graw-Hill Book Company, Singapore 1986).
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**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**NEW CURRICULUM OF B.Sc. PART I**  
**Session 2019-20**  
**CHEMISTRY**

The new curriculum will comprise of three theory papers of 33, 33 and 34 marks each and practical work of 50 marks. The curriculum is to be completed in 180 working days as per the UGC norms & conforming to the directives of the Govt. of Chhattisgarh. The theory papers are of 60 hrs each duration and the practical work of 180 hrs duration.

**PAPER I**  
**INORGANIC CHEMISTRY**

60Hrs. M.M.33

**UNIT-I**

**A. ATOMIC STRUCTURE**

Bohr's theory, its limitation and atomic spectrum of hydrogen atom. General idea of de-Broglie matter-waves, Heisenberg uncertainty principle, Schrödinger wave equation, significance of  $\Psi$  and  $\Psi^2$ , radial & angular wave functions and probability distribution curves, quantum numbers, Atomic orbital and shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's Multiplicity rule, electronic configuration of the elements.

**B. PERIODIC PROPERTIES**

Detailed discussion of the following periodic properties of the elements, with reference to s and p-block. Trends in periodic table and applications in predicting and explaining the chemical behavior.

- a) Atomic and ionic radii,
- b) Ionization enthalpy,
- c) Electron gain enthalpy,
- d) Electronegativity, Pauling's, Mulliken's, Allred Rochow's scales.
- e) Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table.

**UNIT-II**

**CHEMICAL BONDING I**

**Ionic bond:** Ionic Solids - Ionic structures, radius ratio & co-ordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy Born- Haber cycle, Solvation energy and solubility of ionic solids, polarising power & polarisability of ions, Fajans rule, Ionic character in covalent compounds: Bond moment and dipole moment, Percentage ionic character from dipole moment and electronegativity difference, Metallic bond-free electron, Valence bond & band theories.

B.Sc.-I

*Dr. Hemchandra Yadav*  
20.6.2019  
*Dr. Hemchandra Yadav*  
24.6.19  
*Nalini*  
*Dr. Hemchandra Yadav*  
*Dr. Hemchandra Yadav*

## UNIT-III

### CHEMICAL BONDING II

**Covalent bond:** Lewis structure, Valence bond theory and its limitations, Concept of hybridization, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Valence shell electron pair repulsion theory (VSEPR), shapes of the following simple molecules and ions containing lone pairs and bond pairs of electrons:  $\text{H}_2\text{O}$ ,  $\text{NH}_3$ ,  $\text{PCl}_3$ ,  $\text{PCl}_5$ ,  $\text{SF}_6$ ,  $\text{H}_3\text{O}^+$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ , and  $\text{ICl}_2^-$ . Molecular orbital theory. Bond order and bond strength, Molecular orbital diagrams of diatomic and simple polyatomic molecules  $\text{N}_2$ ,  $\text{O}_2$ ,  $\text{F}_2$ ,  $\text{CO}$ ,  $\text{NO}$ .

## UNIT-IV

### A. s-BLOCK ELEMENTS

General concepts on group relationships and gradation properties, Comparative study, salient features of hydrides, solvation & complexation tendencies including their function in biosystems and introduction to alkyl & aryls, Derivatives of alkali and alkaline earth metals

### B. p-BLOCK ELEMENTS

General concepts on group relationships and gradation properties. Halides, hydrides, oxides and oxyacids of Boron, Aluminum, Nitrogen and Phosphorus. Boranes, borazines, fullerenes, graphene and silicates, interhalogens and pseudohalogens.

## UNIT-V

### A CHEMISTRY OF NOBLE GASES

Chemical properties of the noble gases, chemistry of xenon, structure, bonding in xenon compounds

### B. THEORETICAL PRINCIPLES IN QUALITATIVE ANALYSIS ( $\text{H}_2\text{S}$ SCHEME)

Basic principles involved in the analysis of cations and anions and solubility products, common ion effect. Principles involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

### REFERENCE BOOKS:

1. Lee, J. D. Concise Inorganic Chemistry ELBS, 1991.
2. Douglas, B.E. and McDaniel, D.H. Concepts & Models of Inorganic Chemistry Oxford, 1970
3. Atkins, P.W. & Paula, J. Physical Chemistry, 10th Ed., Oxford University Press, 2014.
4. Day, M.C. and Selbin, J. Theoretical Inorganic Chemistry, ACS Publications, 1962.
5. Rodger, G.E. Inorganic and Solid State Chemistry, Cengage Learning India Edition, 2002.
6. Puri, B. R., Sharma, L. R. and Kalia, K. C., Principles of Inorganic Chemistry, Milestone Publishers/ Vishal Publishing Co.; 33rd Edition 2016
7. Madan, R. D. Modern Inorganic Chemistry, S Chand Publishing, 1987.

*Handwritten signatures and dates:*  
20.6.2019, Divakar, 24.6.19, Nal, 24.6.19, 24.6.19, 24.6.19

## PAPER: II

### ORGANIC CHEMISTRY

#### UNIT-I      BASICS OF ORGANIC CHEMISTRY

Hybridization, Shapes of molecules, Influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment. Electrophiles and Nucleophiles; Nucleophilicity and basicity; Homolytic and Heterolytic cleavage, Generation, shape and relative stability of Carbocations, Carbanions, Free radicals, Carbenes and Nitrenes. Introduction to types of organic reactions: Addition, Elimination and Substitution reactions.

#### UNIT-II      INTRODUCTION TO STEREOCHEMISTRY

Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Diastereoisomers, meso compounds, Relative and absolute configuration: Fischer, Newmann and Sawhorse Projection formulae and their interconversions; Erythrose and threose, D/L, d/l system of nomenclature, Cahn-Ingold-Prelog system of nomenclature (C.I.P rules), R/S nomenclature. Geometrical isomerism: cis-trans, syn-anti and E/Z notations.

#### UNIT-III      CONFORMATIONAL ANALYSIS OF ALKANES

Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars. Relative stability and Energy diagrams. Types of cycloalkanes and their relative stability, Baeyer strain theory: Theory of strainless rings, Chair, Boat and Twist boat conformation of cyclohexane with energy diagrams; Relative stability of mono-substituted cycloalkanes and disubstituted cyclohexane.

#### UNIT-IV      CHEMISTRY OF ALIPHATIC HYDROCARBONS

##### A. Carbon-Carbon sigma ( $\sigma$ ) bonds

Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reaction, Free radical substitutions: Halogenation-relative reactivity and selectivity.

##### B. Carbon-Carbon Pi ( $\pi$ ) bonds:

Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations.

B.Sc.-I

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Reactions of alkenes: Electrophilic additions and mechanisms (Markownikoff/Anti -Markownikoff addition), mechanism of oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, reduction (catalytic and chemical), syn and anti-hydroxylation (oxidation). 1,2-and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction; Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene.

Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.

## **UNIT-V      AROMATIC HYDROCARBONS**

Aromaticity: Hückel's rule, aromatic character of arenes, cyclic carbocations/ carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directive effects of the groups.

### **REFERENCE BOOKS:**

1. Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd.(Pearson Education).
2. Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
3. Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
4. Eliel, E. L. & Wilen, S. H. Stereochemistry of Organic Compounds, Wiley: London, 1994.
5. Kalsi, P. S. Stereochemistry Conformation and Mechanism, New Age International, 2005.
6. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.
7. Organic Chemistry, Paula Y. Bruice, 2nd Edition, Prentice-Hall, International Edition (1998).
8. A Guide Book of Reaction Mechanism by Peter Sykes.

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20.6.2019, Divakar 24.6.19, Nalini, 24.6.19, 24.6.19, 24.6.19

**PAPER - III**  
**PHYSICAL CHEMISTRY**

M.M.34

**UNIT-I**

**MATHEMATICAL CONCEPTS FOR CHEMIST**

Basic Mathematical Concepts: Logarithmic relations, curve sketching, linear graphs, Properties of straight line, slope and intercept, Functions, Differentiation of functions, maxima and minima; integrals; ordinary differential equations; vectors and matrices; determinants; Permutation and combination and probability theory, Significant figures and their applications.

**UNIT-II**

**GASEOUS STATE CHEMISTRY**

Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation; collision frequency; collision diameter; mean free path; Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable) and average kinetic energy, law of equipartition of energy, degrees of freedom and molecular basis of heat capacities. Joule Thomson effect, Liquification of Gases.

Behaviour of real gases: Deviations from ideal gas behaviour, compressibility factor (Z), and its variation with pressure and temperature for different gases. Causes of deviation from ideal behaviour. van der Waals equation of state, its derivation and application in explaining real gas behaviour, calculation of Boyle temperature. Isotherms of real gases and their comparison with van der Waals isotherms, continuity of states, critical state, relation between critical constants and van der Waals constants, law of corresponding states.

**UNIT-III**

**A. LIQUID STATE CHEMISTRY**

Intermolecular forces, magnitude of intermolecular force, structure of liquids, Properties of liquids, viscosity and surface tension.

**B. COLLOIDS and SURFACE CHEMISTRY**

Classification, Optical, Kinetic and Electrical Properties of colloids, Coagulation, Hardy Schulze law, flocculation value, Protection, Gold number, Emulsion, micelles and types, Gel, Syneresis and thixotrophy, Application of colloids.

Physical adsorption, chemisorption, adsorption isotherms (Langmuir and Freundlich). Nature of adsorbed state. Qualitative discussion of BET.

B.Sc.-I

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## UNIT-IV

### SOLID STATE CHEMISTRY

Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of rotating crystal method and powder pattern method.

Crystal defects.

## UNIT-V

### A. CHEMICAL KINETICS

Rate of reaction, Factors influencing rate of reaction, rate law, rate constant, Order and molecularity of reactions, rate determining step, Zero, First and Second order reactions, Rate and Rate Law, methods of determining order of reaction, Chain reactions.

Temperature dependence of reaction rate, Arrhenius theory, Physical significance of Activation energy, collision theory, demerits of collision theory, non mathematical concept of transition state theory.

### B. CATALYSIS

Homogeneous and Heterogeneous Catalysis, types of catalyst, characteristic of catalyst, Enzyme catalysed reactions, Micellar catalysed reactions, Industrial applications of Catalysis.

### REFERENCE BOOKS:

1. Atkins, P. W. & Paula, J. de Atkin's Physical Chemistry 10th Ed., Oxford University Press (2014).
2. Ball, D. W. Physical Chemistry Thomson Press, India (2007).
3. Castellan, G. W. Physical Chemistry 4th Ed. Narosa (2004).
4. Mortimer, R. G. Physical Chemistry 3rd Ed. Elsevier: NOIDA, UP (2009).
5. Engel, T. & Reid, P. Physical Chemistry 3rd Ed. Pearson (2013).
6. Puri, B.R., Sharma, L. R. and Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co., 47th Ed. (2016).
7. Bahl, A., Bahl, B.S. and Tuli, G.D. Essentials of Physical Chemistry, S Chand Publishers (2010).
8. Rakshit P.C., Physical Chemistry, Sarat Book House Ed. (2014).
9. Singh B., Mathematics for Chemist, Pragati Publications.

B.Sc.-I

*Atkins* 20.6.2019 *Divastan* 24.6.19 *Nal* *gandhara* *V. J. Kumar*

# PAPER - IV

## LABORATORY COURSE

### INORGANIC CHEMISTRY

**A. Semi-micro qualitative analysis** (using  $\text{H}_2\text{S}$  or other methods) of mixtures - not more than four ionic species (two anions and two cations, excluding interfering, insoluble salts) out of the following:

Cations :  $\text{NH}_4^+$ ,  $\text{Pb}^{2+}$ ,  $\text{Bi}^{3+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Na}^+$   
Anions :  $\text{CO}_3^{2-}$ ,  $\text{S}^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{S}_2\text{O}_3^{2-}$ ,  $\text{NO}_2^-$ ,  $\text{CH}_3\text{COO}^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$

(Spot tests may be carried out wherever feasible)

### B. Acid-Base Titrations

- Standardization of sodium hydroxide by oxalic acid solution.
- Determination of strength of  $\text{HCl}$  solution using sodium hydroxide as intermediate.
- Estimation of carbonate and hydroxide present together in mixture.
- Estimation of carbonate and bicarbonate present together in a mixture.
- Estimation of free alkali present in different soaps/detergents

### C. Redox Titrations

- Standardization of  $\text{KMnO}_4$  by oxalic acid solution.
- Estimation of  $\text{Fe(II)}$  using standardized  $\text{KMnO}_4$  solution.
- Estimation of oxalic acid and sodium oxalate in a given mixture.
- Estimation of  $\text{Fe(II)}$  with  $\text{K}_2\text{Cr}_2\text{O}_7$  using internal (diphenylamine, anthranilic acid) and external indicator.

### D. Iodo / Iodimetric Titrations

- Estimation of  $\text{Cu(II)}$  and  $\text{K}_2\text{Cr}_2\text{O}_7$  using sodium thiosulphate solution iodimetrically.
- Estimation of (a) arsenite and (b) antimony iodimetrically.
- Estimation of available chlorine in bleaching powder iodometrically.
- Estimation of Copper and Iron in mixture by standard solution of  $\text{K}_2\text{Cr}_2\text{O}_7$  using sodium thiosulphate solution as titrants.

### ORGANIC CHEMISTRY

1. Demonstration of laboratory Glasswares and Equipments.
2. Calibration of the thermometer.  $80^\circ\text{--}82^\circ$  (Naphthalene),  $113.5^\circ\text{--}114^\circ$  (Acetanilide),  $132.5^\circ\text{--}133^\circ$  (Urea),  $100^\circ$  (Distilled Water).
3. Purification of organic compounds by crystallization using different solvents.
  - Phthalic acid from hot water (using fluted filter paper and stemless funnel).
  - Acetanilide from boiling water.
  - Naphthalene from ethanol.
  - Benzoic acid from water.

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4. Determination of the melting points of organic compounds.

Naphthalene 80°–82°, Benzoic acid 121.5°–122°, Urea 132.5°–133° Succinic acid 184.5°–185°, Cinnamic acid 132.5°–133°, Salicylic acid 157.5°–158°, Acetanilide 113.5°–114°, m-Dinitrobenzene 90°, p-Dichlorobenzene 52°, Aspirin 135°.

5. Effect of impurities on the melting point – mixed melting point of two unknown organic compounds.

- Urea – Cinnamic acid mixture of various compositions (1:4, 1:1, 4:1).

6. Determination of boiling point of liquid compounds. (boiling point lower than and more than 100 °C by distillation and capillary method).

- Ethanol 78°, Cyclohexane 81.4°, Toluene 110.6°, Benzene 80°.

i. Distillation (Demonstration)

- Simple distillation of ethanol-water mixture using water condenser.
- Distillation of nitrobenzene and aniline using air condenser.

ii. Sublimation

- Camphor, Naphthalene, Phthalic acid and Succinic acid.

iii. Decolorisation and crystallization using charcoal.

- Decolorisation of brown sugar with animal charcoal using gravity filtrations crystallization and decolorisation of impure naphthalene (100 g of naphthalene mixed with 0.3 g of Congo red using 1 g of decolorizing carbon) from ethanol.

7. Qualitative Analysis

Detection of elements (N, S and halogens) and functional groups (Phenolic, Carboxylic, Carbonyl, Esters, Carbohydrates, Amines, Amides, Nitro and Anilide) in simple organic compounds.

## PHYSICAL CHEMISTRY

1. Surface tension measurements.

- Determine the surface tension by (i) drop number (ii) drop weight method.
- Surface tension composition curve for a binary liquid mixture.

2. Viscosity measurement using Ostwald's viscometer.

- Determination of viscosity of aqueous solutions of (i) sugar (ii) ethanol at room temperature.

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- Study of the variation of viscosity of sucrose solution with the concentration of solute.
- Viscosity Composition curve for a binary liquid mixture.

### 3. Chemical Kinetics

- To determine the specific rate of hydrolysis of methyl/ethyl acetate catalysed by hydrogen ions at room temperature.
- To study the effect of acid strength on the hydrolysis of an ester.
- To compare the strengths of HCl & H<sub>2</sub>SO<sub>4</sub> by studying the kinetics of hydrolysis of ethyl acetate.

### 4. Colloids

- To prepare colloidal solution of silver nanoparticles (reduction method) and other metal nanoparticles using capping agents.

**Note: Experiments may be added/ deleted subject to availability of time and facilities**


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## PRACTICAL EXAMINATION

05 Hrs. M.M. 50

Three experiments are to be performed

1. Inorganic Mixture Analysis, four radicals two basic & two acid (excluding insoluble, Interfering & combination of acid radicals) OR Two Titrations (Acid-Bases, Redox and Iodo/Iodimetry)

**12 marks**

2. Detection of functional group in the given organic compound and determine its MPt/BPt.

**8 marks**

OR

Crystallization of any one compound as given in the prospectus along with the Determination of mixed MPt.

OR

Decolorisation of brown sugar along with sublimation of camphor/ Naphthlene.

3. Any one physical experiment that can be completed in two hours including calculations.

**14 marks**

4. Viva

**10 marks**

5. Sessionals

**06 marks**

In case of Ex-Students two marks will be added to each of the experiments

### REFERENCE TEXT:

1. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
2. Ahluwalia, V. K., Dhingra, S. and Gulati, A. College practical Chemistry, University Press.
3. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
4. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)
5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).
6. Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).
7. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York (2003).

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# **Hemchand Yadav Vishwavidyala, Durg (C.G.)**

## **Zoology**

### **B.Sc. Part I (2019-20)**

#### **Paper I**

#### **(Cell Biology and Non-chordata)**

##### **Unit:I**

1. The cell (Prokaryotic and Eukaryotic)
2. Organization of Cell: Extra-nuclear and nuclear  
Plasma membrane, Mitochondria, Endoplasmic reticulum, Golgi body, Ribosome and Lysosome).
3. Nucleus, Chromosomes, DNA and RNA

##### **Unit:II**

1. Cell division (Mitosis and Meiosis).
2. An elementary idea of Cancer cells And Cell transformation.
3. An elementary idea of Immunity: Innate & Acquired Immunity, Lymphoid organs, Cells of Immune System, Antigen, antibody and their interactions

##### **Unit:III**

- General characters and classification of Phylum Protozoa, Porifera, and Coelenterata up to order.
2. Protozoa: Type study - Paramecium,
  2. Porifera: Type study - Sycon.
  3. Coelenterata: Type study - Obelia

##### **Unit: IV**

- General characters and classification of Phylum Platyhelminthes, Nematelminthes, Annelida and Arthropoda up to order.
2. Platyhelminthes and Nematelminthes: Type Study – Fasciola, Ascaris
  3. Annelida: Type Study - Pheretima.
  4. Arthropoda: Type Study - Palaemone.

##### **Unit:V**

- General characters and classification of Phylum Mollusca and Echinodermata up to order.
2. Mollusca: Type Study - Pila.
  3. Echinodermata- Type Study- Asterias (Starfish).

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**Zoology**  
**B.Sc. Part I (2019-20)**  
**Paper II**  
**(Chordata and Embryology)**

**Unit:I**

1. Classification of Hemichordata
2. Hemichordata- Type study-Balanoglossus
3. Classification of Chordates upto orders..
4. Protochordata-Type study - Amphioxus.
5. A comparative account of Petromyzon and Myxine.

**Unit-II**

1. Fishes-Skin & Scales, migration in fishes, Parental care in fish.
2. Amphibia-Parental care and Neoteny.
3. Reptilia- Poisonous & Non-poisonous Snakes, Poison apparatus, snake venom and Extinct Reptiles

**Unit:-III**

1. Birds- Flight Adaptation, Migration, and Perching mechanism, Discuss-Birds are glorified reptiles.
2. Mammals-Comparative account of Prototheria, Metatheria, Eutheria and Affinities.
3. Aquatic Mammals and their adaptations.

**Unit:IV**

**1. Fertilization**

2. Gametogenesis, Structure of gamete and Types of eggs
3. Cleavage
4. Development of Frog up to formation of three germ layers.
5. Parthenogenesis

**Unit:V**

1. Embryonic induction, Differentiation and Regeneration.
2. Development of Chick (a) up to formation of three germ layers, (2) Extra-embryonic membranes.
3. Placenta in mammals.

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**Zoology**  
**B.Sc. Part I (2019-20)**  
**Practical**

The practical work will, in general be based on the syllabus prescribed in theory and the candidates will be required to show knowledge of the following:-

- Dissection of Earthworm, Cockroach, Palaemon and Pila
- Minor dissection—appendages of Prawn & hastate plate, mouth parts of insects, radulla of Pila.

**(Alternative methods: By Clay/Thermacol/drawing/Model etc.)**

- Adaptive characters of Aquatic, terrestrial, aerial and desert animals.
- Museum specimen invertebrate
- Slides- Invertebrates, frog embryology, Chick embryology and cytology,

**Scheme of Practical Exam**

**Time: 3hrs**

1. Major Dissection	10 Marks
2. Minor Dissection	05 Marks
3. Comments on Excercise based on Adaptation	04 Marks
4. Cytological Preparation	05 Marks
5. Spots-8 (Slides-4, Specimens-4)	16 Marks
6. Sessional	10 Marks

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## B.Sc.- I (BOTANY) PAPER-I

### BACTERIA, VIRUSES, FUNGI, LICHENS AND ALGAE

#### UNIT-I

**VIRUSES:** General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Structure and multiplication of Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance.

#### UNIT-II

**BACTERIA:** General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, *Rhizobium*, *Azotobacter*, *Anabena*.

#### UNIT-III

**FUNGI:** General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of *Saprolegnia*, *Albugo*, *Aspergillus*, *Peziza*, *Agaricus*, *Ustilago*, *Puccinia*, *Alternaria* and *Cercospora*. VAM Fungi

#### UNIT-IV

**ALGAE:** Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns and economic importance. Classification, Systematic position, occurrence, structure and life cycle of following genera : *Nostoc*, *Gloeocapsa*, *Volvox*, *Oedogonium*, *Vaucheria*, *Chara*, *Ectocarpus*, *Polysiphonia*.

#### UNIT-V

Lichens- General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land. Mushroom Biotechnology

#### Books Recommended:

Dubey R.C. and Maheshwari D.K. *A text book of Microbiology*, S. Chand Publishing, New Delhi

Presscott, L. Harley, J. and Klein, D. *Microbiology*, 7<sup>th</sup> edition, Tata Mc Graw-Hill Co. New Delhi.

Sharma P.D., *Microbiology and Plant pathology*, Rastogi Publication. New Delhi.

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Alexopolous, C.J. Mims, C.W. and Blackwell, MM. *Introduction to Mycology*, John Wiley & Sons.

Dubey H.C. *An Introduction to Fungi*, Vikas Publishing, New Delhi

Mehrotra R.S. & Agrawal A., *Plant Pathology*, Tata McGraw, New Delhi

Sharma P.D. *Plant Pathology*, Rastogi Publishers, Meerut.

Srivastava, H.N. *Fungi*, Pradeep Publications, Jalandhar

Webster, J. & Weber, R. *Introduction to Fungi*, Cambridge University Press, Cambridge

Kumar H.D. *Introduction to phycology*, Aff. East-west Press, New Delhi

Lee RE, *Phycology*, Cambridge University Press U.K.

Srivastava, H.N., *Algae*, Pradeep Publications, Jalandhar

Pandey S.K. Quick *Concept of Botany*, Lambert Academic publishing, Germany

Pandey S.N., Mishra S.P. & Trivedi P.S. *A Text Book of Botany* (Vol.-I), Vikas Publishing, New Delhi

Singh, Pandey and Jain, *A Text book of Botany*, Rastogi Publication, Meerut.



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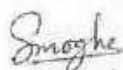


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(Mr. Sudheer Tiwari)



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**B.Sc.-I (BOTANY) PAPER -II**  
**(BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS AND**  
**PALAEOBOTANY)**

**UNIT -I**

**BRYOPHYTA:** General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in *Riccia*, *Marchantia*, *Pellia*, *Anthoceros*, *Funaria*. Vegetative reproduction in Bryophytes, Evolution of sporophytes.

**UNIT-II**

**PTERIDOPHYTES:** General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, *Azolla* as Biofertilizer.

**UNIT-III**

Systematic position, occurrence. Morphology, anatomy and reproductive structure of *Psilotum*, *Lycopodium*, *selaginella*, *Equisetum*, *Marsilea*.

**UNIT-IV**

Gymnosperm: General characteristics, affinities, economic importance and classification, Morphology, anatomy and reproduction in *Cycas*, *Pinus* and *Ephedra*.

**UNIT-V**

**PALAEOBOTANY:** Geological time scale, types of fossils and fossilization, Rhynia, study of some fossil gymnosperms. *Lygenopteris*

**Books Recommended:**

Parihar, N.S. *The Biology and Morphology of Pteridophytes*, Central Book Depot, Allahabad.

Parihar, N.S. *An introduction to Bryophyta Vol.I: Bryophytes* Central Book Depot, Allahabad.

Sambamurty, AVSS, *A textbook of Bryophytes, Pteridophytes, Gymnosperms and Palaeobotany*, IK International Publishers.

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Pandey SN, Mishra SP and Trivedi PS *A text Book of Botany (Vol.II)*, Vikas Publishing, New Delhi

Bhatanagar, SP and Moitra, A. *Gymnosperm*, New Age International (P) Ltd., Publishers, New Delhi

Biswas C. and Johri BM, *The Gymnosperms*, Springer-Verlag, Germany.

Srivastava, HN, *Palaeobotany*, Pradeep Publications Jalandhar

Srivastava, HN, *Bryophyta*, Pradeep Publications Jalandhar

Singh, Pandey and Jain, *A Text Book of Botany*, Rastogi Publication, Meerut

Srivastava, HN, *Fundamentals of Pteridophytes*, Pradeep Publications, Jalandhar

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## B.Sc. I (BOTANY)

### PRACTICAL

Study of external (Morphological) and internal (microscopic/anatomical) features of representative genera given in the theory.

1. Algae: Gloeocapsa, Scytonema, Gloeotrichia, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Sargassum, Batrachospermum
2. Gram staining
3. Fungi: Albugo, Aspergillus, Peziza, Agaricus, Puccinia, Alternaria and Cercospora
4. Bryophyta: Riccia, Marchantia, Pellia, Anthoceros, Sphagnum, Funaria
5. Pteridophyta: Lycopodium, Selaginella, Equisetum, Marsilea
6. Gymnosperm: Cycas, Pinus, Ephedra

### PRACTICAL SCHEME

TIME: 4 Hrs.

M.M. : 50

1. Algae/Fungi/Gram Staining	10
2. Bryophyta/Pteridophyta	10
3. Gymnosperm	10
4. Spotting	10
5. Viva-Voce	05
6. Sessional	05



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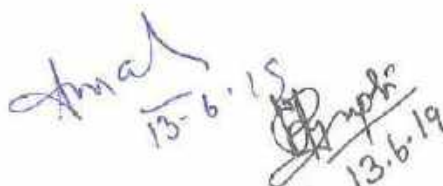
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(Mr. Shivakant Mishra)

(Mr. Sudheer Tiwari)



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## MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

### B.Sc. Part-I MATHEMATICS

#### PAPER - I ALGEBRA AND TRIGONOMETRY

**UNIT-I** Elementary operations on matrices, Inverse of a matrix. Linear independence of row and column matrices, Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equations of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.

**UNIT-II** Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations. Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descarte's rule of signs. Solutions of cubic equations (Cardons method), Biquadratic equation.

**UNIT-III** Mappings, Equivalence relations and partitions. Congruence modulo  $n$ . Definition of a group with examples and simple properties. Subgroups, generation of groups, cyclic groups, coset decomposition, Lagrange's theorem and its consequences. Fermat's and Euler's theorems. Normal subgroups. Quotient group, Permutation groups. Even and odd permutations. The alternating groups  $A_n$ . Cayley's theorem.

**UNIT-IV** Homomorphism and Isomorphism of groups. The fundamental theorems of homomorphism. Introduction, properties and examples of rings, Subrings, Integral domain and fields Characteristic of a ring and Field.

#### TRIGONOMETRY :

**UNIT-V** De-Moivre's theorem and its applications. Direct and inverse circular and hyperbolic functions. Logarithm of a complex quantity. Expansion of trigonometrical functions. Gregory's series. Summation of series.

#### TEXT BOOK :

1. I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd. New Delhi, 2000.
3. Chandrika Prasad, Text-Book on Algebra and Theory of equations, Pothishala Private Ltd., Allahabad.
4. S.L. Loney, Plane Trigonometry Part II, Macmillan and Company, London.



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**REFERENCES :**

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, First Course in linear Algebra, Wiley Eastern, New Delhi, 1983.
2. P.B. Bhattacharya, S.K.Jain and S.R. Nagpaul, Basic Abstract Algebra (2 edition), Cambridge University Press, Indian Edition, 1997.
3. S.K. Jain, A. Gunawardena and P.B. Bhattacharya, Basic linear Algebra with MATLAB, Key College Publishing (Springer-Verlag), 2001.
4. H.S. Hall and S.R. Knight, Higher Algebra, H.M. Publications, 1994.
5. R.S. Verma and K.S. Shukla, Text Book on Trigonometry, Pothishala Pvt. Ltd., Allahabad.

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**B.Sc. Part-I**  
**MATHEMATICS**  
**PAPER - II**  
**CALCULUS**

**DIFFERENTIAL CALCULUS :**

**UNIT-I**  $\varepsilon - \delta$  definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

**UNIT-II** Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates.

**INTEGRAL CALCULUS:**

**UNIT-III** Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution.

**ORDINARY DIFFERENTIAL EQUATIONS :**

**UNIT-IV** Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations.

**UNIT-V** Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

**TEXT BOOK :**

1. Gorakh Prasad, Differential Calculus, Pothishala Private Ltd. Allahabad.
2. Gorakh Prasad, Integral Calculus, Pothishala Private Ltd. Allahabad.
3. D.A. Murray Introductory Course in Differential Equations, Orient Longman (India), 1976.

**REFERENCES :**

1. Gabriel Klambauer, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum's outline series, Schaum Publishing Co. New York.
3. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
4. P.K. Jain and S.K. Kaushik, An Introduction to Real Analysis, S. Chand & Co. New Delhi, 2000.
5. G.F. Simmons, Differential Equations, Tata Mc Graw Hill, 1972.
6. E.A. Codington, An Introduction to Ordinary Differential Equations, Prentics Hall of India, 1961.
7. H.T.H. Piaggio, Elementary Treatise on Differential Equations and their Applications, C.B.S. Publishe & Distributors, Dehli, 1985.
8. W.E. Boyce and P.O. Dprima, Elementary Differential Equations and Boundary Value Problems, John Wiley, 1986.
12. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons, 1999.

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**B.Sc. Part-I**  
**MATHEMATICS**  
**PAPER - III**  
**VECTOR ANALYSIS AND GEOMETRY**

**VECTOR ANALYSIS :**

- UNIT-I**      Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient, divergence and curl.
- UNIT-II**      Vector integration. Theorems of Gauss, Green, Stokes and problems based on these.
- UNIT-III**    General equation of second degree. Tracing of conics. System of conics. Confocal conics. Polar equation of a conic.
- UNIT-IV**    Sphere. Cone. Cylinder.
- UNIT-V**      Central Conicoids. Paraboloids. Plane sections of conicoids. Generating lines. Confocal Conicoids. Reduction of second degree equations.

**TEXT BOOKS :**

1. N. Saran and S.N. Nigam, Introduction to vector Analysis, Pothishala Pvt. Ltd. Allahabad.
2. Gorakh Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Pvt. Ltd., Allahabad.
3. R.J.T. Bell, Elementary Treatise on Coordinate Geometry of three dimensions, Machmillan India Ltd. 1994.

**REFERENCES :**

1. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murray R. Spiegel, Vector Analysis, Schaum Publishing Company, New York.
3. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 1999.
4. Shanti Narayan, A Text Book of Vector Calculus, S. Chand & Co., New Delhi.
5. S.L. Loney, The Elements of Coordinate Geometry, Macmillan and Company, London.
6. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of two Dimensions, Wiley Eastern Ltd., 1994.
7. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of three Dimensions, Wiley Eastern Ltd., 1999.
8. N. Saran and R.S. Gupta, Analytical Geometry of three Dimensions, Pothishala Pvt. Ltd. Allahabad.

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# MICROBIOLOGY

## BSc-1<sup>st</sup>

### Paper- I: General Microbiology & Basic Technique

#### UNIT-1: Fundamental, History & Developments

Introduction to major groups of microorganisms and fields of Microbiology; Historical development, Contributions of Pioneers (Louis Pasteur, Edward Jenner, Anton Von Leewenhoeck and Alexander Flemming). Beneficial and harmful microbes and its role in daily life.

#### UNIT-2: Basic Microbial Techniques

Methods of studying microorganism; Sterilization Techniques (Physical & Chemical Sterilization). Pure culture isolation Technique: Streaking, Waksman serial dilution and plating methods; cultivation, maintenance and preservation of pure cultures. Culture media & conditions for microbial growth. Staining technique: simple staining, Differential (gram staining), negative staining and acid fast staining.

#### UNIT-3: Virology & Bacteriology

Diversity of microbial world; Principle and classification of Viruses and Bacteria. Structure, Multiplication and Economic importance of viruses (TMV, Influenza virus & T<sub>4</sub>-Phage). Structure & Functional organization of Bacteria, Cell wall of Gram Positive & Gram Negative bacteria; Economic importance of Bacteria.

#### UNIT-4: Mycology

General characteristics and classification of Fungi; Structure and Reproduction of fungi (*Rhizopus*, *Penicillium*, *Aspergillus*, *Yeast* & *Agaricus*). Common fungal disease of crops (Late & Early blight of potato, Smut of Rice, Tikka and Red rot of Sugarcane). Structure, reproduction and economic aspect of Lichens.

#### UNIT-5: Phycology & Protozoology

General characteristics and classification of Algae and Protozoa; General account & economic importance of Cyanobacteria (*Microcystis*, *Oscillatoria*, *Nostoc* & *Anabaena*) and Protozoa (*Amoeba*, *Paramoecium*, *Euglena* and *Plasmodium*).

*Oscillatoria*

#### Text Books Recommended:

1. General microbiology; Vol I & II, Powar C. B. and Dagnawala H. L., Himalaypub.house, Bombay.
2. A textbook of Microbiology; Dubey & Maheshwari.
3. Microbiology: An Introduction; G. Tor tora, B. Funke, C. Benjamin Cummings.
4. General Microbiology; Seventh edition by Hans G Schlegel, Cambridge University Press.
5. Practical Microbiology; Dubey and Maheshwari.
6. Handbook of Microbiology; Bisen P.S., Varma K., CBS Publishers and Distributors, Delhi. General Microbiology by Brock.
7. General Microbiology by Pelzar et al.
8. Introduction on Microbial Techniques by Gunasekaran.

*Phd*  
15/4/19

*Carol*  
15/6/19.

*Arts*  
15/6/19

*Phd*  
15/6/19



## Paper- II: Biochemistry and Physiology

### UNIT-1: CARBOHYDRATES AND PROTEINS

Structure, classification and properties of Carbohydrates – Monosaccharide, Oligosaccharides (Disaccharides) and Polysaccharides. Structure, classification and properties of Protein - Amino acids, peptides and Proteins (Primary, Secondary, Tertiary and Quaternary structure).

### UNIT-2: LIPIDS AND NUCLEIC ACIDS

Structure, classification and properties of Lipids; Saturated and Unsaturated fatty acids. Structure and properties of Nucleotides. Structure and forms of DNA; Replication of DNA. Types, Structure and Function of RNA.

### UNIT-3: ENZYMES

Structure, Nomenclature, Classification and Properties of Enzymes. Mechanism of enzyme action, Enzyme kinetic: Michaelis-Menten. Equation & derivation, Enzyme inhibition, Lineweaver-Burk Plot (LB plot). Co-enzymes and their role; Allosteric enzymes and Isoenzyme. Extracellular enzymes and their role.

### UNIT-4: MICROBIAL METABOLISM

Bacterial photosynthesis and Chemosynthesis; Glycolysis, TCA cycle and Oxidative Phosphorylation. Anaerobic catabolism of glucose; Fat Biosynthesis, alpha and beta oxidation of fatty acids. Deamination, trans-amination and Urea cycle.

### UNIT-5: GROWTH PHYSIOLOGY & TRANSPORT SYSTEM

Bacterial cell division, Genome replication and Growth Phases, Conditions for growth. Plasma membrane & Transport system, types of transport (Passive and active). Diffusion (simple & facilitated), Concept of Uniport, Antiport and Symport;

### *Text Books Recommended:*

1. General Biochemistry by A.C. Deb.
2. Biochemistry by Lehninger (Kalyani publication)
3. Biochemistry by U. Satyanarayan.
4. Microbiology by Anantanarayan and Panikar.
5. Fundamentals of Biochemistry; J.L. Jain, Sunjay Jain, Nitin Jain; S. Chand & Company Ltd
6. Practical Biochemistry: Principles and Techniques; 5th Edition; Keith Wilson and John Walker
7. Biophysical Biochemistry: Principles and Techniques; Avinash Upadhyay, Kakoli Upadhyay and Nirmalendu Nath; Himalaya Publishing House.

*Phd*  
15/6/19

*Paul*  
15/6/19

*Amrta*  
15/6/19

*DP*  
15/06/19

## PRACTICAL

M. M. 50

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Basic information about autoclave, hot air oven, laminar air flow and other laboratory instruments

Preparation of solid/liquid culture media.

Isolation of single colonies on solid media.

Enumeration of bacterial numbers by serial dilution and plating.

Simple and differential staining.

Measurement of microorganism (micrometry) and camera Lucida drawing of isolated organism.

Determination of bacterial growth by optical density measurement.

General and specific qualitative test for carbohydrates

General and specific qualitative test for amino acids

General and specific qualitative test for lipids

Estimation of protein

Estimation of blood glucose

Assay of the activity of amylases

Assay of the activity of Phosphates

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## Scheme of Practical Examination

Time - 4 hours

M.M. 50

1. Exercise on Microbiological methods	10
2. Exercise on Biochemical tests	10
3. Exercise on staining method	05
4. Spotting (1-5)	10
5. Viva-Voce	05
6. Sessional	10

Total 50

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*Phd*  
15/6/19

*Dank*  
15/6/19

*Dank*  
15/6/19

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15/6/19

# HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)

## Scheme of Examination

B.Sc. Part-01 Geology

कक्षा	प्रश्नपत्र	विषय समूह	सैद्धा. अंक	प्रायो. अंक	योग
BSc. I year	I	भूगतिकी एवं भू-आकृति विज्ञान (Geodynamics & Geomorphology)	50	50	150
	II	खनिज एवं क्रिस्टल विज्ञान (Mineralogy & Crystallography)	50		
BSc. II year	I	शैलिकी (Petrology)	50	50	150
	II	संरचनात्मक भूविज्ञान (Structural Geology)	50		
BSc. III year	I	जीवाश्म विज्ञान एवं संस्तर विज्ञान (Palaeontology & Stratigraphy)	50	50	150
	II	भूसंसाधन एवं व्यावहारिक भूविज्ञान (Earth Resources & Applied Geology)	50		

**-: Note :-**

प्रत्येक वर्ष के विद्यार्थियों हेतु पाठ्यक्रम में उल्लेखित भूवैज्ञानिक क्षेत्रीय अध्ययन अनिवार्य होगा।

  
22-5-19

  
22-5-19

कक्षा / Class - B. Sc. – I  
Session 2019-20  
Paper –I  
भूगतिकी एवं भूआकृति विज्ञान  
(Geodynamics & Geomorphology)

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- इकाई— 01 (i) भूविज्ञान एवं परिप्रेक्ष्य; सौरमण्डल में सूर्य की स्थिति ; परिमाण, आकार, संहति, घनत्व।  
(ii) पृथ्वी की उत्पत्ति  
(iii) पृथ्वी की आंतरिक संरचना, भूपर्पटी, प्रवार एवं क्रोड  
(iv) पृथ्वी की आयु: निर्धारण की विधियाँ, रेडियोधर्मी विधि  
(v) वायुमण्डल, जलमण्डल एवं जैवमण्डल का निर्माण एवं संगठन
- इकाई— 02 (i) प्लेटविवर्तनिकी का प्रारंभिक अध्ययन  
(ii) महाद्वीपीय विस्थापन की अवधारणायें एवं सिद्धान्त  
(iii) समस्थैतिकी की अवधारणायें एवं सिद्धान्त  
(iv) समुद्रतल विस्तारण का साक्ष्य  
(v) समुद्र, महाद्वीप एवं पर्वतों की उत्पत्ति
- इकाई— 03 (i) भूकम्प: भूकम्प की पट्टियाँ, भूकम्प की तीव्रता  
(ii) ज्वालामुखी: प्रकार एवं वितरण  
(iii) अंतः समुद्रीपर्वतों, चापाकार द्वीपमालाओं एवं खाइयों का उद्भव, वितरण एवं महत्व  
(iv) महाद्वीपीय तटीय क्षेत्रों की विवर्तनिकी : सक्रिय तट एवं सीमांतीय द्रोणियाँ  
(v) नवविवर्तनिकी : सक्रियभ्रंश, अपवाह परिवर्तन
- इकाई— 04 (i) भूआकृति विज्ञान की मूलभूत धारणायें  
(ii) भूआकृतिक कारक एवं शैल अपक्षय की प्रक्रियायें,  
(iii) नदी के भूवैज्ञानिक कार्य एवं नदीय भूआकृतियाँ  
(iv) वायु के भूवैज्ञानिक कार्य एवं वायुजनित भूआकृतियाँ  
(v) हिमनदों के भूवैज्ञानिक कार्य एवं हिमनदजनित भूआकृतियाँ
- इकाई— 05 (i) समुद्र के भूवैज्ञानिक कार्य एवं तटीय भूआकृतियाँ  
(ii) भूमिगत जल के भूवैज्ञानिक कार्य एवं कार्स्टस्थलाकृति  
(iii) ज्वालामुखीय भूआकृतियाँ  
(iv) पृथ्वी का उष्मा बजट एवं वैश्विक जलवायु परिवर्तन  
(v) भारत का भूआकृतिक विभाजन

  
27-5-19

  
27/5/19

## प्रायोगिक कार्य –

- (1) भूआकृतिक संरचनाओं को प्रदर्शित करने वाले प्रादर्शों का अध्ययन
- (2) स्थलाकृतिक मानचित्रों का अध्ययन एवं विभिन्न पैमानों पर सूचक–निर्धारण की जानकारीयों
- (3) भूआकृतिक–मानचित्रों में विभिन्न भूआकृतियों एवं प्रवाह प्रणालियों का अध्ययन
- (4) भारत के रेखित–मानचित्र में मुख्य पर्वतों, झीलों एवं नदियों को अंकित करना
- (5) भारत के रेखित मानचित्र में भूकम्प प्रेक्षणालयों को अंकित करना
- (6) भारतीय महाद्वीपों में आये भूकम्पों के अधिकेन्द्र एवं तीव्रता को मानचित्र में अंकित करना।
- (7) आकारमितिक विश्लेषण

### Suggested Readings:-

भौतिक–भूविज्ञान	–	डॉ. मुकुल घोष–
भौतिक–भूविज्ञान	–	जे.पी. तिवारी एवं बी.के. सिंह–
भूआकृति–विज्ञान	–	डॉ. सविन्द्र सिंह
भूविज्ञान एक परिचय	–	डॉ. विद्यासागर दुबे
Physical Geology	-	Miller
Principles of physical geology	-	A. Holmes
An introduction to physical geology-		A.K. Dutta
Principles of Geomorphology	-	W.D. Thornbury
Principles of Geomorphology	-	A.F. Ahmed

  
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Class- B. Sc. - I  
Paper –I  
(Geodynamics & Geomorphology)

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- Unit:1**
- (i) Geology & its perspectives. Earth in the solar system; size, shape, mass & density.
  - (ii) Origin of Earth.
  - (iii) Internal structure of Earth, Crust, Mantle and Core.
  - (iv) Age of Earth: with special emphasis on Radioactive dating.
  - (v) Formation & composition of Hydrosphere, Biosphere & Atmosphere.
- Unit:2**
- (i) Elementary idea about Plate-Tectonics.
  - (ii) Concept & theories of continental-drift
  - (iii) Concept & theories of Isostasy.
  - (iv) Evidences of Sea-floor spreading.
  - (v) Origin of oceans, continents & mountains.
- Unit:3**
- (i) Earthquakes, Earthquake Belts, measurement of Earthquakes.
  - (ii) Volcanoes: Types & distribution.
  - (iii) Mid –oceanic- ridges, trenches & island arc; origin, distribution & importance.
  - (iv) Tectonics of continental margins; Active margins & marginal basins.
  - (v) Neo-tectonics; active faults, drainage changes.
- Unit:4**
- (i) Fundamental concepts of Geomorphology.
  - (ii) Geomorphic agents & processes of rock-weathering.
  - (iii) Geological work of rivers; fluvial landforms.
  - (iv) Geological work of wind; Aeolian landforms.
  - (v) Geological work of Glaciers; glacial landforms.
- Unit:5**
- (i) Geological work of oceans; coastal landforms.
  - (ii) Geological work of Ground water. Karst topography.
  - (iii) Volcanic landforms.
  - (iv) Earth's heat budget & global climatic changes.
  - (vi) Physiographic divisions of India.

  
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## PRACTICALS:

- (1) Study of models showing various Geomorphic features.
- (2) Numbering, Indexing of topographic maps on various scales.
- (3) Interpretation of various Geomorphic landforms & drainage pattern on topographic maps.
- (4) Plotting of major mountain Ranges, Lakes & rivers on outline map of India.
- (5) Plotting of seismic observatories on outline map of India.
- (6) Plotting of epicenters & magnitude of major earthquakes of Indian subcontinent.
- (7) Morphometric analysis.

## Suggested Readings:-

भौतिक-भूविज्ञान	—	डॉ. मुकुल घोष—
भौतिक-भूविज्ञान	—	जे.पी. तिवारी एव 'बी.के. सिंह
भूआकृति-विज्ञान	—	डॉ. सविन्द्र सिंह
भूविज्ञान एक परिचय	—	डॉ. विद्यासागर दुबे
Physical Geology	-	Miller
Principles of physical geology	-	A. Holmes
An introduction to physical geology-		A.K. Dutta
Principles of Geomorphology	-	W.D. Thornbury
Principles of Geomorphology	-	A.F. Ahmed

  
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कक्षा / Class- B.Sc-I  
Paper –II  
खनिज एवं क्रिस्टल विज्ञान  
(Mineralogy & Crystallography)

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- इकाई— 01 (i) खनिज एवं क्रिस्टल की परिभाषा ।  
(ii) क्रिस्टल संरचना एवं यूनिट सेल ।  
(iii) क्रिस्टल के तत्व, क्रिस्टल रूप ।  
(iv) क्रिस्टलीय अक्ष एवं अक्षीय कोण ।  
(v) क्रिस्टल नोटेशन, अन्तःखण्डीय अनुपात एवं सूचकांक
- इकाई— 02 (i) क्रिस्टल विज्ञान के नियम ।  
(ii) क्रिस्टलीय सममिति ।  
(iii) क्रिस्टलों का वर्गीकरण । क्रिस्टल समुदायों के सामान्यवर्ग की सममिति ।  
(iv) सामान्य वर्ग के रूप ।  
(v) क्रिस्टलों में यमलन ।
- इकाई— 03 (i) प्रकाश की प्रकृति, प्रकाश का परावर्तन एवं अपवर्तन ।  
(ii) अपवर्तनांक, क्रांतिक कोण, पूर्ण आंतरिक परावर्तन एवं बेके प्रभाव ।  
(iii) द्वि-अपवर्तन, निकॉल प्रिज्म की रचना एवं कार्य प्रणाली ।  
(iv) ध्रुवण सूक्ष्मदर्शी : अवयव एवं कार्यप्रणाली ।  
(v) खनिजों के प्रकाशीय गुण ।
- इकाई— 04 (i) सिलिकेट संरचनाएं  
(ii) खनिजों में बंध ।  
(iii) समाकृतिकता, बहुरूपता एवं कूटरूपता ।  
(iv) ठोस-विलयन  
(v) खनिजों के भौतिक गुण ।
- इकाई— 05 निम्नलिखित खनिज समूहों के संगठन, भौतिक एवं प्रकाशकीय गुणों का अध्ययन—  
(i) ऑलिवीन्, गार्नेट एवं अभ्रक समूह ।  
(ii) पायरोक्सीन ।  
(iii) एम्फीबोल ।  
(iv) फेल्सपार ।  
(v) सिलिका ।

  
22-5-19

  
22/5/19



## प्रायोगिक कार्य—

- (1) क्रिस्टल मॉडल में सममिति तत्त्वों का अध्ययन।
- (2) सातों क्रिस्टल समुदायों की सामान्य वर्ग की मूल आकृतियों का अध्ययन।
- (3) यूलर प्रमेय का सत्यापन।
- (4) प्रमुख शैलकर खनिजों का स्थूलदर्शी अध्ययन।
- (5) ध्रुवण—सूक्ष्मदर्शी की सहायता से प्रमुख शैलकर खनिजों के प्रकाशीय गुणों का अध्ययन।
- (6) सात दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन

  
22-5-19

  
22/5/19

Class- B.Sc.-I  
Paper –II  
(Mineralogy & Crystallography)

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- Unit:1**
- (i) Definition of Mineral and Crystal.
  - (ii) Crystal structures, Unit cells
  - (iii) Elements of crystal. Crystal forms.
  - (iv) Crystallographic axes and axial angles.
  - (v) Parameters and indices of crystal notation
- Unit:2**
- (i) Laws of Crystallography
  - (ii) Crystal symmetry
  - (iii) Classification and symmetry of normal classes of seven crystal systems
  - (iv) Forms of normal classes.
  - (v) Twinning in crystals
- Unit:3**
- (i) Nature of light : reflection and refraction of light.
  - (ii) Refractive index. Critical angle. Total internal reflection and Becke effect.
  - (iii) Double refraction. Nicol prism, it's construction and working.
  - (iv) Polarizing Microscope- its parts & functions.
  - (v) Optical properties of minerals.
- Unit:4**
- (i) Silicate structures.
  - (ii) Bonding in Minerals.
  - (iii) Isomorphism. Polymorphism and Pseudomorphism.
  - (iv) Solid solution
  - (v) Physical properties of minerals
- Unit:5**
- Study of Composition, physical and optical properties of the following Mineral groups:
- (i) Olivine, Garnet and Mica groups.
  - (ii) Pyroxenes
  - (iii) Amphiboles
  - (iv) Feldspars
  - (v) Silica

  
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## PRACTICALS-

- (1) Study of symmetry elements in crystal models.
- (2) Study of fundamental forms of normal classes of all seven crystal systems.
- (3) Verification of Euler's theorem.
- (4) Study of physical properties of rock forming minerals.
- (5) Study of the optical properties of important rock forming minerals using polarizing Microscope.
- (6) Geological excursion for seven days.

## Suggested Readings:

Rutley's elements of Mineralogy	:	Read, H.H.
Dana's text book of Mineralogy	:	Ford W.E.
खनिज तथा क्रिस्टल विज्ञान	—	डॉ. बी. सी. जैश
खनिज विज्ञान के सिद्धांत	—	डॉ. ए. पी. अग्रवाल
प्रायोगिक भू-विज्ञान (भाग-1)	—	डॉ. र. प्र. मांजरेकर
प्रकाशीय खनिज विज्ञान के मूल तत्व	—	विंचेल

  
27-5-19

  
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## **B.A./B.Sc. – First Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- First  
Name of the Paper :- FOUNDATION OF ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I Meaning and scope of Anthropology. History of Anthropology. Branches of Anthropology -
- (a) Socio-cultural Anthropology
  - (b) Physical Biological Anthropology
  - (c) Archaeological Anthropology
  - (d) Linguistic Anthropology
- UNIT – II Relationship of Anthropology with other disciplines: Life Sciences, Medical Sciences, Social Sciences: History, Economics, Sociology, Psychology, Political Science
- UNIT – III Foundation in Biological Anthropology
- (a) Human Evolution with respect to Hominid fossils
  - (b) Human Variation: Types and causes
  - (c) Human Genetics: Concept, scope and branches
  - (d) Human growth and development: Definition, scope, methods and factors effecting human growth and development
- UNIT – IV Fundamentals in Social-Cultural Anthropology.
- (a) Culture, Society, Community, Group, Institution
  - (b) Human Institution:-
    - Family: Definiton, types and function of family
    - Marriage: Definition, forms of marriage and its functions
    - Kinship: Definition, types and functions
    - Religion: Theories on the origin of religion
  - (c) Basic techniques of data collection :
    - Observation , Schedule, Questionnaire, Geneology
- UNIT – V Fundamentals in Archaeological Anthropology.
- (a) Tool typology & Technology: Paleolithic, Mesolithic & Neolithic
  - (b) Cultural evolution: Broad outlines of cultures (Stone age to metal age)
  - (c) Dating techniques in archaeology

A handwritten signature in blue ink, followed by a horizontal line and the date 20/06/19.

## **B.A. /B.Sc. – First Year**

**Session: 2019-20**

Name of the Subject           :-     Anthropology  
Paper                               :-     Second  
Name of the Paper           :-     PHYSICAL/ BIOLOGICAL ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I       Meaning, scope, History of Physical Anthropology & its applied aspects  
Theories of organic evolution: Lamarckism, Neo-lamarckism, Darwinism, Neo-darwinism & Synthetic theory of evolution
- UNIT – II       Position of Man in animal kingdom, Classification of living primates, Comparative anatomy of Man and Apes (with special reference to skull, pelvis, dentition and long bones)
- UNIT – III       Fossil evidence of human evolution: Ramapithecus, Australopithecus, Pithecanthropus, Sinanthropus, Neanderthal, Cromagnon, Grimaldi man, Chancelade man.
- UNIT – IV       Concept of Race: Race formation and Criteria of racial classification, UNESCO Statement, Racial element in India, Major races of the world.
- UNIT – V       Human Genetics:  
a.       Structure of Chromosome, DNA & RNA  
b.       Mendelian principle.  
c.       Types of Inheritance in Human

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**B.A./B.Sc. – First Year**

**Session : 2018-19**

Name of the Subject :- Anthropology  
Paper :- Practical  
Name of the Paper :- OSTEOLOGY AND CRANIOMETRY

Total Marks : 50

Pass Marks : 17

- I. Identification of bones of human Skeleton. Sketching and labeling of various norms of skull, Overview of Pectoral & Pelvic girdles, Femur & Humerus bone
- II. Craniometry :-
  1. Maximum Cranial length.
  2. Maximum Cranial Breadth.
  3. Maximum frontal Breadth.
  4. Bizygomatic Breadth.
  5. Nasal Height.
  6. Nasal Breadth
  7. Minimum frontal breadth
  8. Bimaxillary Breadth.
  9. Maximum Biorbital Breadth
  10. Length of magnum foramen.
- III. Craniometric indices :
  1. Cranial Index
  2. Nasal Index

  
20/06/19

**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**Syllabus for B.A. / B.Sc. Course, 2019-20**  
**Subject: Statistics**

Each year of B.A. /B.Sc. I, II, III shall have two theories and one practical course. All the Theory as well as Practical Examinations will be of 3 hours duration. In each practical examination 10% marks shall be fixed for viva –voce and 20% marks for practical record.

Scheme of Examination

	<b>Title of the paper</b>	<b>MAX. Marks</b>
<b>B.A./B.Sc. I</b>	<b>Paper-I</b> (Code No. 0803): <b>Probability I</b>	50
	<b>Paper-II</b> (Code No. 0804): <b>Descriptive Statistics I</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. II</b>	<b>Paper-I</b> (Code No. 0853): <b>Statistical Methods</b>	50
	<b>Paper-II</b> (Code No. 0854): <b>Sampling Theory and Design of Experiments</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. III</b>	<b>Paper I</b> (Code No. 0907): <b>Applied Statistics</b>	50
	<b>Paper II</b> ( Code No. 0908): <b>Statistical Quality Control and Computational Techniques</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>

**B.A. /B.Sc. –I**  
**Subject-Statistics**  
**Paper – I ( Paper Code-0803)**  
**PROBABILITY THEORY**

**Unit-I**

Important concepts in probability: Random experiment: trial, sample point and sample space, event, Operations of events, concepts of mutually exclusive and exhaustive events. Definition of probability: classical and relative frequency approach. Richard Von Misses, Cramer and Kolmogrove approaches to probability, merits and demerits to these approaches, any general idea to be given. Discrete probability space, Properties of probability based on axiomatic approaches, Independence of events, Conditional probability, total and compound probability rules, Baye's theorem and its applications.

**Unit-II**

Random variables: Definition of discrete random variable (rv); probability mass function (pmf) and cumulative distribution function (cdf). Joint pmf of several discrete rvs. Marginal and conditional pmfs. Independence of rvs. Idea of continuous random variables, probability density function, illustration of random variables and its properties. Expectation of a random variable and its properties -moments, measures of location and dispersion, skewness and kurtosis, Moment generating function, raw and central moments, Probability generating function (pgf) and, their properties and uses.

**Unit-III**

Standard univariate discrete distributions: degenerate, discrete uniform, hypergeometric, Poisson, geometric and negative binomial distributions. Marginal and conditional distributions, Distributions of functions of discrete rvs, reproductive property of standard distributions.

**Unit-IV**

Univariate continuous distributions and their properties: Uniform, Beta, Gamma, Exponential, Normal, Cauchy, Lognormal. Moment generating function (mgf) : its properties and applications. Tchebycheff's inequality and applications, statements and applications of weak law of large numbers and central limit theorems.

**Unit-V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Bhat B.R., Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2. Chung, K.L. (1979). Elementary Probability Theory with Stochastic Processes, Springer International Student Edition.
3. Edward P.J., Ford J.S. and Lin (1974): Probability for Statistical Decision-Marketing. Prentice Hall
4. Goon A.M., Gupta M.K. and Dasgupta B.(1999): Fundamentals of Statistics, Vol. I , World Press, Calcutta
5. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, Mc. Graw Hall.



### **ADDITIONAL REFERENCES:**

6. Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. David Stirzaker (1994). Elementary Probability, Cambridge University Press.
8. Feller, W. (1968). An Introduction to Probability Theory and its Applications, Wiley.
9. Hoel P.G. (1971): Introduction to Mathematical Statistics
10. Mayer P.L. (1970): Introductory Probability and Statistical Applications, Addition Wesley
11. Mukhopadhyay, P. (1996). Mathematical Statistics, New Central Book Agency, Calcutta.
12. Parzen, E. (1960). Modern Probability Theory and its Applications, Wiley Eastern.
13. Pitman, Jim (1993). Probability, Narosa Publishing House.

**Paper – II( Paper Code-0804)**  
**DESCRIPTIVE STATISTICS**

**Unit - I**

Origin and Development of statistical importance, uses and limitations of Statistics. Types of Data: Concepts of a statistics population and sample from a population; qualitative and quantitative data; nominal and ordinal data; cross sectional and time series data; discrete and continuous data; frequency and non-frequency data.

Collection and Scrutiny of Data; Primary data – designing a questionnaire and a schedule; checking their consistency. Secondary data – their major sources including some government publications. Complete enumeration, controlled experiments, observational studies and sample surveys. Scrutiny of data for internal consistency and detection of errors of recording. Ideas of cross-validation.

Presentation of Data: Construction of tables with one or more factors of classification. Diagrammatic and graphical representation of non-frequency data. Frequency distributions, cumulative frequency distributions and their graphical and diagrammatic representation – column diagram, histogram, frequency polygon and ogives. Stem and leaf chart. Box plot.

**Unit -II**

Analysis of Quantitative Data: Univariate data: Concepts of central tendency or location, and their measures; arithmetic, geometric and harmonic mean, median and mode.

**Unit -III**

Dispersion and relative measures of dispersion, skewness and kurtosis, and their measures including those based on quartiles and moments. Sheppard's corrections for moments for grouped data (without deviation).

**Unit -IV**

Bivariate data: Scatter diagram. Product moment correlation coefficient and its properties. Coefficient of determination. Correlation ratio. Concepts of regression. intra - class correlation coefficient with equal and unequal group sizes. Rank correlation – Spearman's and Kendall's measures. Correlation index. Principle of least squares. Fitting of linear and quadratic regression and related results. Fitting of curves reducible to polynomials by log and inverse transformation. Multivariate data: Multiple regression, multiple correlation and partial correlation in 3 variables. Their measures and related results.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
- 2.Croxton FE, Cowden DJ and Klein S: Applied General Statistics (1973): Prentice Hall of India.
- 3.Goon A.M., Gupta M.K., Dasgupta B. Fundamentals of Statistics, Vol. 1(1991) & Vol. 2(2001). World Press, Calcutta.
- 5.Gupta V.K. and Kapor S.C. : Fundamentals of Mathematical Statistics S. Chand and Sons.

**ADDITIONAI REFERENCES:**

- 6.Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, McGraw Hill.
- 8.Snedecor GW and Cochran WG: Statistical Methods (1967) : Lowa State University Press.
- 9.Spiegel, MR (1967): Theory & Problems of Statistics (1967): Schaum's Publishing Series.

## **Paper III**

### **Practical: Practical Based on Paper I & II**

1. Presentation of data by Frequency tables, diagrams and graphs.
2. Calculation of Measures of Central Tendency, dispersion , skewness and kurtosis
3. Product Moment Correlation and Correlation Ratio
4. Fitting of Curves by the least square method
5. Regression of two variables
6. Spearman's Rank correlation Coefficient
7. Multiple regression of three variables
8. Multiple correlation and partial correlation
9. Evaluation of probabilities using addition and multiplication theorems, conditional probabilities and Bayes theorems
10. Exercises on mathematical expectations and finding measures of central tendency, dispersion, skewness and kurtosis of univariate probability distributions
11. Fitting of univariate and conditional distributions

**DEFENCE - STUDIES**  
**PAPER - I**  
**INDIAN MILITARY HISTORY M.M. 50**  
**(paper code - 0817)**

**AIM :** The main idea behind this paper is to give a conceptual background about the events and factors which influenced course of history and helped in developing the art of war in India.

**Note :** Questions will be set from each unit, There will be only internal choice.

**UNIT-1** 1. The definition and scope of Defence Studies and its relationship with other subjects.

2. Art of war of Epic and Puranic period.
3. Comparative study of Indo-Greek art of war with special reference to the Battle of Hydaspes 326 B.C.
4. Mauryan Military system and art of war.

**UNIT-2** 1. Kautilya's Philosophy of war.

2. Gupta's military system and art of war.
3. Military system of Harshavardhan.
4. Decline of Chariots and Importance of Elephant and Cavalry.

**UNIT-3** 1. Mughal military system.

2. Rajput and Turk pattern of warfare with special reference to Battle of Somnath and Battle of Tarain up to 12th century A.D.
3. Causes of the fall of Rajput Military system.
4. Army organization during Sultanate period.
5. Battle of Panipat 1526 A.D. and Battle of Haldighati 1576 A.D.

**UNIT-4** 1. Maratha Military system.

2. Warfare of Shivaji.
3. Battle of Assaye 1803 A.D.
4. Sikh Military system.
5. Battle of Sobraon 1846 A.D.

**UNIT-5** 1. 1857 Liberation Movement.

2. Reorganizations of Indian Army under the Crown.
3. Nationalization of Indian Army after independence.
4. Military reforms of Lord Kitchener's.

**READING LIST :**

- |                                       |   |               |
|---------------------------------------|---|---------------|
| 1. Military System of Ancient India   | : | B.K. Majumdar |
| 2. Generalship of Alexander the Great | : | J.F.C. Fuller |
| 3. Kautilya Arthashastra              | : | K.P. Kanbale  |
| 4. Military history of India          | : | J.N. Sarkar   |

**PAPER - II**  
**DEFENCE MECHANISM OF THE MODERN STATE**  
**(paper code - 0818)**

**AIM :** To enable students to appreciate the importance of higher political direction in the formulation of national defence policy and roles as political and military leadership in furthering national security.

**Note :** Question will be from each unit, there will be only internal choice.

**UNIT-1** 1. Evolution of National defence policy.

2. Inter dependence of Foreign, Defence and Economics policies.
3. Higher defence organization of U.S.A., U.K. and RUSSIA.
4. Higher defence organization of CHINA, PAKISTAN and NATO.

**UNIT-2** 1. Higher defence organization in India.

2. Powers of President and relation to Armed forces.
3. Parliament and the Armed forces.
4. Defence (Political affair) committee of the cabinet. Its composition, methods of working during war and peace.
5. National Defence Council and its Valiant.

**UNIT-3** 1. Organization of Ministry of Defence.

2. Organization of Army head quarter.
3. Organization of Naval head quarter.
4. Orgatiization of Air head quarter.

**UNIT-4** 1. Organization and role of Para-militaty forces - B.S.F., I.T.B.P., C.I.S.F. etc.

2. Organization and role of Intelligence Agencies - RAW, CBI, CID., IB etc.
3. Military Intelligence.
4. Role of N.C.C. in preparing youth for Defence services.

**UNIT-5** 1. Organization of Civil - defence.

2. Importance and role of civil defence during war and peace.
3. Air-Raid signal and precaution before and after bombardment.
3. Role of Indian armed forces in war and peace.

**READING LIST :**

1. Indian Army, A Sketch of its History & : E.H.E. Choen  
Organisation :
2. Defence Organization in India : Venkateshwarm

## **PRACTICAL**

**M.M. : 50**

There shall be practical examination of 3 hours duration and carrying 50 marks. The distribution of marks shall be as follows -

- |                                   |             |
|-----------------------------------|-------------|
| 1. Exercises based on Map reading | : 20 Marks  |
| 2. Exercises based on models      | : 10 Marks  |
| 3. Sessional Work and Record      | : 10 Marks  |
| 4. Viva-Voce                      | : 10 Marks, |

## **PART - A**

### **ELEMENTARY MAP READING**

1. Maps- Definition, types, Marginal Information.
2. Conventional signs - Military and Geographical.
3. Direction and cardinal points.
4. Types of North, Angle of Convergence.
5. Study of Liquid compass, its parts, various tactical uses and preparation of Night navigation chart.
6. service Protractor and its uses.
7. To find North by Compass, Watch, Sun, Stars etc.
8. Bearing and interconversion of bearing.
9. Setting of Map.
10. Grid System.

## **PART - B**

### **RECOGNITION & ELEMENTARY STUDY OF FOLLOWING MODELS**

1. equivalent Rank and Badges of Indian Army, Navy and Air Force.
2. Famous Armoured vehicles used in war.
3. Weapons used in Infantry.
4. Various Ships of Indian Navy.
5. Famous Air-Crafts Used by Air-Force.

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**INDUSTRIAL CHEMISTRY**  
**PAPER - I**  
**INDUSTRIAL ASPECTS, OF ORGANIC & INORGANIC**  
**CHEMISTRY**

(paper code - 0821)

**UNIT-1** 1.1 Nomenclature Generic names, Trade names.

1.2 Raw Materials for Organic compounds :-

Petroleum, natural gas, Fractionation of Crude oil.

**UNIT-2** 2.1. Petroleum :- Cracking, reforming Hydroforming isomerisation.

2.2. Coal :- Types, Structure, Properties, distillation of coal, chemicals derived there from.

**UNIT-3** 3.1. Renewable natural resources :- Cellulose, starch, properties, modification, important industrial chemicals derived from them, Alcohol and alcohol based chemicals, Oxalic acid, Furfural.

3.2. Basic metallurgical operations :- Pulverisation, calcination, Roasting, refining.

**UNIT-4** 4.1 Physico chemical principles of extraction of:- Iron, Copper, Lead, Silver, Sodium, Aluminium, Magnesium, Zinc, Chromium.

**UNIT-5** Inorganic materials of Industrial Importance :- Their availability, forms, structure and modification. Alumina, Silica, Silicates, Clays, Mica, Carbon, Zeolites.

**BOOKS :**

1. Coal Conversion, E.J. Hoggman, The Engeron Co., Lavamie Wyoming, U.S.A.
2. Introduction of Petroleum Chemicals, H. Steiner, Pergamon Press.
3. From Agrocarbon to Petrochemicals, L.F. Hatch & S. Matarm, Gulf Publishing Co., Houston.
4. Cellulose : Its Chemistry & Technology, Hall A.G.
5. Methods in Carbohydrate Chemistry, Vol. 3 - Cellulose, Whistler, R.L.
6. Chemistry of Cellulose, Heuser, E.
7. Chemistry & Industry of Starch, Kerr, R.W.
8. Modified Starches : Properties & Uses, Wurzburg, O.B.
9. Principles of Extractive Metallurgy, Herbashi, Vol. I & II.
10. Theory of Metallurgical Processes, Volsky, A. & Sergievskaya, F.
11. Text book of Metallurgy, Bailey, A.R.
12. Clays, H. Reis, John Wileys & Sons.
13. Unit Processes of Extractive Metallurgy, Perry, Elsevier Publication.
14. Industrial Chemistry, Reigel, Reinhold Publication.

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**PAPER - II**  
**INDUSTRIAL ASPECTS OF PHYSICAL CHEMISTRY**  
**MATERIAL AND ENERGY BALANCE**  
**(paper code - 0822)**

**UNIT-1** Surface. chemistry and Interfacial Phenomena Adsorption Isotherm, Sols, Gels, Emulsions, Micoemulsions, micelles, Aerosols, Effect of surfactants, Hydrotropes.

**UNIT-2** Catalysts :- Introduction, Types, Homogeneous and Heterogeneous, Basic Principles, Mechanisms factors affecting the performance, Introduction to phase transfer catalysis

**UNIT-3** 3.1. Enzyme catalysed reactions - Rate model, Industrially important reactions.

3.2. Material Balance without chemical Reactions:- flow diagram for material balance, simple material with or without recycle or by-pass for chemical engineering operations such as distillation, crystallisation, evaporation, extraction, etc.

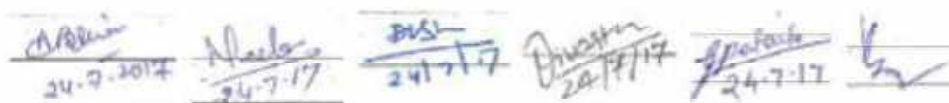
**UNIT-4** 4.1. Dimensions and Units :- Basic. chemical calculations -Atomic weight, molecular weight, equivalent weight, mole composition of (i) liquid mixture & (ii) gaseous mixture.

4.2. Material balance involving chemical reaction :- concept of limiting reactant, conversion, yield liquid phase reaction, gas phase reactions with/without recycle or by-pass.

**UNIT-5** Energy Balance :- Heat capacity of pure gases and gaseous mixtures at constant pressures. Sensible heat changes. in liquids, Enthalpy changes.

**BOOKS :**

1. Aerosol, Science & Technology, Shepherd, H.R.
2. Catalysts : Heterogeneous & Homogeneous, Delmon, Elsevier Scientific Publication.
3. Catalysts, Science & Technology, Anderson, J.
4. Catalysts in Micellar & Macromolecular systems, Fendler & Fendler.
5. Phase Transfer Catalysis, Principle & Techniques, Stiles, C.
6. Surface Chemistry, J.J. Bikermann, Academic Press.
7. Physical Chemistry of Surfaces by A.W. Adamson.
8. Stochiometry, B.I. Bhattacharya & S.M. Vora.
9. Chemical Process Principle - Part I, B.A. Hougen, K.M. Watson & R.A. Ragatz, Asia Publication.

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**PAPER - III**  
**UNIT OPERATIONS IN CHEMICAL INDUSTRY AND UTILITIES,**  
**FLUID FLOW AND HEAT TRANSPORT IN INDUSTRY**  
**(paper code - 0823)**

**UNIT-1** 1.1. Distillation - Introduction; Batch and continuous distillation, separation of azeo-tropes, plate columns & packed columns.

1.2. Absorption - Introduction, Equipments- Packed columns, spray columns, bubble columns, packed bubble columns, mechanically, agitated contractors.

**UNIT-2** 2.1 Evaporation - Introduction, Equipments - short tube (standard) evaporator, forced circulation evaporators, falling film evaporators, climbing film (Upward flow) evaporators, wiped (agitated) film evaporator.

2.2 Filtration - Introduction, filter media and filter aids, Equipments- Plate and frame, filter press, nutch filter, rotatory drum filter, sparkler filter, candle filter, bag filter, cen-trifuge.

2.3 Drying - Introduction, free moisture, bound. moisture, drying curve, Equipments tray dryer, rotatory dryer, flash drater, fluid bed dryer, drum dryer, spray dryer.

**UNIT-3** 3.1 Utilities in chemical Industry

Fuel - Types of fuels -advantages and disadvantages, combustion of fuels, calorific value. specification for fuel oil.

Boilers - Types of.-boilers and their functioning.

Water - Specifications for industrial use, various water treatments.

Steam - Generation and use.

Air - Specifications for Industrial use processing of air.

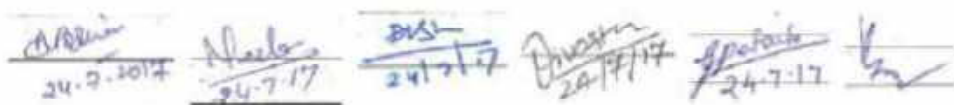
**UNIT-4** Fluid Flow : Fans, blowers, compressors, vacuum pumps, ejector. Pumps :-

Reciprocating pumps,, Gear pumps,, centrifugal pumps.

**UNIT-5** Heat Exchangers -: Shell and Tube type; finned tube heat exchangers, plate heat ex-changers, refrigeration cycles.

**BOOKS :**

1. Introduction Chemical Engineering, W.L. Badger, J.J. Banchero, McGraw Hill.
2. Unit Operations in Chemical Engineering, W.L. McCabe & J.C. Smith, McGraw Hill.
3. Chemical Engineer's Hand Book, J.H. Perry, McGraw Hill.
4. Unit Operations - I & II, D.D. Kale, Pune Vidyarthi Griha Prakashan, Pune.
5. Unit Operations of Chemical Engineering, Vol. I, P. Chattopadhyay, Khanna Publishers, Delhi.



## PRACTICAL

### Duration of Examination :

04 Hrs.

Discription of marks	Experiment	:	30 marks
	Viva	:	05 marks
	Sessional	:	05 marks
	Project	:	40 marks
	<b>Total</b>	:	<b>80 marks</b>

### EXPERIMENTS TO BE PERFORMED :

1. Simple laboratory techniques crystallisation, Fraction Crystallisation, Distillation, Fractional distillation Boiling Point.Diagram.
2. Extraction Processes- Phase diagram, partition<sub>HSO<sub>4</sub>O</sub>-efficient.
3. Preparation of standard solutions- Primary<sup>2</sup> and<sup>4</sup> secondary standards, Determination of- and H<sub>3</sub>PO<sub>4</sub> in a mixture.
4. Calibration of Thermometres.
5. Acquaintance with safety measures in a laboratory Hazards of Chemicals.
6. Depression and elevation in.b.p./m.p. of solids and liquids.
7. Chromatography-column, Paper, Thin layer.
8. Ore analysis dolomite, limestone, -calcite, Analysis of alloys such as cupro-nickel.
9. Determination of Physical Constants  
Refractive -index, surface tension, Effect of surfactants, on surface tension, viscosity- Fluids, Polymer solutions effect of additives on viscosity, optical rotation.
10. Study, experimenfs/demonstration experiments.

**Note :** Any two experiments have to be carried out by the students in the Examination. A Mini mum of 60% of the'experiments have to be conducted by the students.

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**B. SC. PART - I**  
**COMPUTER SCIENCE**  
**PAPER - I**  
**COMPUTER FUNDAMENTALS**  
**PAPER CODE - 0805**

**MAX MARKS - 50**

**Note:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.**

**UNIT-I CLASSIFICATION AND ORGANISATION OF COMPUTERS**

History of computer, Generation of computer, calculator vs computer. Digital and Analogue computers and its evolution. Major components of digital computers, Memory addressing capability of CPU. Word length and processing speed of computers, Microprocessors, Single chip Microcomputer, Large and small computers, Users interface, hardware, software and firmware, multiprogramming multiuser system, Dumb smart and intelligent terminals, computers Network and multiprocessing LAN parallel processing, Finn's classification of computers control flow and data flow computers.

**UNIT-II CENTRAL PROCESSING UNIT**

Parts of CPU-ALU control unit, Registers; Architecture of Intel 8085 microprocessor, Instruction for Intel 8085 microprocessor, Instruction Word size, Various addressing mode, Interrupts some special control signals, Instruction cycle fetch and execute operation, Timing Diagram, Instruction flow and data flow.

**UNIT-III MEMORY**

Memory hierarchy, Primary and Secondary Memory, Cache memory, Virtual Memory, Direct Access storage devices (DASD) Destructive and Non-destructive Readout, Program and data memory, Memory Management Unit (MMU) PCMCIA cards and Slots.

**UNIT-IV I/O DEVICE**

I/O devices-KeyBoard, Mouse, Monitor, Impact and Non-Impact Printers, Plotters, Scanner, other Input/output devices: Scan method of Display, Raster Scan, Vector Scan, Bit Mapped Scan, CRT Controller, I/O Port, Programmable and Non Programmable I/O port, Inbuilt I/O ports, Parallel and Serial ports, USB, IEEE 1394, AGP, Serial data transfer scheme, Microcontroller, Signal Processor, I/O processor, Arithmetic Processor.

**UNIT-V SOFTWARE AND PROGRAMMING TECHNIQUES**

Application and System Software: Introduction, Example, Difference etc. Introduction to Open Source Software such as Unix/Linux (Ubuntu), Liber office etc. Introduction to Machine Language Assembly Language and High Level Language; Programming Techniques, Stack Subroutine, Debugging of programs, Macro Program Design Software Development, Flow Chart, Multiprogramming, Multiuser, Multitasking Protection, Operating system and Utility programs Application packages

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## TEXT BOOK

1. Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
2. Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
3. Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
4. Computers Today, Donald H. Sanders, McGraw-Hill Third Edition.
5. IBM PC and Clones, B. Govindarajulu, McGraw-Hill Second Edition.
6. UNIX Concepts and Applications, Sumitabha Das, Tata McGraw-Hill Fourth Edition.

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**B. SC. PART - I**  
**COMPUTER SCIENCE**  
**PAPER - II**  
**PROGRAMMING IN C LANGUAGE**  
**PAPER CODE - 0806**

**MAX MARKS - 50**

**Note :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.**

**UNIT-I**

**Fundamentals of C Programming** - Overview of C : History of 'C', Structure of 'C' program. Keywords, Tokens, Datatypes, Constants, Literals and Variables, Operators and Expressions: Arithmetic operators, Relational operator, Logical operators, Expressions, Operator: operator precedence and associativity, Type casting, Console I/O formatting, Unformatted I/O functions: getch(), getchar(), getche(), getc(), putc(), putchar().

**UNIT-II**

**Control Constructs:** If-else, conditional operators, switch and break, nested conditional branching statements, loops: For, do.while, while, for, Nested loops, break and continue, goto and label, exit function.

**Functions:** Definition, function components: Function arguments, return value, function call statement, function prototype. Type of function Scope and lifetime of variable. Call by value and call by reference. Function using arrays, function with command line argument. User defined function: maths and character functions, Recursive function.

**UNIT-III**

**Array:** Array declaration, one and two dimensional numeric and character arrays. Multidimensional arrays.

**String:** String declaration, initialization, and string manipulation with/without using library function.

**Structure, Union & Enum- Structure:** Basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union:** basics, declaring union and union variable, **Enum:** declaring enum and enum variable.

**UNIT-IV**

**Pointers:** Definition of pointers, Pointer declaration, Using & and \* operators. Void pointer, Pointer to pointer, Pointer in math expression, Pointer arithmetic, Pointer comparison, Dynamic memory allocation functions—malloc, calloc, realloc and free, Pointers vs. Arrays, Arrays of pointer, pointer to array, Pointers to functions, Function returning pointer, Passing function as Argument to function, Pointer to structure, Dynamic array of structure through pointer to structure.

**UNIT-V**

**File Handling and Miscellaneous Features-** File handling: file pointer, File accessing functions: fopen, fclose, fputc, fgetc, fprintf, fscanf, fread, fwrite, feof, fflush, rewind, fseek, ferror. File handling through command line argument. Introduction to C preprocess or #include, #define, conditional compilation directives: #if, #else, #elif, #endif, #ifndef etc.

*[Handwritten signatures and dates at the bottom of the page]*

## TEXTBOOKS

1. Programming in ANCH. Balagurusamy c Tata McGraw-Hill third edition.
2. Let Us C, Yashwant Kanetkar Infiniti science Press, 8th edition.
3. Mastering C, K.R. Venugopal Tata McGraw-Hill.
4. The C Programming Language, Brian W. Kernighan, Dennis, M Ritchie, Prentice Hall Second Edition.
5. Application programming in ANSI C, R. Johnsonbaugh, Martins Kalin, Macmillan Second Edition.
6. The Spirit of C Mullish Cooper, Jaico Publishing House.
7. How to solve it by computer, R.G. Dromeypearson edition.

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## **ELECTRONICS EQUIPMENT MAINTENANCE**

### **PAPER - I**

### **PRINCIPLES OF ELECTRONICS**

**(paper code - 0809)**

**UNIT-1** General information : Symbol, colour code, types (Such as carbon, metal film, thin-film thick-film, wire-wound), Variable resistors potentiometers (logarithmic linear multi-turn wire wound rheostat).

Physical properties : Temperature dependence (Thermistor), Light Dependence (LDR),

Voltage Dependence (VDR). technical specification wattage and working voltages. Methods of measurement of resistance: very low to very high values.

**INDUCTORS** : General Information: symbol, Types such as air core, iron core, ferrite core, choking inductors (Coil), frequency response of an inductor.

Method of measurement of inductances: using universal bridges design and fabrication rules.

**CAPACITORS** : General information : symbol, colour code, types of capacitors such as

Air, paper, Electrolytic, Mica, Tantalum Polystyrene, fixed and variable capacitors. Measurement of Capacitance: universal bridge. application areas.

**BATTERIES** : Dry Cells, Lead-Acid Accumulators, Nickel Cadmium cells, standard cells, principles, Specifications.

**FUSES** : Fast and Slow Fuses, Pilot Lamps.

**PCB** : Types of PCB, layout techniques, cables and connectors for PCB

**UNIT-2 TRANSFORMERS**: General information- principle, types of transformer such as single phase, auto mains and isolation transformers. Frequency dependence of transformer theory. (Audio, IF and RF), Design of mains transformers and CVT.

**RELAYS** : General information: symbol, types of relays, such as reed electromagnets. Specifications, rating, application areas.

**MICROPHONES AND LOUDSPEAKERS** : General information: frequency response, input and output Impedance, power rating, directionality (omni and uni-directional). Application areas.

**TRANSDUCERS** : Commonly used transducers, LDR., thermistors thermocouples, photodiodes, photo transistors, IR detectors LDR.

**UNIT-3 SWITCHES, CABLE AND CONNECTORS :** Spdl, dpdl, band switches, touch switches, thumpwheel switches, micro switches, specifications, application areas.

**NETWORK THEOREMS :** Kirchoffs current and voltage law, -maximurr. power transfer,

**THEOREMT :** bevenins theorem, norton's theorem, super position theorem.

**LCR AND WAVESHAPING CIRCLITS :** Serial and parallal response, idea of black Nix., qwivalent circuits. Idea of two terminal and two part network, eqi&alent cirowits. Integra-tion, differer lation using R.C. circuits, *chpping clampaig*.

**UNIT-4 NUMBER SYSTEMS :** Introduction to decimal bmiazy, octal floca decial, number system interconversions of decimals binary and BCD number. Binary arithmetic and Boolean algebr& Boolean axiom, D Morgan's theorms-statement vanfication and applications.

**LOGIC GATES :** Posifive and Negative logic, different logic gate, such as AND, OR NOT, NAI, NOF, EXOR, symbol and truth tables. Inverting a non-inverting suffers.

**LOGIC.FAMILIES :** TTL, ECL & CMOS parameters like power dissipation, speed, sup-ply requirements, logic level, fan in, fan out noise half addar, full addar, half subtulor.

**UNIT-5 COMBINATIONAL CIRCUITS :** Encioder-decoder sequenfial circuits, flip flops (As,K,,D,I,N,S) -shift, registers, counte% Semiconductors memory.



**PAPER - II**  
**ELECTRONIC DEVICES, COMPONENTS & ASSEMBLIES**  
**(paper code - 0810)**

**UNIT-1 INTRODUCTION- TO SEMI CONDUCTORS**

**ENERGY BAND DIAGRAM:** conductors, semiconductor, insulation, intrinsic and extrinsic semiconductors (P.N. type), diffused junctions, depletion layer, barrier potential.

**JUNCTION DIODES :** Rectifying diode, forward and reverse bias characteristics, switching diode, varactor diode, photo diode. light emitting diode, IR sources and detector optical isolators, Zener diode, Tunnel diode, tunnel diode.

**BIPOLAR JUNCTION TRANSISTORS :** Basic working principle (qualitative), characteristics, Basic configurations and biasing. Operating point, load line, biasing for stabilization of operating point.

**UNIT-2 JFET & MOSFET:** Basic working principle (qualitative), characteristics  
Pinch-off voltage,

**UNI JUNCTION TRANSISTORS :** Basic working principle (qualitative), characteristics applications, as a switch.

**POWER CONTROL DEVICES :** Four layer diode (PNPN), Silicon controlled rectifier

(SCR) triac, diac, principle & characteristics.

**AMPLIFIERS :** Different terms used in amplifiers, such as signal source, input output, voltage and current gain power gain, - decibel, input and output impedance.

Classification according to the frequency response, RC coupled, class A common emitter Amplifier, Introduction to the class & operation

**FEED BACK IN AMPLIFIER :** Effect of negative feedback on amplifier performance.

**UNIT-3 POWER AMPLIFIER :** Transformer coupled equivalent circuit only in brief, class A, class B. class AB and class C the constant power hyperbola, the AC load line input and output considerations, determination of Non-linear distortion.

**PUSH-PULL AMPLIFIERS :** Phase splitter circuits, complementary push-pull, thermal runaway, Heat sinks.

Class B and C resonant load amplifiers, graphical class C analysis, **resonant** load requirements.

**OPERATIONAL AMPLIFIER :**

Basic, idea of an OPAMP with black box concept inverting and noninverting inputs, virtual ground

Parameters such as input impedance, output impedance, open loop gain, measurements of parameters.

Qualitative description of OPAMP as inverting and non inverting amplifier, summing and difference amplifier, comparator and linear integrators, instrumentation amplifier.

**UNIT-4 OSCILLATORS :** Positive feedback, Barkhausen criteria, phase shift oscillators, Wein bridge oscillators Tuned oscillators, Hartley, Colpitts-oscillators, crystal oscillator.

**POWER SUPPLIES :** Regulated power supply, Zener regulated power supply series and shunt regulated power supply, block diagram of IC 723, regulated supply of IC 723.

Three terminal ICs power supply. Study of power supply. w.r. to variation of load and input voltage.

**SWITCHED MODE POWER SUPPLY :** Design principle, and application. **IC 555 :** Operations and applications.

**UNIT-5 MODULATION :** AM and FM : Principles, modulation, index, modulation, bandwidth, balanced modulator,

**DEMODULATION :** Am and Fm detectors diode detectors, ratio detector, balanced de-modulator'.

Introduction to communication systems, basic principles and operation of communication system.

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)

Session 2019-20

June 2019 onwards

Class: B.Sc. Electronics

## Scheme of Examination

Paper Code	Course Opted	Title of Course	Theory	Practical	Grand Total	Minimum Passing Marks
First Year						
ELB-101	Core Course	Network Analysis And Analog Electronics	50		100	33
ELB-102	Core Course	Linear and Digital Integrated Circuits	50			
ELB-103P	Core Course Practical/Tutorial	Networks Analysis and Analog Electronics Lab	25	50	50	17
ELB-104P	Core Course Practical/Tutorial	Linear and Digital Integrated Circuits Lab	25			
Second Year						
ELB-201	Core Course	Communication Electronics	50		100	33
ELB-202	Core Course	Microprocessor and Microcontrollers	50			
ELB-203P	Course Practical/Tutorial	Communication Electronics Lab	25	50	50	17
ELB-204P	Course Practical/Tutorial	Microprocessor& Microcontroller Lab	25			
Third Year						
EL301	Skill Enhancement Course	Industrial Electronics	50		100	33
EL302	Skill Enhancement Course	Mobile Application Programming and Introduction to VHDL	50			
EL303P	Skill Enhancement CoursePractical	Industrial Electronics Lab	25	50	50	17
EL304P	Skill Enhancement Course Practical	Mobile Application Programming and Introduction to VHDL Lab	25			

# **B . S c . P a r t I**

## **ELECTRONICS**

### **Paper-I**

#### **ELB-101: NETWORK ANALYSIS AND ANALOG ELECTRONICS**

**Theory:**

**Maximum Marks 50**

#### **Unit-1**

**Basic Circuit Concepts:** Voltage and Current Sources, Review of Resistors, Inductors, Capacitors. Circuit Analysis: Kirchhoff's Current Law (KCL), Kirchhoff's Voltage Law (KVL),

**AC Circuit Analysis:** Sinusoidal Voltage and Current, Definition of Instantaneous, Peak, Peak to Peak, Root Mean Square and Average Values. AC applied to Series RC and RL circuits: Impedance of series RC & RL circuits. AC applied to Series and parallel RLC circuit, Series and Parallel Resonance, condition for Resonance, Resonant Frequency, Bandwidth, and significance of Quality Factor (Q).

**Passive Filters:** Low Pass, High Pass.

**Network Theorems:** Principal of Duality, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Reciprocity Theorem, Millman's Theorem, Maximum Power Transfer Theorem. AC circuit analysis using Network theorems.

#### **Unit-2**

**Junction Diode and its applications:** PN junction diode (Ideal and practical)-constructions, Formation of Depletion Layer, Diode Equation and I-V characteristics. Idea of static and dynamic resistance, dc load line analysis, Quiescent (Q) point. Zener diode, Reverse saturation current, Zener and avalanche breakdown. Rectifiers- Half wave rectifier, Full wave rectifiers (center tapped and bridge), circuit diagrams, working and waveforms, ripple factor and efficiency. Filter-Shunt capacitor filter, its role in power supply, output waveform, and working. Regulation- Line and load regulation, Zener diode as voltage regulator, and explanation for load and line regulation.

#### **Unit-3**

**Bipolar Junction Transistor:** CE, CB Characteristics and regions of operation, Transistor biasing, DC load line, operating point, thermal runaway, idea about stability and stability factor. Voltage divider bias, circuit diagrams and their working.

**Field Effect Transistors:** JFET, Construction, Working and Characteristics. MOSFET, Construction, Working and Characteristics.

**Power Devices:** UJT, Construction, Working and Characteristics. SCR, Diac, Triac, Construction, Working and Characteristics and Applications.

## Unit-4

**Amplifiers:** Transistor biasing and Stabilization circuits- Fixed Bias and Voltage Divider Bias. Thermal runaway, stability and stability factor  $S$ . Transistor as a two port network, h-parameter equivalent circuit. Small signal analysis of single stage CE amplifier. Input and Output impedance, Current and Voltage gains. Class A, B and C Amplifiers.

**Cascaded Amplifiers:** Two stage RC Coupled Amplifier and its Frequency Response.

## Unit-5

**Feedback in Amplifiers:** Concept of feedback, negative and positive feedback, advantages of negative feedback (Qualitative only).

**Sinusoidal Oscillators:** Barkhausen criterion for sustained oscillations. Phase shift, Wein bridge, Crystal and Colpitt's oscillator. Determination of Frequency and Condition of oscillation.

### Reference Books:

- [1] Electric Circuits, S. A. Nasar, Schaum's outline series, Tata McGraw Hill (2004)
- [2] Electrical Circuits, M. Nahvi & J. Edminister, Schaum's Outline Series, Tata McGraw-Hill (2005)
- [3] Electrical Circuits, K.A. Smith and R.E. Alley, 2014, Cambridge University Press
- [4] Network, Lines and Fields, J.D. Ryder, Prentice Hall of India.
- [5] Electronic Devices and Circuits, David A. Bell, 5<sup>th</sup> Edition 2015, Oxford University Press.
- [6] Electronic Circuits: Discrete and Integrated, D.L. Schilling and C. Belove, Tata McGraw Hill
- [7] Electrical Circuit Analysis, Mahadevan and Chitra, PHI Learning
- [8] Microelectronic circuits, A.S. Sedra, K.C. Smith, A.N. Chandorkar, 2014, 6<sup>th</sup> Edn., Oxford University Press.
- [9] J. Millman and C. C. Halkias, Integrated Electronics, Tata McGraw Hill (2001)
- [10] J. J. Cathey, 2000 Solved Problems in Electronics, Schaum's outline Series, Tata McGraw Hill (1991)

## Paper- II

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### ELB-102: LINEAR AND DIGITAL INTEGRATED CIRCUITS

**Theory:**

**Maximum Marks 50**

#### Unit-1

**Operational Amplifiers (Black box approach):** Characteristics of an Ideal and Practical Operational Amplifier (IC 741), Open and closed loop configuration, Frequency Response. CMRR. Slew Rate and concept of Virtual Ground.

**Applications of Op-Amps:** (1) Inverting and non-inverting amplifiers, (2) Summing and Difference Amplifier, (3) Differentiator, (4) Integrator, (5) Wein bridge oscillator, (6) Comparator and Zero-crossing detector, and (7) Active low pass and high pass, Butterworth filter (1<sup>st</sup> order only).

#### Unit-2

**Number System and Codes:** Decimal, Binary, Octal and Hexadecimal number systems base conversions. Representation of signed and unsigned numbers, BCD code. Binary, octal and hexadecimal arithmetic; addition, subtraction by 2's complement method, multiplication.

**Logic Gates and Boolean algebra:** Truth Tables of OR, AND, NOT, NOR, NAND, XOR, XNOR, Universal Gates, Basic postulates and fundamental theorems of Boolean algebra.

#### Unit-3

**Combinational Logic Analysis and Design:** Standard representation of logic functions (SOP and POS), Minimization Techniques (Karnaugh map minimization up to 4 variables for SOP). Arithmetic Circuits: Binary Addition. Half and Full Adder. Half and Full Subtractor, 4-bit binary Adder/Subtractor.

**Data processing circuits:** Multiplexers, De-multiplexers, Decoders, Encoders. Clock and Timer (IC 555): Introduction, Block diagram of IC 555, Astable and Monostable multivibrator circuits.

#### Unit-4

**Sequential Circuits:** SR, D, and JK Flip-Flops. Clocked (Level and Edge Triggered) Flip-Flops. Preset and Clear operations. Race-around conditions in JK Flip-Flop. Master-slave JK Flip-Flop.

**Shift registers:** Serial-in-Serial-out, Serial-in-Parallel-out, Parallel-in-Serial-out and Parallel-in-Parallel-out Shift Registers (only up to 4 bits).

**Counters (4 bits):** Ring Counter. Asynchronous counters, Decade Counter Synchronous Counter.

## Unit-5

D-A and A-D Conversion: 4 bit binary weighted and R-2R D-A converters, circuit and working, Accuracy and Resolution. A-D conversion characteristics, successive approximation ADC. (Mention of relevant ICs for all).

### Reference Books:

- [1] OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4th edition, 2000, Prentice Hall
  - [2] Operational Amplifiers and Linear ICs, David A. Bell, 3rd Edition, 2011, Oxford University Press.
  - [3] Digital Principles and Applications, A.P. Malvino, D.P. Leach and Saha, 7th Ed., 2011, Tata McGraw
  - [4] Fundamentals of Digital Circuits, Anand Kumar, 2nd Edn, 2009, PHI Learning Pvt. Ltd.
  - [5] Digital Circuits and systems, Venugopal, 2011, Tata McGraw Hill.
  - [6] Digital Systems: Principles & Applications, R.J. Tocci, N.S. Widmer, 2001, PHI Learning.
  - [7] Thomas L. Floyd, Digital Fundamentals, Pearson Education Asia (1994)
  - [8] R. L. Tokheim, Digital Principles, Schaum's Outline Series, Tata McGraw- Hill (1994)
-

**ELECTRONICS LABORATORY**  
**ELB 103P: NETWORK ANALYSIS AND ANALOG ELECTRONICS LAB**  
(Hardware and Circuit Simulation Software) **Max.Marks:25**

*The scheme of practical examination will be as follows-*

<b>Experiment</b>	<b>--</b>	<b>30</b>
<b>Viva</b>	<b>--</b>	<b>10</b>
<b>Sessional</b>	<b>--</b>	<b>10</b>
<b>Total</b>	<b>--</b>	<b>50</b>

***AT LEAST 06 EXPERIMENTS FROM THE FOLLOWING BESIDES #1***

1. To familiarize with basic electronic components (R, C, L, diodes, transistors), digital Multimeter, Function Generator and Oscilloscope.
2. Measurement of Amplitude, Frequency & Phase difference using Oscilloscope.
3. Verification of (a) Thevenin's theorem and (b) Norton's theorem.
4. Verification of (a) Superposition Theorem and (b) Reciprocity Theorem.
5. Verification of the Maximum Power Transfer Theorem.
6. Study of the I-V Characteristics of (a) p-n junction Diode, and (b) Zener diode.
7. Study of (a) Half wave rectifier and (b) Full wave rectifier (FWR).
8. Study the effect of (a) C- filter and (b) Zener regulator on the output of FWR.
9. Study of the I-V Characteristics of UJT and design relaxation oscillator..
10. Study of the output and transfer I-V characteristics of common source JFET.
11. Study of Fixed Bias and Voltage divider bias configuration for CE transistor.
12. Design of a Single Stage CE amplifier of given gain.
13. Study of the RC Phase Shift Oscillator.
14. Study the Colpitt's oscillator.

**Reference Books:**

1. Electrical Circuits, M. Nahvi and J. Edminister, Schaum's Outline Series, Tata McGraw-Hill (2005)
2. Networks, Lines and Fields, J.D.Ryder, Prentice Hall of India.
3. J. Millman and C. C. Halkias, Integrated Electronics, Tata McGraw Hill (2001)
4. Allen Mottershead, Electronic Devices and Circuits, Goodyear Publishing Corporation.



**ELECTRONICS LAB**  
**ELB 104P: LINEAR AND DIGITAL INTEGRATED CIRCUITS LAB**  
**Max.Marks:25**

At least 04 experiments each from section A, B and C

***Section-A: Op-Amp. Circuits (Hardware)***

1. To design an inverting amplifier using Op-amp (741,351) for dc voltage of given gain
2. (a) To design inverting amplifier using Op-amp (741,351) & study its frequency response  
(b) To design non-inverting amplifier using Op-amp (741,351) & study frequency response
3. (a) To add two dc voltages using Op-amp in inverting and non-inverting mode  
(b) To study the zero-crossing detector and comparator.
4. To design a precision Differential amplifier of given I/O specification using Op-amp.
5. To investigate the use of an op-amp as an Integrator.
6. To investigate the use of an op-amp as a Differentiator.
7. To design a Wien bridge oscillator for given frequency using an op-amp.
8. To design a circuit to simulate the solution of simultaneous equation and 1<sup>st</sup>/2<sup>nd</sup> order differential equation.
9. Design a Butterworth Low Pass active Filter (1<sup>st</sup> order) & study Frequency Response
10. Design a Butterworth High Pass active Filter (1<sup>st</sup> order) & study Frequency Response
11. Design a digital to analog converter (DAC) of given specifications.

***Section-B: Digital circuits (Hardware)***

1. (a) To design a combinational logic system for a specified Truth Table.  
(b) To convert Boolean expression into logic circuit & design it using logic gate ICs.  
(c) To minimize a given logic circuit.
2. Half Adder and Full Adder.
3. Half Subtractor and Full Subtractor.
4. 4 bit binary adder and adder-subtractor using Full adder IC.
5. To design a seven segment decoder.
6. To design an Astable Multivibrator of given specification using IC 555 Timer.
7. To design a Monostable Multivibrator of given specification using IC 555 Timer.
8. To build Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates.
9. To build JK Master-slave flip-flop using Flip-Flop ICs
10. To build a Counter using D-type/JK Flip-Flop ICs and study timing diagram.
11. To make a Shift Register (serial-in and serial-out) using D-type/JK Flip-Flop ICs.

**Section-C: SPICE/MULTISIM simulations for electronic circuits and devices**

1. To verify the Thevenin and Norton Theorems.
2. Design and analyze the series and parallel LCR circuits
3. Design the inverting and non-inverting amplifier using an Op-Amp of given gain
4. Design and Verification of op-amp as integrator and differentiator
5. Design the 1<sup>st</sup> order active low pass and high pass filters of given cutoff frequency
6. Design a Wein's Bridge oscillator of given frequency.
7. Design clocked SR and JK Flip-Flop's using NAND Gates
8. Design 4-bit asynchronous counter using Flip-Flop ICs
9. Design the CE amplifier of a given gain and its frequency response.

### **Reference Books**

1. Digital Principles and Applications, A.P. Malvino, D.P. Leach and Saha, 7th Ed., 2011, Tata McGraw
  2. OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4<sup>th</sup> edn., 2000, Prentice Hall
  3. R. L. Tokheim, Digital Principles, Schaum's Outline Series, Tata McGraw- Hill (1994)
  4. Digital Electronics, S.K. Mandal, 2010, 1<sup>st</sup> edition, McGraw Hill
-



**B.Sc. Part-I**  
**INFORMATION TECHNOLOGY**  
**PAPER-I**  
**FUNDAMENTAL OF IT, COMPUTER AND PC SOFTWARE**  
**(PAPER CODE-0824)**

**NOTE : The Question paper setter is advised to prepare unit wise question with the provision of internal choice**

**MAX MARKS : 50**

**UNIT-I INFORMATION TECHNOLOGY**

Concept of IT and information system, Application of IT (In Business, Education Medicine Science Governance and Agriculture) Impact of IT on society E and industry, Legal and Ethical aspect of IT, Security and Threats in IT, M-Commerce, Virtual reality, latest trend in IT, future of IT.

**UNIT-II COMPUTER NETWORK**

**BASIC CONCEPT OF COMPUTER NETWORK** Internet concept LAN, MAN, WAN Topology, Protocol, Transmission mode Communication Process Required element of data communication.

**WIRELESS COMMUNICATION** Mobile Internet GPS, 3G, 4G Wi-Fi Bluetooth infrared radio frequency microwave.

**SOCIAL NETWORK** Evolutions of social network site (YouTube, Facebook, LinkedIn Twitter) Advantages and Disadvantage of social networking sites.

**UNIT-III MS WORD**

Introduction word processing (MS-Word) Advantage of word processing, Introduction and Installation Editing a file using paragraph styles, Newspaper style columns using macros advanced word processing, Headers and Footers, Finding text setting up printer Mail merge and other applications, mathematical calculator, table handling.

**UNIT-IV MS-EXCEL**

Introduction to spreadsheets (MS-EXCEL), Definition and advantage of electronics worksheet, Working on spread sheets range and related operations, Setting saving and retrieving worksheets Inserting, Deleting, Copying and Moving of data cells, Inserting and deleting rows and column, protecting Cells Printing a worksheet, erasing a worksheet in Graphs creations, Type of graphs, Creating a chart sheet 3D, Columns charts, Moving and changing the size of chart, Printing the chart.

**UNIT-V MS POWERPOINT AND MS ACCESS**

**MS-POWERPOINT:** Presenting with Power point: Creating presentation working with slides, Different type of slides, Settings page layout, Selecting background and applying designs, Adding graphics to slide, Adding sound and movie, Creating chart and graph, Playing a slide show, slide transition, Advancing slide, Setting time, Rehashing timing, Animating slide, Animating objects, Running the show from window.

**MS ACCESS:** Creating table in access define data type Manipulating records.

The image shows four handwritten signatures and dates at the bottom of the page. From left to right: 1. A signature that appears to be 'S. Sharma' with the date '19/10/19' below it. 2. A signature that appears to be 'M. Singh' with the date '19/10/19' below it. 3. A signature that appears to be 'K. Dubey' with the date '19/10/19' below it. 4. A signature that appears to be 'P. Singh' with the date '19/10/19' below it.

## TEXTBOOKS

1. Computer fundamental R.K.Sinha BPB Publication Sixth edition.
2. Introduction to Information Technology V Raja Raman PHI Second Edition.
3. Computer Networks Forouzan Tata McGraw Hill Second Edition.
4. Microsoft Office 2007 fundamentals L Story D walls.
5. MS Office, S.S.Srivastava Firewall media.

  
The image shows four handwritten signatures and dates, likely representing approvals or endorsements. From left to right: 1. A signature that appears to be 'S. S. Srivastava' with the date '19/01/19'. 2. A signature that appears to be 'V. Raja Raman' with the date '19/01/19'. 3. A signature that appears to be 'R. K. Sinha' with the date '19/01/19'. 4. A signature that appears to be 'L. Story' with the date '19/01/19'.

**B. SC. PART - I**  
**INFORMATION TECHNOLOGY**  
**PAPER - II**  
**PRAMMING IN C LANGUAGE**

**MAX MARKS - 50**

**Note :-** The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

**UNIT-I**

**Fundamentals of C Programming** - Overview of C: History of 'C', Structure of 'C' program. Keywords, Tokens, Datatypes, Constants, Literals and Variables, Operators and Expressions : Arithmetic operators, Relational operator, Logical operators, Expressions, Operator: operator precedence and associativity, Typecasting, Console I/O formatting, Unformatted I/O functions: getch(), getchar(), getche(), getc(), putc(), putchar().

**UNIT-II**

**Control Constructs** : If-else, conditional operators, switch and break, nested conditional branching statements, loops: do...While, while, for, Nested loops, break and continue, goto and label, exit function. **Functions**:-definition, function components: Function arguments, return value, function call statement, function prototype. Type of function Scope and lifetime of variable. Call by value and call by reference. Function using arrays, function with command line argument. User defined function: Maths and character functions, Recursive function.

**UNIT-III**

**Arrays, Strings and Functions: Array**:-Array declaration, One and Two dimensional numeric and character arrays. Multidimensional arrays.

**String**:-String declaration, initialization and string manipulation with/without using library function.

**Structure, Union & Enum- Structure**: basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union**: basics, declaring union and union variable. **Enum** : declaring enum and enum variable.

**UNIT-IV**

**Pointers**: Definition of pointers, pointer declaration, using & and \* operators. Void pointer, pointer to pointer, Pointer in math expression, Pointer arithmetic, pointer comparison, dynamic memory allocation functions—malloc, calloc, realloc and free, pointers vs Array, Arrays of pointer, Pointer to array, Pointers to function, function returning pointer, passing function as argument to function, Pointer to structure, Dynamic array of structure through pointer to structure.

**UNIT-V**

**File Handling and Miscellaneous Features**- File handling: file pointer, file accessing functions, fopen, fclose, fputc, fgetc, fprintf, fscanf, fread, fwrite, eof, fflush, rewind, fseek, ferror. File handling through command line argument. Introduction to C preprocessor #include, #define, Conditional compilation directives: #if, #else, #elif, #endif, #ifndef etc.

**TEXTBOOKS**

1. Programming in ANSI C. E. Balagurusamy c Tata McGraw-Hill third edition.
2. Let Us C, Yashwant Kanetkar Infiniti science Press, Eighth edition.
3. Mastering C, K.R. Venugopal Tata McGraw-Hill.
4. The C Programming Language, Brian W. Kernighan, Dennis, M Ritchie, Prentice Hall Second Edition.
5. Application programming in ANSI C, R. Johnsonbaugh, Martins Kalin, Macmillan Second Edition.
6. The Spirite of C Mullish Cooper, Jaico Publishing House.
7. How to solve it by computer, R.G. Dromey person edition.

The bottom of the page contains several handwritten signatures and dates. From left to right, there is a signature 'S. Sharma' dated '19/10/19', a signature 'P. K.' dated '19/10/19', a signature 'M. J.' dated '19/10/19', a signature 'K. S.' dated '19/10/19', and a signature 'P. S.' dated '19/10/19'.

## INDUSTRIAL MICROBIOLOGY

Paper	Title	Time	Marks
First	General Microbiology, Tools and Techniques	3 hrs.	50
Second	Molecular Biology, Biochemistry and Microbial Genetics	3 hrs.	50
	PRACTICAL (including sessionals)	4 hrs.	50 (40+10)

### PAPER -

#### GENERAL MICROBIOLOGY, TOOLS AND TECHNIQUES

M.M.50

#### I (paper code - 0826)

- UNIT-1** History and development of Industrial Microbiology. Contributions of Antony van Leeuwenhoek, Louis Pasteur, Robert Koch, Edward Jenner, Waksman, Alexander Fleming.
- UNIT-2** General characteristics and structure of Bacteria, Cyanobacteria, Fungi, Actinomycetes, Mycoplasmas, Viruses.
- UNIT-3** Microscopy - Invention of Microscope, Compound microscope, Dark field, Fluorescent, Phase contrast and Electron microscope.
- UNIT-4** Method of sterilization, culture media and isolation techniques. Methods of preservation of microbial cultures.
- UNIT-5** Basic principles and usage - pH meter, Densitometer, Colorimeter, Spectrophotometry, Fluorimetry, Centrifugation - Principles and applications. Usage of Fermentation.

### PRACTICALS

The Practical works will, in general be based on the prescribed syllabus in theory and the candidates will be required to show the knowledge of the following :

1. Preparation of media, autoclaving and sterilization of glassware.
2. Isolation of Phytopathogens.
3. Isolation of Microorganisms from soil and water : Bacteria, Fungi, and Algae.
4. Purification of microbial cultures.
5. Camera Lucida Drawing.
6. Standard Plate count.
7. Hemacytometer.
8. Chromatographic techniques : Separation of amino acids by paper and thin layer chromatography.
9. Measurement of pH of fruit juice.
10. Estimation of carbohydrate by colorimeter.

#### BOOK RECOMMENDED :

1. General Microbiology, Vol. II by Power and Daganawala.
2. Microbiology by Pelczar, Reid and Chan.
3. General Microbiology by Davis and Harper.
4. A Treatise on Media and Methods Used in Bacteriological Techniques by V. Iswaran.
5. Introductory Mycology by C.J. Alexopoulos & Mims.
6. Microbiology by P.D. Sharma.

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DAG 29/7/12

**PAPER - II**  
**MOLECULAR BIOLOGY, BIOCHEMISTRY AND MICROBIAL GENETICS**  
**(paper code - 0827)**

**M.M. 50**

- UNIT-1** Nucleic Acids - Structure of DNA and RNA(s), Replication of DNA, Synthesis of RNAs and their types, Genetic code, Concept of genes.
- UNIT-2** Molecular Biology - Translation and Protein Synthesis, Operon Concept, CAMP CAP (Catabolic activator protein), Gene expression in Prokaryotes, Lac-Operon. Gene regulation in Eukaryotes (Britton-Davison Model of Gene Expression).
- UNIT-3** Genetic recombination in Bacteria - Transformation, Transduction and conjugation, Genetic Mapping, Extrachromosomal genetic material, Plasmids, Cosmids, Transposons, Overlapping genes, Silent genes and their evolutionary significance. Mutation -Molecular mechanism of mutation, Chemical and Physical Mutagens, Repair of Mutation Damage.
- UNIT-4** Biochemistry - Classification of carbohydrates, Chemical structure and property of starch, Cellulose, Glycogen, Synthesis of Purines & Pyrimidine. Lipids - Saturated and unsaturated fatty acids, Biosynthesis of fatty acids, Distribution and functions of lipids in microorganisms, Degradation of lipids by  $\alpha$ -oxidation and  $\omega$ -oxidation, Lipid peroxidation.
- UNIT-5** Enzymes - Classification. Co-enzymes, Cofactors, Mechanism of enzyme action, Competitive and non-competitive inhibition. Allosteric regulations of enzymes, isoenzymes, factors contributing to catalytic efficiency of enzymes.

Amino acids - Classification of essential amino acids based on polarity. Acid-base properties and solubilities. Amino acid sequencing of proteins; Primary, Secondary and Tertiary structure.

**PRACTICAL**

The Practical work will, in general, be based on the syllabus prescribed in theory and the candidates will be required to show the knowledge of the following -

1. Isolation of antibiotic resistant bacteria.
2. Estimation of alkaline phosphatase activity.
3. Measurement of  $\alpha$ -amylase activity in extra-cellular fraction of microbial cultures.
4. Estimation of glycogen in bacterial cells.
5. Measurement of cellulase activity by Viscometric technique.
6. Determination of cellulase and amylase activity by reducing sugar assay test.
7. Isolation of DNA.

  
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**BOOK RECOMMENDED :**

1. General Microbiology, Vol. 1 by Power & Dagainawala.
2. Bicrobial Biochemistry by Moat.
3. Principles of Biochemistry by Lehninger.
4. Outline of Biochemistry by Cohn and Stumph.
5. Biochemistry by Harper.
6. Text book of Biochemistry by Rama Rao.
7. Text book of Biochemistry by O.P. Agrawal.

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*PAJ*  
21/7/12

*Devan*  
29/7/12

**BIO CHEMISTRY**  
**PAPER-I**  
**BIOMOLECULES**  
**(paper code - 0832)**

**M.M. 50**

**UNIT-I**

Introduction to Biochemistry, water as a biological solvent, weak acids and bases, pH, buffers, Henderson-Hasselbalch equation, physiological buffers, fitness of the aqueous environment for living organisms.

**CARBOHYDRATES**

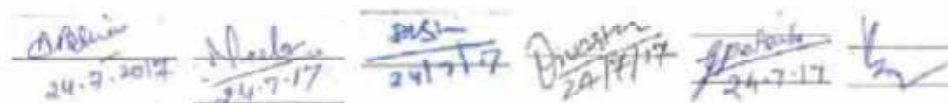
Structure of monosaccharides. Stereoisomerism and optical isomerism of sugars.

Reactions of aldehyde and ketone groups. Ring structure and anomeric forms, mutarotation. Reactions of sugar due to hydroxyl groups. Important derivatives of monosaccharides, disaccharides and trisaccharides (structure, occurrence and functions of important ones). Structure occurrence and biological importance of monosaccharides, oligosaccharides and polysaccharides e.g. Cellulose, Chitin, agar, algenic acids, pectins, proteoglycans, sialic acids, blood group polysaccharides, glycogen and starch. Bacterial cell wall polysaccharides etc. Glycoproteins.

**UNIT-II Lipids**

Definition and classification. Fatty acids : introduction, classification, nomenclature, structure and properties of saturated and unsaturated fatty acids. Essential fatty acids, prostaglandins. Triacylglycerols: nomenclature, physical properties. chemical properties and characterization of fats - hydrolysis, saponification value, rancidity of fats,

Reichert-Meissel number and reaction of glycerol. Biological significance of fats. Glycerophospholipids (lecithins, lysolecithins, cephalins, phosphatidyl serine, phos-phatidyl inositol, plasmalogens), sphingomyelins, glycolipids - cerebroside, ganglio-side. Properties and functions of phospholipids, isoprenoids and sterols.

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### UNIT-III Proteins

Introduction, classification based on solubility, shape, composition and functions.

Aminoacids: common structural features, stereo-isomerism and RS system of designating optical isomers, classification and chemical properties, titration of amino acids, separation of amino acids. Essential amino acids.

Peptides: structure of peptide bond, chemical synthesis of polypeptides - protection and deprotection of N-terminal, and C-terminal ends and functional groups in the side-chains, formation of peptide bonds, condensing agents, strategy of chemical synthesis, Merrifield solid-phase peptides synthesis. Determination of the amino acid sequence of a polypeptide chain, specific chemical and enzymatic cleavage of a polypeptide chains and separation of peptides. Protein structure: levels of structure in protein architecture, primary structure of proteins, secondary structure of proteins helix and pleated sheets, tertiary structure of proteins, forces stabilizing the tertiary structure and quaternary structure of proteins. Denaturation and renaturation of proteins. Behaviour of proteins in solutions, salting in and salting out of proteins.

Structure and biological functions of fibrous proteins (keratins, collagen and elastin), glooular proteins (hemoglobin, myoglobin), lipoproteins, metalloproteins, glycoproteins and nucleoproteins.

**UNIT-IV** Nature of genetic material: evidence that DNA is the genetic material, Composition of RNA and DNA, generalized structural plan of nucleic acids, nomenclature used in writing structure of nucleic acids, features of DNA double helix. Denaturation and annealing of DNA, structure and roles of different types of RNA Size of DNA in procaryotic and eucaryotic cells, central dogma of molecular biology, Gene, Genome, chromosome.

### UNIT-V Porphyrins

Porphyrins: Porphyrin nucleus and classification of porphyrins. important Metalloporphyrins occurring in nature. Detection of porphyrins spectrophotometrically and by fluo-res-cence. Bile pigments - chemical nature and their physiological significance.

*Dr. Arjun*  
24.7.2017

*Dr. Arjun*  
24.7.17

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*Dr. Arjun*  
24.7.17

## PAPER - II

(paper code - 0833)

### BIOPHYSICAL AND BIOCHEMICAL TECHNIQUES

M.M. 50

#### UNIT-I Concepts of Bioenergetics

Principles of thermodynamics and their applications in biochemistry - introduction, thermodynamic system, thermodynamic state functions, first and second laws of thermodynamics, concept of free energy, standard free energy, determination of  $\Delta G$  for a reaction, relation between equilibrium constant and standard free energy change, biological standard state and standard free energy change in coupled reactions.

Biological oxidation-reduction reactions - introduction, redox potentials, relation between standard reduction potentials and free energy change (derivations and numericals included). High-energy phosphate compounds - introduction, phosphate  $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^{14}\text{C}$  and  $^3\text{H}$  group transfers-free energy of hydrolysis of ATP and sugar phosphates along with reasons for high  $\Delta G$ .

#### UNIT-II Hydrodynamic Methods

Sedimentation - sedimentation velocity, preparative and analytical ultracentrifugation techniques. determination of molecular weight by hydrodynamic methods (derivations excluded and numericals included).

##### Measurement of pH

Principles of glass and reference electrodes, types of electrodes, complications of pH measurement (dependence of pH on ionic strength, electrode contamination and sodium error) and use of pH paper.

#### UNIT-III Radioisotopic Techniques

Types of radioisotopes used in Biochemistry, units of radioactivity measurements, techniques used to measure radioactivity (gas ionization and liquid scintillation counting), nuclear emulsions used in biological studies (pre-mounted, liquid and stripping), isotopes commonly used in biochemical studies-Autoradiography. Biological hazards of radiation and safety measures in handling radioisotopes. Biological application.

#### UNIT-IV Chromatography

General principles and applications of :

1. Adsorption chromatography
2. Ion-exchange chromatography
3. Thin-layer chromatography
4. Molecular-sieve chromatography
5. Hydrophobic chromatography
6. Gas-liquid chromatography
7. HPLC
8. Affinity chromatography
9. Paper chromatography

*Dr. Arun* 24.7.2017 *Dr. Arun* 24.7.17 *Dr. Arun* 24.7.17 *Dr. Arun* 24.7.17 *Dr. Arun* 24.7.17 *Dr. Arun* 24.7.17

### **Electrophoresis**

Basic principles of agarose electrophoresis, PAGE and SDS-PAGE, Two-dimensional electrophoresis, its importance. Isoelectrofocussing.

### **UNIT-V Spectroscopic Techniques**

Beer-Lambert law, light absorption and its transmittance, determination and application of extinction coefficient, application of visible and UV spectroscopic techniques (structure elucidation and numericals excluded). Principle and application of NMR, ESR, Mass spectroscopy. Fluorescent and emission spectroscopy.

### **Immunological Techniques**

Immunodiffusion, immunoelectrophoresis, radioimmunoassay, ELISA, immunofluorescence.

### **PRACTICAL**

**M.M. 50**

1. Preparation of standard buffers and determination of pH of a solution.
2. Qualitative tests for :
  - a. Carbohydrates
  - b. Proteins and amino acids
  - c. Lipids
3. Determination of saponification value and iodine number of fats.
4. Estimation of ascorbic acid.
5. Titration curve for amino acids and determination of pK value;
6. Verification of Beer-Lambert's law.
7. Estimation of
  - i) Carbohydrate by anthrone method.
  - ii) Blood glucose by the methods (a) Folin-Wu, (b) Nelson-Somogyi
8. Estimation of amino acids by ninhydrin method.
9. Isolation and assay of glycogen from rat liver.
10.
  - i) Extraction of total lipids by Folch method
  - ii) Estimations of food adulterant.
11. Estimation of DNA and RNA.
12. Separation of sugars using paper chromatography.



# **Syllabus of Biotechnology**

**(B. Sc. I Year)**

**Session**

**2019-2020**

**2020-2021**

  
10.6.19 10.6.19 10/6/19 10.6.19

**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

**B.Sc.-I**

**BIOTECHNOLOGY**

**PAPER – I**

**BIOCHEMISTRY, BIOSTATISTICS AND COMPUTERS**

**UNIT-I**

1. Introduction to Biochemistry: History, Scope and Development.
2. Carbohydrates: Classification, Structure and Function of Mono, Oligo and Polysaccharides.
3. Lipids: Structure, Classification and Function.

**UNIT –II**

1. Amino acids and Proteins: Classification, Structure and Properties of amino acids, Types of Proteins and their Classification and Function.
2. Enzymes: Nomenclature and Classification of enzyme, Mechanism of enzyme action, Enzyme Kinetics and Factors affecting the enzymes action. Immobilization of enzyme and their application.

**UNIT –III**

1. Hormones: Plant Hormone-Auxin and Gibberellins and Animal Hormone-Pancreas and Thyroid.
2. Carbohydrates, Proteins and Lipid Metabolism - Glycolysis, Glycogenesis, Glyconeogenesis, Glycogenolysis and Krebs cycle. Electron Transport Chain and  $\beta$ -oxidation of Fatty acids.

**UNIT-IV**

1. Scope of Biostatistics, Samples and Population concept, Collection of data-sampling techniques, Processing and Presentation of data.
2. Measures of Central Tendency: Mean, Median and Mode and Standard Deviation.
3. Probability Calculation: Definition of probability, Theorem on total and compound probability.

**UNIT-V**

1. Computers - General introduction, Organization of computer, Digital and Analogue Computers and Computer Algorithm.
2. Concept of Hardware and Software, Input and Output Devices.
3. Application of computer in co-ordination of solute concentration, pH and Temperature etc., of a Fermenter in operation and Internet application.



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## List of Books

1. Nelson and Cox (2005) Principles of Biochemistry, Fourth Edition
2. Todd and Howards Mason (2004) Text book of Biochemistry, Fourth Edition
3. Lubert Stryer and Berg ((2004) Biochemistry, Fifth Edition
4. Diana Rain, Marni Ayers Barby - (2006) Textbook on Q level Programming. 4th Edition.
5. Karl Schwartz: (2006) Guide of Micro Soft. Marina Raod, 4th Edition.
6. E Balaguruswamy by Programming in BASIC (1991).
7. RC Campbell by Statistics for Biologists. .
8. P Cassel et al by Inside Microsoft Office,
9. Statistical Methods, GW Snedecor and WG Cochran.
10. AC Wardlaw by Practical Statistics for Experimental Biologists,
11. JHZar by Bio-statistical analysis
12. RR Sokal FJ Rohlf by Introduction to Biostatistics
13. L Y Kun (2003) Microbial Biotechnology: Principles and applications
14. Khan and Khanum (1994) Fundamental of Biostastics

  
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**B.Sc.-I**  
**BIOTECHNOLOGY**  
**PAPER-II**  
**CELL BIOLOGY, GENETICS AND MICROBIOLOGY**

**UNIT-I**

1. Concept of life, Cell as a basic unit of living system and Cell theory.
2. Diversity of Cell shape and size.
3. Prokaryotic cell structure: Function and ultra structure of cell (Gram positive and Gram negative Bacteria), Plasma membrane, Flagella, Pilli, Endospore and Capsule.
4. Eukaryotic cell: Plant cell wall and Plasma membrane.

**UNIT-II**

1. Cytoplasm: Structure and Functions of Endoplasmic reticulum, Ribosome, Golgi complex, Lysosomes, Nucleus, Mitochondria and Chloroplast.
2. Cytoskeleton: Microtubules, Microfilaments and Intermediate filaments.
3. Cell division: Mitosis and Meiosis.
4. Programmed Cell Death.

**UNIT-III**

1. Mendel's Laws of Inheritance.
2. Linkage and Crossing over.
3. Chromosome variation in number and structure: Deletion, Duplication, Translocation, Inversion and Aneuploidy, Euploidy (Monoploidy and Polyploidy and its importance).

**UNIT-IV**

1. History, Scope and Development of Microbiology.
2. Basic techniques of Microbial Culture
3. Microbial Growth & Nutrition of Bacteria: Isolation, media sterilization- physical and chemical agents, pure culture-pour plate method, streak plate method and spread plate method.
4. General features and Economic importance of Fungi, Algae and Protozoa etc.

**UNIT-V**

1. Bacterial Reproduction: Conjugation, Transduction and Transformation.
2. Mycoplasma – History, Classification, Structure reproduction & Diseases.
3. Viruses – Basic features, Structure, Classification, Multiplication, Bacteriophages (Morphology, life cycle, infection and medicinal importance)



## List of Books

1. C.B. Power- Cell biology, First Edition (2005), Himalaya Publishing House.
2. Gereld Karp - Dell and molecular biology, 4th Edition (2005)
3. P.K. Gupta - Cell and molecular biology, Second Edition (2003), Restogi publications.
4. C.B., Oowar - Cell biology, Third Edition (2005) Himalaya Publishing Hosue.
5. S.S. Purohit - Microbiology : Fundamentals and Applications, 6th Edition (2004)
6. R.C. Dubey and D.K. Maheshwari: Practical Microbiology. S.Chand Publication.
7. R.C. Dubey and D.K. Maheshwari, Microbiology (2006). S.Chand Publication.
8. Tortora, Funke and Case - Microbiology, An introduction, sixth Edition (1995), Benjamin/Cummings Publishing Company.
9. Prescott, Harlyey and Klein - Microbiology, Third Edition, Wm. C. Brown Publishers (1996).
10. P. Chakraoborthy - Textbook of microbiology, Second Edition (2007).
11. Prescott, Harley and Klein - Microbiology. Third Edition. Wm. C. Brown.
12. Microbial Genetics, David Freifelder, John F Cronan, Stanley R Maloy, Jones and Bartlett Publishers.
13. Elements of Human Genetics. I.I. cavalla-Sfoeza, WA Benjamin Advanced Book Program.
14. S.K Jadhav and P.K. Mahish (2018) Prayogtmak Jaivprodyogiki awam Sukshmjjivigyan- Chhattisgarh Hindi Granth Academy, Raipur.

  
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## **List of Practical's**

### **MICROBIOLOGY AND BIOCHEMICAL TECHNIQUES**

- (1) Laboratory rules, Tools, Equipment and Other requirements in Microbiological laboratory.**
- (2) Micrometry – Use of ocular & stage Micrometer.**
- (3) Counting of bacteria by counting chamber, by plate count.**
- (4) Preparation of media and cultivation techniques:**
  - (a) Basic liquid media (broth)
  - (b) Basic Solid media, (agar slants and deep tubes)
  - (c) Demonstration of selective and differential media
  - (d) Isolation and enumeration of micro organisms
  - (e) Isolation from air and Soil
- (5) Smears and staining methods:**
  - (a) Preparation of bacterial smear
  - (b) Gram Negative & Positive staining
- (6) Methods of obtaining pure cultures**
  - (a) Streak plate method
  - (b) Pure plate method
  - (c) Spread plate method
  - (d) Broth cultures
- (7) Growth & Biochemical techniques**
  - (a) Determination of bacterial growth curve
  - (b) Amylase production test
  - (c) Cellulose production test
  - (d) Estimation of Sugar in given solution
  - (e) Extraction and separation of lipids
  - (f) Estimation of proteins
  - (h) Mitosis and Meiosis
- (8) Biostatistics:**
  - (a) By Manual and by computer.
  - (b) Problems on mean, mode and median.

  
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## SCHEME OF PRACTICAL EXAMINATION

**Time – 4 hrs.**

**M. M.: 50**

1. Experiment based on culture of micro-organisms	15 Marks
2. Bacterial growth/Staining techniques	10 Marks
3. Biochemical techniques	05 Marks
4. Bio statistics	05 Marks
5. Spotting	05 Marks
6. <i>Viva – Voce</i>	05 Marks
7. Record/Sessional	05 Marks

  
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# हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका दुर्ग (छ.ग.)-491001

ई मेल : [academic@durguniversity.ac.in](mailto:academic@durguniversity.ac.in)

वेब साइट : [www.durguniversity.ac.in](http://www.durguniversity.ac.in)

दूरभाष : 0788-2359400

क्र. 2960/A / अका. / 2020

दुर्ग, दिनांक 10/9/2020

प्रति,

प्राचार्य,  
समस्त संबद्ध महाविद्यालय,  
हेमचंद यादव विश्वविद्यालय,  
दुर्ग (छ.ग.)

विषय:- स्नातक स्तर भाग-दो के पाठ्यक्रम विषयक।

संदर्भ:- संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019।

—00—

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर भाग-दो के निम्नलिखित कक्षा/विषयों के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2020-21 से लागू किये जाते हैं:-

1. बी.ए. - आधार पाठ्यक्रम-हिन्दी भाषा, हिन्दी साहित्य, राजनीतिशास्त्र, अर्थशास्त्र, नृत्य, दर्शनशास्त्र, समाजशास्त्र, इतिहास, मानवविज्ञान, संस्कृत, सांख्यिकी प्राचीन भारतीय इतिहास, भूगोल, मनोविज्ञान
2. बी.एस-सी.- आधार पाठ्यक्रम-हिन्दी भाषा, जीव विज्ञान, मानवविज्ञान, बायोटेक्नोलॉजी, कम्प्यूटर साईंस, गणित, भौतिक शास्त्र, प्राणीशास्त्र, सूक्ष्मजीव विज्ञान, वनस्पतिशास्त्र, भूविज्ञान, इलेक्ट्रॉनिक्स, रसायन शास्त्र, सांख्यिकी, भूगोल।
3. बी.ए./बी.एस.सी (गृह विज्ञान) - आधार पाठ्यक्रम - हिन्दी भाषा एवं गृह विज्ञान।

उपरोक्त विषयों को शिक्षा सत्र 2020-21 से संशोधित रूप में स्नातक स्तर भाग-दो के लिए लागू किया जाता है स्नातक स्तर भाग-एक हेतु सत्र 2019-20 में लागू पाठ्यक्रम मान्य होंगे एवं भाग - तीन के पाठ्यक्रम यथावत रहेंगे।

टीप:- परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय के परीक्षा विभाग एवं वेबसाइट पर प्रकाशित करने हेतु वेबसाइट प्रभारी को उपलब्ध करा दी गई है।


  
कुलसचिव

क्र. 2961/A / अका. / 2020

दुर्ग, दिनांक 10/9/2020

प्रतिलिपि:-

1. संयुक्त संचालक, उच्च शिक्षा विभाग के पत्र क्र. 2456/315/आउशि/सम/2019, दिनांक 16.05.2019 परिपेक्ष्य में सूचनार्थ।
2. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद यादव विश्वविद्यालय, दुर्ग।
3. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद यादव विश्वविद्यालय, दुर्ग।

  
सहा. कुलसचिव (अका.)

**REVISED ORDINANCE NO. 21**  
**BACHELOR OF SCIENCE**

1. The three year course has been broken up into three Parts. Part-I known as B.Sc. Part-I examination at the end of the first year, Part-II known as B.Sc. Part-II examination at the end of the second year and Part-III known as B.Sc. Part-III examination at the end of the third year.
2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of C.G. Board of Secondary Education Bhopal or any other Examination recognised by the University or C.G. Board of Secondary Education as equivalent thereto, has attended a regular course of study in an affiliated College or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.Sc. Part-I examination.
3. A candidate who, after passing the B.Sc.-I examination of the University or any other examination recognised by the University as equivalent thereto, has attended a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-II examination.
4. A candidate who, after passing the B.Sc. Part-II examination of the University, has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-III examination.
5. Besides regular students, subject to their compliance with this Ordinance ex-student and non-collegiate candidates shall be permitted to offer only such subjects/papers as are taught to the regular student at any of the University Teaching Department or College.
6. Every candidate appearing in B.Sc. Part-I, Part-II and Part-III examination shall be examined in-
  - (i) Foundation Course:
  - (ii) Any one of the following combinations of three subjects:-
    1. Physics, Chemistry & Mathematics.
    2. Chemistry, Botany & Zoology.
    3. Chemistry, Physics & Geology.
    4. Chemistry, Botany & Geology.
    5. Chemistry, Zoology & Geology.
    6. Geology, Physics & Mathematics.
    7. Chemistry, Mathematics & Geology.
    8. Chemistry, Botany & Defence Studies.
    9. Chemistry, Zoology & Defence Studies
    10. Physics, Mathematics & Defence Studies.
    11. Chemistry, Geology & Defence Studies

12. Physics, Mathematics & Statistics
  13. Physics, Chemistry & Statistics
  14. Chemistry, Mathematics & Statistics.
  15. Chemistry, Zoology & Anthropology.
  16. Chemistry, Botany & Anthropology.
  17. Chemistry, Geology & Anthropology.
  18. Chemistry, Mathematics & Statistics.
  19. Chemistry, Anthropology & Defence Studies.
  20. Geology, Mathematics & Statistics.
  21. Mathematics, Defence Studies & Statistics
  22. Anthropology, Mathematics & Statistics
  23. Chemistry, Anthropology & Applied Statistics
  24. Zoology, Botany & Anthropology
  25. Physics, Mathematics & Electronics.
  26. Physics, Mathematics & Computer Application
  27. Chemistry, Mathematics & Computer Application
  28. Chemistry, Bio-Chemistry & Pharmacy
  29. Chemistry, Zoology & Fisheries.
  30. Chemistry, Zoology & Agriculture
  31. Chemistry, Zoology & Sericulture
  32. Chemistry, Botany & Environmental Biology
  33. Chemistry, Botany & Microbiology
  34. Chemistry, Zoology & Microbiology
  35. Chemistry, Industrial Chemistry & Mathematics
  36. Chemistry, Industrial Chemistry & Zoology
  37. Chemistry, Biochemistry, Botany
  38. Chemistry, Biochemistry, Zoology
  39. Chemistry, Biochemistry, Microbiology
  40. Chemistry, Biotechnology, Botany
  41. Chemistry, Biotechnology, Zoology
  42. Geology, Chemistry & Geography
  43. Geology, Mathematics & Geography
  44. Mathematics, Physics & Geography
  45. Chemistry, Botany & Geography
- (iii) Practical in case prescribed for core subjects.

7. Any candidate who has passed the B.Sc. examination of the University shall be allowed to present himself for examination in any of the additional subjects prescribed for the B.Sc. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.Sc. Part-I examination in the subjects which he proposes to offer and then the B.Sc. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

8. In order to pass at any part of the three year degree course examination an examinee must obtain not less than 33% of the total marks in each subject/ group of subjects. In subject/ group of subjects where both theory and practical examination are provided an examinee must pass in both theory and practical parts of the examination separately.
9. Candidate will have to pass separately at the Part-I, Part-II and Part-III examinations. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken in to account. Provided in case of candidate who has passed the examination through supplementary examination having failed in one subject/ group only, the total aggregate marks being carried over for determining the division shall include actual marks obtained in the subject/ group in which he appeared at the supplementary examination.
10. Successful examinee at the Part-III examination obtaining 60% or more marks shall be placed in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

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## SCHEME OF EXAMINATION

Subject	Paper	Max. Marks	Total Marks	Min. Marks
C Environmental Studies		75	100	33
Fild Work		25		
<b>Foundation Course</b>				
Hindi Language		75	75	26
English Language		75	75	26

**नोट:-** प्रत्येक में से 02 (दो) प्रश्न करने होंगे । सभी प्रश्न समान अंक के होंगे ।

Three Elective Subject :

1.	Physics	I	50	100	33
		II	50		
2.	Chemistry	Practical		50	17
		I	33		
		II	33	100	33
		III	34		
3.	Mathematics	Practical		50	17
		I	50		
		II	50	150	50
		III	50		
4.	Botany	I	50	100	33
		II	50		
5.	Zoology	Practical		50	17
		I	50	100	33
		II	50		
6.	Geology	Practical		50	17
		I	50	100	33
		II	50		
7.	Statistics	Practical	50		17
		I	50	100	33
		II	50		
8.	Anthropology	Practical		50	17
		I	50	100	50
		II	50		
		Practical		50	17

Subject	Paper	Max. Marks	Total Marks	Min. Marks
Compulsory Subject–Foundation Course:				
9. Defense Studies	I	50	100	33
	II	50		
	Practical		50	17
10. MicroBiology	I	50	100	33
	II	50		
	Practical		50	17
11. Computer Sciences	I	50	100	33
	II	50		
	Practical		50	17
12. Information Technology	I	50	100	33
	II	50		
	Practical		50	17
13. Industrial Chemistry	I	34		
	II	33	100	33
	III	33		
	Practical		50	17
14. BioChemistry	I	50		
	II	50	100	33
15. BioTechnology	Practical	50	50	17
	I			
	II	50	100	33
	Practical		50	17

### USE OF CALCULATORS

The Students of Degree/P.G. Classes will be permitted to use of Calculators in the examination hall from annual 1986 examination on the following conditions as per decision of the standing committee of the Academic Council at its meeting held on 31-1-1986.

1. Student will bring their own Calculators.
2. Calculators will not be provided either by the University or examination centres.
3. Calculators with, memory and following variables be permitted +, -, x,  $\div$ , square, reciprocal, exponential, log, square root, trigonometric functions, sine, cosine, tangent etc. factorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

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संशोधित पाठ्यक्रम  
बी.ए./बी.एस-सी./बी.कॉम./बी.एच.एस.-सी.  
भाग - दो, आधार पाठ्यक्रम  
प्रश्न पत्र - प्रथम (हिन्दी भाषा) (पेपर कोड - 0171)

पूर्णांक- 75

खण्ड - क निम्नलिखित 5 लेखकों के पाठ शामिल होंगे -

अंक-35

- |                        |   |                          |
|------------------------|---|--------------------------|
| 1. महात्मा गांधी       | - | चोरी और प्रायश्चित       |
| 2. आचार्य नरेंद्र देव  | - | युवकों का समाज में स्थान |
| 3. वासुदेव शरण अग्रवाल | - | मातृभूमि                 |
| 4. हरि ठाकुर           | - | डॉ. खूबचंद बघेल          |
| 5. पं. माधवराव सप्रे   | - | सम्भाषण-कुशलता           |

खण्ड-ख हिन्दी भाषा और उसके विविध रूप

अंक-16

1. कार्यालयीन भाषा
2. मीडिया की भाषा
3. वित्त एवं वाणिज्य की भाषा
4. मशीनी भाषा

खण्ड-ग हिन्दी की व्याकरणिक कोटियाँ

अंक-24

संज्ञा, सर्वनाम, विशेषण, क्रिया विशेषण,  
समास, संधि एवं संक्षिप्तियाँ  
अनुवाद व्यवहार : अंग्रेजी से हिन्दी में अनुवाद

इकाई विभाजन-

- |         |   |
|---------|---|
| इकाई- 1 | चोरी और प्रायश्चित : महात्मा गांधी / कार्यालयीन भाषा, मीडिया की भाषा                        |
| इकाई- 2 | युवकों का समाज में स्थान : आचार्य नरेन्द्र देव / वित्त एवं वाणिज्य की भाषा, मशीनी भाषा      |
| इकाई- 3 | मातृभूमि: वासुदेवशरण अग्रवाल / संज्ञा सर्वनाम, विशेषण, क्रिया विशेषण                        |
| इकाई- 4 | डॉ. खूबचंद बघेल : हरि ठाकुर/समास, संधि,   |
| इकाई- 5 | सम्भाषण-कुशलता : पं. माधवराव सप्रे, / अनुवाद - अंग्रेजी से हिन्दी में अनुवाद, संक्षिप्तियाँ |

मूल्यांकन योजना -

प्रत्येक इकाई से एक-एक प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक इकाई को दो-दो खण्डों (क्रमशः 'क' और 'ख' में) विभक्त करते हुए निर्धारित पाठ से 8 एवं शेष पाठ्य सामग्री से 7 अंक के प्रश्न होंगे। इस प्रकार पूरे प्रश्न-पत्र के पूर्णांक 75 होंगे।

**पाठ्यक्रम संशोधन का औचित्य :** विद्यार्थी चर्चित एवं सुप्रसिद्ध व्यक्तियों के लेख के माध्यम से समाज एवं राष्ट्रहित के साथ-साथ व्यक्तित्व विकास विषयक मुद्दों से परिचित हो सकें तथा व्याकरणक एवं भाषा विषयक प्रस्तावित पाठ्यक्रम के माध्यम से हिन्दी भाषा संबंधित प्रयोग पक्ष से परिचित होते हुए प्रतियोगी परीक्षाओं की दृष्टि से ज्ञानार्जन कर सकें।

ENGLISH LANGUAGE (Paper Code-1132)

B.A. / B.Sc. /B.COM. /B.H. Sc. - II

M.M.75

The question paper for B.A. /B.Sc./B.Com./B.H.Sc., English Language and cultural values shall comprise the following units:

UNIT-I Short answer questions to be passed by (Five short answer questions of three marks each) 15 Marks

UNIT-II (a) Reading comprehension of an unseen passage 05 Marks  
(b) Vocabulary

UNIT-III Report-Writing 10 Marks

UNIT-IV Expansion of an idea 10 Marks

UNIT-V Grammar and Vocabulary based on the prescribed text book. 20+15Marks

Note: Question on all the units shall asked from the prescribed text which will  
Comprise Specimens of popular creative/writing and the following it any

a Matter & technology

- i. State of matter and its structure
- ii. Technology (Electronics Communication, Space Science)

b Our Scientists & Institutions

- I. Life & work of our eminent scientist Arya Bhatt. Kaard  
Charak Shusruta, Nagarjuna, J.C. Bose and C.V. Raman, S.  
Rmanujam, Homi J. Babha Birbal Sahani.
- II. Indian Scientific Institutions (Ancient & Modern)

Books Prescribed:

Foundation English for U.G. Second Year - Published by M.P. Hindi Granth  
Academy, Bhopal.



**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**NEW CURRICULUM OF B.Sc. PART II**  
**SESSION 2019-20**  
**CHEMISTRY**

The new curriculum will comprise of three papers of 33, 33 and 34 marks each and practical work of 50 marks. The Curriculum is to be completed in 180 working days as per UGC norms and conforming to the directives of Govt. of Chhattisgarh. The theory papers are of 60 hrs. each duration and practical work of 180 hrs duration.

**Paper – I**  
**INORGANIC CHEMISTRY** **60 Hrs., Max Marks 33**

**UNIT-I**

**CHEMISTRY OF TRANSITION SERIES ELEMENTS**

Transition Elements: Position in periodic table, electronic configuration, General Characteristics, viz., atomic and ionic radii, variable oxidation states, ability to form complexes, formation of coloured ions, magnetic moment  $\mu_{so}$  (spin only) and  $\mu_{eff}$  and catalytic behaviour. General comparative treatment of 4d and 5d elements with their 3d analogues with respect to ionic radii, oxidation states and magnetic properties.

**UNIT-II**

**A. OXIDATION AND REDUCTION:** Redox potential, electrochemical series and its applications, Principles involved in extraction of the elements.

**B. COORDINATION COMPOUNDS:** Werner's theory and its experimental verification, IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. Stereochemistry of complexes with 4 and 6 coordination numbers. Chelates, polynuclear complexes.

**UNIT-III**

**COORDINATION CHEMISTRY**

Valence bond theory (inner and outer orbital complexes), electroneutrality principle and back bonding. Crystal field theory, Crystal field splitting and stabilization energy, measurement of  $10 Dq$  ( $\Delta_o$ ), CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of  $10 Dq$  ( $\Delta_o$ ,  $\Delta_t$ ). Octahedral vs. tetrahedral coordination.

B.Sc.-II

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## UNIT-IV

### A. CHEMISTRY OF LANTHANIDE ELEMENTS

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

### B. CHEMISTRY OF ACTINIDES

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from uranium, similarities between the latter actinides and the latter lanthanides

## UNIT-V

**A. ACIDS BASES :** Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, Solvent system and Lewis concepts of acids and bases.

### B. NON-AQUEOUS SOLVENTS

.Physical properties of a solvent, types of solvents and their general characteristics, reaction in non-aqueous solvents with reference to liquid ammonia and liquid sulphur dioxide, HF, H<sub>2</sub>SO<sub>4</sub> , Ionic liquids.

## REFERENCE BOOKS

1. Basic Inorganic Chemistry, F. A. Cotton, G. Wilkinson and P. L. Gaus, Wiley
2. Concise Inorganic Chemistry, J. D. Lee, ELBS
3. Concepts of Models of Inorganic Chemistry, B. Douglas, D. Mc Daniel and J. Alexander, John Wiley.
4. Inorganic Chemistry, D. E. Shriver, P. W. Atkins and C. H. Langford, Oxford.
5. Inorganic Chemistry, W. W. Porterfield, Addison – Wiley.
6. Inorganic Chemistry, A. G. Sharp, ELBS.
7. Inorganic Chemistry, G. L. Miessler and D. A. Tarr, Prentice Hall.
8. Advanced Inorganic Chemistry, Satya Prakash.
9. Advanced Inorganic Chemistry, Agarwal and Agarwal
10. Advanced Inorganic Chemistry, Puri, Sharma, S. Naginchand
11. Inorganic Chemistry, Madan, S. Chand
12. Aadhunik Akarbanic Rasayan, A. K. Shrivastav & P. C. Jain, Goel Pub
13. Uchchattar Akarbanic Rasayan, satya Prakash & G. D. Tuli, Shyamal Prakashan
14. Uchchattar Akarbanic Rasayan, Puri & Sharma
15. Selected topic in Inorganic Chemistry by Madan Malik & Tuli, S. Chand.

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**UNIT-I**

**CHEMISTRY OF ORGANIC HALIDES**

Alkyl halides: Methods of preparation, nucleophilic substitution reactions –  $S_N1$ ,  $S_N2$  and  $S_Ni$  mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution, elimination reactions.

Aryl halides: Preparation, including preparation from diazonium salts, Nucleophilic Aromatic Substitution;  $S_NAr$ , Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

**UNIT-II**

**ALCOHOLS**

- A. Alcohols: Nomenclature, preparation, properties and relative reactivity of  $1^\circ$ ,  $2^\circ$ ,  $3^\circ$  alcohols, Bouvaelt-Blanc Reduction for the preparation of alcohols, Dihydric alcohols – methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [ $Pb(OAc)_4$  and  $HIO_4$ ] and pinacol-pinacolone rearrangement.
- B. Trihydric alcohols - Nomenclature, methods of formation, chemical reactions of glycerol.

**PHENOLS**

- A. Structure and bonding in phenols, physical properties and acidic character, Comparative acidic strength of alcohols and phenols, acylation and carboxylation.
- B. Mechanism of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesch reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.

**UNIT-III**

**ALDEHYDES AND KETONES**

- A. Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of aldehydes and ketones.
- Mechanism of nucleophilic addition to carbonyl groups: Benzoin, Aldol, Perkin and Knoevenagel condensation. Condensation with ammonia and its derivatives, Wittig reaction, Mannich reaction, Beckmann and Benzil- Benzilic rearrangement.
- B. Use of acetate as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV, Clemmensen reduction, Wolf-Kishner reaction,  $LiAlH_4$  and  $NaBH_4$  reduction. Halogenation of enolizable ketones, An introduction to  $\alpha,\beta$ -unsaturated aldehydes and ketones.

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## UNIT-IV

### A. CARBOXYLIC ACIDS

Preparation, Structure and bonding, Physical and chemical properties including, acidity of carboxylic acids, effects of substituents on acid strength, Hell-Volhard Zeilinsky reaction. Reduction of carboxylic groups, Mechanism of decarboxylation.

Di carboxylic acids: Methods of formation and effect of heat and dehydrating agents, Hydroxyacids.

### B. CARBOXYLIC ACID DERIVATIVES

Structure of acid chlorides, esters, amides and acid anhydrides, Relative stability of acyl derivatives.

Physical properties, inter-conversion of acid derivatives by nucleophilic acyl substitution.

Mechanism of acid and base catalyzed esterification and hydrolysis.

## UNIT-V

### ORGANIC COMPOUNDS OF NITROGEN

A. Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium.

B. Reactivity, structure and nomenclature of amines, physical properties. Stereochemistry of amines. Separation of mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds and nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-Phthalimide reaction, Hofmann-Bromamide reaction, Reactions of amines, electrophilic aromatic substitution of aryl amines, Reaction of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, Azo coupling.

### REFERENCE BOOKS

1. Organic Chemistry, Morrison and Boyd, Prentice-Hall.
2. Organic Chemistry, L. G. Wade Jr. Prentice Hall.
3. Fundamentals of Organic Chemistry, Solomons, John Wiley.
4. Organic Chemistry, Vol I, II, III S. M. Mukherjee, S. P. Singh and R. P. Kapoor, Wiley Eastern (New Age).
5. Organic Chemistry, F. A. Carey, McGraw Hill.
6. Introduction to Organic Chemistry, Struieweisser, Heathcock and Kosover, Macmillan.
7. Organic Chemistry, P. L. Soni.
8. Organic Chemistry, Bahl and Bahl.
9. Organic Chemistry, Joginder Singh.
10. Carbanic Rasayan, Bahl and Bahl.
11. Carbanic Rasayan, R. N. Singh, S. M. I. Gupta, M. M. Bakidia & S. K. Wadhwa.
12. Carbanic Rasayan, Joginder Singh.

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**UNIT-I**

**A. THERMODYNAMICS-I**

Intensive and extensive variables; state and path functions; isolated, closed and open systems; Zeroth law of thermodynamics. First law: Concept of heat, work, internal energy and statement of first law; enthalpy, Relation between heat capacities, calculations of  $q$ ,  $w$ ,  $U$  and  $H$  for reversible, irreversible and free expansion of gases under isothermal and adiabatic conditions. Joule-Thomson expansion, inversion temperature of gases, expansion of ideal gases under isothermal and adiabatic condition

**B. THERMO CHEMISTRY**

Thermochemistry, Laws of Thermochemistry, Heats of reactions, standard states; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, effect of temperature (Kirchhoff's equations) and pressure on enthalpy of reactions, Adiabatic flame temperature, explosion temperature.

**UNIT-II**

**A. THERMODYNAMICS-II**

Second Law of Thermodynamics: Spontaneous process, Second law, Statement of Carnot cycle and efficiency of heat engine, Carnot's theorem, thermodynamic state of temperature. Concept of entropy: Entropy change in a reversible and irreversible process, entropy change in isothermal reversible expansion of an ideal gas, entropy change in isothermal mixing of ideal gases, physical signification of entropy, Molecular and statistical interpretation of entropy.

**B.** Gibbs and Helmholtz free energy, variation of  $G$  and  $A$  with pressure, volume, temperature, Gibbs-Helmholtz equation, Maxwell relations, Elementary idea of Third law of Thermodynamics, concept of residual entropy, calculation of absolute entropy of molecule.

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## UNIT III

### A CHEMICAL EQUILIBRIUM

Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases. Concept of Fugacity, Thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and endergonic reactions. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Thermodynamic derivation of relations between the various equilibrium constants  $K_p$ ,  $K_c$  and  $K_x$ . Le Chatelier principle (quantitative treatment). Equilibrium between ideal gas and a pure condensed phase.

### B IONIC EQUILIBRIA

Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson equation and its applications. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

## UNIT-IV

### PHASE EQUILIBRIUM

A. Phase rule, Phase, component and degree of freedom, derivation of Gibbs phase rule, Clausius-Claperton equation and its applications to Solid-Liquid, Liquid-Vapor and Solid-Vapor, limitation of phase rule, applications of phase rule to one component system: Water system and sulphur system.

Application of phase rule to two component system: Pb-Ag system, desilverization of lead, Zn-Mg system, Ferric chloride-water system, congruent and incongruent melting point and eutectic point.

Three component system: Solid solution liquid pairs.

B. Nernst distribution law, Henry's law, application, solvent extraction

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## UNIT V

### PHOTOCHEMISTRY

Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference between thermal and photochemical processes, Lambert-Beer's law and its limitations, physical significance of absorption coefficients. Laws of photochemistry: Grothus-Draper law, Stark-Einstein law, quantum yield, actinometry, examples of low and high quantum yields, Photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role of photochemical reaction in biochemical process.

Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), photosensitized reactions, energy transfer processes {simple examples}, photostationary states, Chemiluminescence.

### REFERENCE BOOKS

1. Physical Chemistry, G. M. Barrow, International student edition, McGraw Hill.
2. University General Chemistry, C. N. R. Rao, Macmillan.
3. Physical Chemistry, R. A. Alberty, Wiley Eastern.
4. The elements of physical chemistry, Wiley Eastern.
5. Physical Chemistry through problems, S. K. Dogra & S. Dogra, Wiley Eastern.
6. Physical Chemistry, B. D. Khosla,.
7. Physical Chemistry, Puri & Sharma.
8. Bhautik Rasayan, Puri, Sharma and Pathania, Vishal Publishing Company.
9. Bhautik Rasayan, P. L. Soni.
10. Bhautik Rasayan, Bahl and Tuli.
11. Physical Chemistry, R. L. Kapoor, Vol I-IV .
12. Chemical kinetics, K. J. Laidler, Pearson Educations, New Delhi (2004).

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Paper –IV  
LABORATORY COURSE

**INORGANIC CHEMISTRY**

Qualitative semimicro analysis of mixtures containing 5 radicals. Emphasis should be given to the understanding of the chemistry of different reactions. The following radicals are suggested:

$\text{CO}_3^{2-}$ ,  $\text{NO}_2^-$ ,  $\text{S}^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{S}_2\text{O}_3^{2-}$ ,  $\text{CH}_3\text{COO}^-$ ,  $\text{F}^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{NO}_3^-$ ,  $\text{BO}_3^{3-}$ ,  $\text{C}_2\text{O}_4^{2-}$ ,  $\text{PO}_4^{3-}$ ,  $\text{NH}_4^+$ ,  $\text{K}^+$ ,  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Bi}^{3+}$ ,  $\text{Sn}^{2+}$ ,  $\text{Sb}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ .

Mixtures should preferably contain one interfering anion, or insoluble component ( $\text{BaSO}_4$ ,  $\text{SrSO}_4$ ,  $\text{PbSO}_4$ ,  $\text{CaF}_2$  or  $\text{Al}_2\text{O}_3$ ) or combination of anions e.g.  $\text{CO}_3^{2-}$  and  $\text{SO}_3^{2-}$ ,  $\text{NO}_2^-$  and  $\text{NO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ , and  $\text{I}^-$ .

**Volumetric analysis**

- (a) Determination of acetic acid in commercial vinegar using NaOH.
- (b) Determination of alkali content-antacid tablet using HCl.
- (c) Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- (d) Estimation of hardness of water by EDTA.
- (e) Estimation of ferrous & ferric by dichromate method.
- (f) Estimation of copper using thiosulphate.
- Principles involved in chromatographic separations. Paper chromatographic separation of following metal ions: i. Ni (II) and Co (II) ii. Fe (III) and Al (III)

**ORGANIC CHEMISTRY**

- Detection of elements (X, N, S).
- Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols, nitro, amine, amide, and carbonyl compounds, carbohydrates)
- Preparation of Organic Compounds:
  - (i) m-dinitrobenzene, (ii) Acetanilide, (iii) Bromo/Nitro-acetanilide, (iv) Oxidation of primary alcohols-Benzoic acid from benzylalcohol, (v) azo dye.

B.Sc.-II

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## PHYSICAL CHEMISTRY

### Transition Temperature

- Determination of the transition temperature of the given substance by thermometric/dilatometric method (e.g.  $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$  /  $\text{SrBr}_2 \cdot 2\text{H}_2\text{O}$ ).

### Thermochemistry

- Determination of heat capacity of a calorimeter for different volumes using change of enthalpy data of a known system (method of back calculation of heat capacity of calorimeter from known enthalpy of solution or enthalpy of neutralization).
- Determination of heat capacity of the calorimeter and enthalpy of neutralization of hydrochloric acid with sodium hydroxide.
- To determine the solubility of benzoic acid at different temperature and to determine  $\Delta H$  of the dissolution process.
- To determine the enthalpy of neutralization of a weak acid/ weak base versus strong base/ strong acid and determine the enthalpy of ionization of the weak acid/ weak base.
- To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

### Phase Equilibrium

- To study the effect of a solute (e.g. NaCl, Succinic acid) on the critical solution temperature of two partially miscible liquids (e.g. phenol-water system) and to determine the concentration of that solute in the given phenol-water system.
- To construct the phase diagram of two component system (e.g. diphenylamine–benzophenone) by cooling curve method.
- Distribution of acetic/ benzoic acid between water and cyclohexane.
- Study the equilibrium of at least one of the following reactions by the distribution method:
  - (i)  $\text{I}_2(\text{aq}) + \text{I}^- \rightarrow \text{I}_3(\text{aq})^{2-}$
  - (ii)  $\text{Cu}^{2+}(\text{aq}) + n\text{NH}_3 \rightarrow \text{Cu}(\text{NH}_3)_n$

### Molecular Weight Determination

Determination of molecular weight by Rast Camphor and Landsburger method.

**Note: Experiments may be added/ deleted subject to availability of time and facilities.**

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## Reference Books

1. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
2. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. & Tatchell, A.R. Practical Organic Chemistry, 5th Ed. Pearson (2012)
3. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000). 22
4. Ahluwalia, V.K. & Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).
5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011). Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).
6. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York

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Three Experiments are to be performed.

1. Inorganic – Qualitative semimicro analysis of mixtures.

**12 marks**

OR

One experiment from synthesis and analysis by preparing the standard solution.

2. (a) Identification of the given organic compound & determine its M.Pt./B.Pt.

**6 marks**

(b) Determination of R<sub>f</sub> value and identification of organic compounds by paper chromatography.

**6 marks**

3. Any one physical experiment that can be completed in two hours including calculations.

**12 marks**

4. Viva

**10 marks**

5. Sessional

**04 marks**

In case of Ex-Students one marks will be added to each of the experiment.

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Session 2019-20

## PHYSICS

B.Sc. Part-II

Paper-I

### THERMODYNAMICS, KINETIC THEORY AND STATISTICAL PHYSICS

**Unit-1** The laws of thermodynamics : The Zeroth law, first law of thermodynamics, internal energy as a state function, reversible and irreversible change, Carnot's cycle, Carnot theorem, second law of thermodynamics. Clausius theorem inequality. Entropy, Change of entropy in simple cases (i) Isothermal expansion of an ideal gas (ii) Reversible isochoric process (iii) Free adiabatic expansion of an ideal gas. Concept of entropy, Entropy of the universe. Entropy change in reversible and irreversible processes, Entropy of Ideal gas, Entropy as a thermodynamic variable, S-T diagram, Principle of increase of entropy. The thermodynamic scale of temperature, Third law of thermodynamics, Concept of negative temperature.

**Unit-2** Thermodynamic functions, Internal energy, Enthalpy, Helmholtz function and Gibbs free energy, Maxwell's thermodynamical equations and their applications, TdS equations, Energy and heat capacity equations Application of Maxwell's equation in Joule-Thomson cooling, adiabatic cooling of a system, Van der Waals gas, Clausius-Clapeyron heat equation. Blackbody spectrum, Stefan-Boltzmann law, Wien's displacement law, Rayleigh-Jean's law, Planck's quantum theory of radiation.

**Unit-3** Maxwellian distribution of speeds in an ideal gas: Distribution of speeds and velocities, experimental verification, distinction between mean, rms and most probable speed values. Doppler broadening of spectral lines. Transport phenomena in gases: Molecular collisions mean free path and collision cross sections. Estimates of molecular diameter and mean free path. Transport of mass, momentum and energy and interrelationship, dependence on temperature and pressure.  
Behaviour of Real Gases: Deviations from the Ideal Gas Equation. The Virial Equation. Andrew's Experiments on CO<sub>2</sub> Gas. Critical Constants.

**Unit-4** The statistical basis of thermodynamics: Probability and thermodynamic probability, principle of equal a priori probabilities, statistical postulates. Concept of Gibbs ensemble, accessible and inaccessible states. Concept of phase space,  $\gamma$  phase space and  $\mu$  phase space. Equilibrium between two systems in thermal contact, probability and entropy, Boltzmann entropy relation. Boltzmann canonical distribution law and its applications, law of equipartition of energy.

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P. K. M.

Transition to quantum statistics:  $h$  as a natural constant and its implications, cases of particle in a one-dimensional box and one-dimensional harmonic oscillator.

Unit-5 Indistinguishability of particles and its consequences, Bose-Einstein & Fermi-Dirac conditions, Concept of partition function, Derivation of Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac Statistics, Limits of B-E and F-D statistics to M-B statistics. Application of B-E statistics to black body radiation, Application of F-D statistics to free electrons in a metal.

#### TEXT AND REFERENCE BOOKS:

1. B.B. Laud, "Introduction to Statistical Mechanics" (Mcmillan 1981)
2. F. Reif: "Statistical Physics" (Mcgraw-Hill, 1998).
3. K. Huang: "Statistical Physics" (Wiley Eastern, 1988).
4. Thermal and statistical Physics: R.K. Singh, Y.M. Gupta and S. Sivraman.
5. Statistical Physics: Berkeley Physics Course, Vol. 5
6. Physics (Part-2): Editor, Prof. B.P. Chandra, M.P. Hindi Granth Academy.
7. Heat and Thermodynamics: K.W. Zeemansky.
8. Thermal Physics: B.K. Agarwal.
9. Heat and Thermodynamics: Brij Lal and N. Subramanyam.
10. Heat and Thermodynamics: Dayal, Verma and Pandey.
11. A Treatise on Heat: M.N. Saha and B.N. Srivastava.





## WAVES, ACOUSTICS AND OPTICS

**Unit-1** Waves in media: Speed of transverse waves on uniform string, speed of longitudinal waves in a fluid, energy density and energy transmission in waves. Waves over liquid surface: gravity waves and ripples. Group velocity and phase velocity and relationship between them. Production and detection of ultrasonic and infrasonic waves and applications.

Reflection, refraction and diffraction of sound : Acoustic impedance of a medium, percentage reflection & refraction at a boundary, impedance matching for transducers, diffraction of sound, principle of a sonar system, sound ranging.

**Unit-2** Fermat's Principle of extremum path, the aplanatic points of a sphere and other applications. Cardinal points of an optical system, thick lens and lens combinations. Lagrange equation of magnification, telescopic combinations, telephoto lenses. Monochromatic aberrations and their reductions; aspherical mirrors and Schmidt corrector plates, aplanatic points, oil immersion objectives, meniscus lens. Optical instruments: Entrance and exit pupils, need for a multiple lens eyepiece, common types of eyepieces. (Ramsdon and Hygen's eyepieces).

**Unit-3** Interference of light: The principle of superpositions, two slit interference, coherence requirement for the sources, optical path retardations, Conditions for sustained interference, Theory of interference, Thin films. Newton's rings and Michelson interferometer and their applications, its application for precision determinations of wavelength, wavelength difference and the width of spectral lines. Multiple beam interference in parallel film and Fabry-Perot interferometer. Rayleigh refractometer, Twyman-Green interferometer and its uses.

**Unit-4** Diffraction, Types of Diffraction, Fresnel's diffraction, half-period zones, phasor diagram and integral calculus methods, the intensity distribution, Zone plates, diffraction due to straight edge, Fraunhofer diffraction due to a single slit and double slit, Diffraction at N-Parallel slit, Plane Diffraction grating, Rayleigh criterion, resolving power of grating, Prism, telescope.

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Polarized light and its mathematical representation, Production of polarized light by reflection, refraction and scattering. Polarization by double refraction and Huygen's theory, Nicol prism, Retardation plates, Production and analysis of circularly and elliptically polarized light. Optical activity and Fresnel's theory, Biquartz polarimeter.

**Unit-5** Laser system: Basic properties of Lasers, coherence length and coherence time, spatial coherence of a source, Einstein's A and B coefficients, Spontaneous and induced emissions, conditions for laser action, population inversion, Types of Laser : Ruby and, He-Ne laser, and, Applications of laser : Application in communication, Holography and Basics of non linear optics and Generation of Harmonic.

#### TEXT AND REFERENCE BOOKS:

1. A.K. Ghatak, 'Physical Optics'
2. D.P. Khandelwal, 'Optical and Atomic Physics' (Himalaya Publishing House, Bombay, 1988)
3. K.D. Moltev, 'Optics' (Oxford University Press)
4. Sears: 'Optics'
5. Jenkins and White: 'Fundamental of Optics' (McGraw-Hill)
6. B.B. Laud: 'Lasers and Non-linear Optics' (Wiley Eastern 1985)
7. Smith and Thomson: 'Optics' (John Wiley and Sons)
8. Berkely Physics Courses: Vol.-III, 'Waves and Oscillations'
9. I.G. Main, 'Vibrations and Waves' (Cambridge University Press)
10. H.J. Pain: 'The Physics of Vibrations and Waves' (MacMillan 1975)
11. Text Book of Optics: B.K. Mathur
12. B.Sc. (Part III) Physics: Editor: B.P. Chandra, M.P. Hindi Granth Academy.
13. F. Smith and J.H. Thomson, Manchester Physics series: optics (John wiley, 1971)
14. Born and Wolf : 'Optics'.
15. Physical Optics: B. K. Mathur and T. P. Pandya.
16. A textbook of Optics: N. Subrahmanyam, Brijlal and M. N. Avadhanulu.
17. Geometrical and Physical Optics: Longhurst.
18. Introduction to Modern Optics: G. R. Fowels.
19. Optics: P. K. Srivastav.

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20/5/19

## PHYSICS

## PRACTICALS

Minimum 16 (Eight from each group)

Experiments out of the following or similar experiments of equal standard

1. Study of Brownian motion.
2. Study of adiabatic expansion of a gas.
3. Study of conversion of mechanical energy into heat.
4. Heating efficiency of electrical kettle with varying voltage.
5. Study of temperature dependence of total radiation.
6. Study of temperature dependence of spectral density of radiation.
7. Resistance thermometry.
8. Thermo emf thermometry.
9. Conduction of heat through poor conductors of different geometries.
10. Experimental study of probability distribution for a two-option system using a coloured dice.
11. Study of statistical distribution on nuclear disintegration data (GM counter used as a black box).
12. Speed of waves on a stretched strings.
13. Studies on torsional waves in a lumped system.
14. Study of interference with two coherent source of sound.
15. Chlandi's figures with varying excitation and loading points.
16. Measurements of sound intensities with different situations.
17. Characteristics of a microphone-loudspeakers system
18. Designing an optical viewing system.
19. Study of monochromatic defects of images.
20. Determining the principle point of a combination of lenses.
21. Study of interference of light (biprism or wedge film).
22. Study of diffraction at a straight edge or a single slit.
23. Study of F-P etalon fringes.
24. Study of diffraction grating and its resolving power.
25. Resolving power of telescope system.
26. Polarization of light by reflection; also cos-squared law.
27. Study of optical rotation for any system.
28. Study of laser as a monochromatic coherent source.
29. Study of a divergence of laser beam.
30. Calculation of days between two dates of a year.
31. To check if triangle exists and the type of a triangles.
32. To find the sum of the sine and cosines series and print out the curve.



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33. To solve simultaneous equation by elimination method.
34. To prepare a mark-list of polynomials.
35. Fitting a straight line or a simple curve
36. Convert a given integer into binary and octal systems and vice versa .
37. Inverse of a matrix.
38. Spiral array.

#### TEXT AND REFERENCE BOOKS

1. D.P. Khandelwal, Optics and Atomic physics (Himalaya Publishing house, Bombay 1988).
2. D.P. Khandelwal, A Laboratory Manual for Undergraduate Classes (Vani Publishing House, New Delhi).
3. S. Lipschutz and a Poe, Schaum's outline of theory and Problems of Programming with Fortran (McGraw-hill Book Company 1986).
4. C Dixon, Numerical Analysis .

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## MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

### B.Sc. Part-II


#### Paper-I

#### ADVANCED CALCULUS

- UNIT-I Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests, Cauchy's integral test, Ratio tests, Raabe's, Logarithmic, De Morgan and Bertrand's tests. Alternating series, Leibnitz's theorem. Absolute and conditional convergence.
- UNIT-II Continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain rule of differentiability, Mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders.
- UNIT-III Limit and continuity of functions of two variables. Partial differentiation. Change of variables. Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobians.
- UNIT-IV Envelopes, evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's multiplier method.
- UNIT-V Beta and Gamma functions, Double and triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.

#### REFERENCES :

1. Gabriel Klaumber, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
3. R.R. Goldberg, Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970.
4. D. Soma Sundaram and B. Choudhary, A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
6. Gorakh Prasad, Differential Calculus, Pothishala Pvt. Ltd., Allahabad.
7. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Co., New York.
8. Gorakh Prasad, Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
9. S.C. Malik, Mathematical Analysis, Wiley Eastern Ltd., New Delhi.
10. O.E. Stanaitis, An Introduction to Sequences, Series and Improper Integrals, Holden-Dey, Inc., San Francisco, California.
11. Earl D. Rainville, Infinite Series, The Macmillan Company, New York.
12. Chandrika Prasad, Text Book on Algebra and Theory of Equations, Pothishala Pvt. Ltd., Allahabad.
13. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
14. Shanti Narayan, A Course of Mathematical Analysis, S.Chand and Company, New Delhi.



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**B.Sc. Part-II**  
**Paper-II**  
**DIFFERENTIAL EQUATIONS**

- UNIT-I Series solutions of differential equations- Power series method, Bessel and Legendre functions and their properties-convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions, Reality of eigen values, Orthogonality of Bessel functions and Legendre polynomials.
- UNIT-II Laplace Transformation- Linearity of the Laplace transformation, Existence theorem for Laplace transforms, Laplace transforms of derivatives and integrals, Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equations and systems of differential equations using the Laplace transformation.
- UNIT-III Partial differential equations of the first order. Lagrange's solution, Some special types of equations which can be solved easily by methods other than the general method, Charpit's general method of solution.
- UNIT-IV Partial differential equations of second and higher orders, Classification of linear partial differential equations of second order, Homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations reducible to equations with constant coefficients, Monge's methods.
- UNIT-V Calculus of Variations- Variational problems with fixed boundaries- Euler's equation for functionals containing first order derivative and one independent variable, Extremals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form, invariance of Euler's equation under coordinates transformation.
- Variational Problems with Moving Boundaries- Functionals dependent on one and two functions, One sided variations.
- Sufficient conditions for an Extremum- Jacobi and Legendre conditions, Second Variation. Variational principle of least action.

**REFERENCES :**

1. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999.
2. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967.
3. A.R. Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
4. Lan N. Sneddon, Elements of Partial Differential Equations, McGraw-Hill Book Company, 1988.
5. Francis B. Hilderbrand, Advanced Calculus for Applications, Prentice Hall of India Pvt. Ltd., New Delhi, 1977.
6. Jane Cronin, Differential equations, Marcel Dekkar, 1994.
7. Frank Ayres, Theory and Problems of Differential Equations, McGraw-Hill Book Company, 1972.
8. Richard Bronson, Theory and Problems of Differential Equations, McGraw-Hill, Inc., 1973.
9. A.S. Gupta, Calculus of variations with-Applications, Prentice-Hall of India, 1997.
10. R. Courant and D. Hilbert, Methods of Mathematical Physics, Vols. I & II, Wiley-Interscience, 1953.
11. I.M. Gelfand and S.V. Fomin, Calculus of Variations, Prentice-Hill, Englewood Cliffs (New Jersey), 1963.
12. A.M. Arthurs, Complementary Variational Principles, Clarendon Press, Oxford, 1970.
13. V. Kornkov, Variational Principles of Continuum Mechanics with Engineering Applications, Vol. I, Reidel Publ. : Dordrecht, Holland, 1985.
14. T. Oden and J.N. Reddy, Variational Methods in Theoretical Mechanics, Springer-Verlag, 1976.

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**B.Sc. Part-II**  
**Paper-III**  
**MECHANICS**

**STATICS**

UNIT-I Analytical conditions of Equilibrium, Stable and unstable equilibrium. Virtual work, Catenary.

UNIT-II Forces in three dimensions, Poinsot's central axis, Null lines and planes.

**DYNAMICS**

UNIT-III Simple harmonic motion. Elastic strings. Velocities and accelerations along radial and transverse directions, Projectile, Central orbits.

UNIT-IV Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves.

UNIT-V Motion in a resisting medium, motion of particles of varying mass, motion of a particle in three dimensions, acceleration in terms of different co-ordinate systems.

**REFERENCES :**

1. S.L. Loney, Statics, Macmillan and Company, London.
2. R.S. Verma, A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad.
3. S.L. Loney, An Elementary Treatise on the Dynamics of a particle and of rigid bodies, Cambridge University Press, 1956.

  
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## B.Sc.-II (BOTANY) PAPER-I

### (PLANT TAXONOMY, ECONOMIC BOTANY, PLANT ANATOMY AND EMBRYOLOGY)

#### UNIT-I

Bentham and Hooker system of classification. Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Preservation of Plant material and Herbarium techniques. Important botanical gardens and herbaria of India, Kew Botanical garden, England.

#### UNIT-II

Systematic position, distinguishing characters and economic importance of the following families, Ranunculaceae, Magnoliaceae, Brassicaceae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae.

#### UNIT-III

Economic Botany: Botanical name, family, part used and uses of the following economically important plants, fiber yielding plants; Cotton, jute, sun, hemp, coir. Timber yielding plants: Sal, Teak, Shisham and Pine. Medicinal plants: Kalmegh, Ashwagandha, Ghritkumari, Giloy, Brahmi, sarpgandha, ---of medicinal plants of C.G. Food plants: Pearl millet, Buck of wheat, Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato. Fruit plants: Pear, Peach, Litchi. Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin. Beverages : Tea, Coffee Rubber Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropa, Pongamia Ethnobotany in context of Chhattisgarh.

#### UNIT-IV

Plant Anatomy: Root and shoot apical meristems theories of root and shoot apex organization, permanent tissues, anatomy of root, stem and leaf of dicot and monocot, secondary growth in root and stem, Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia, Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia.

#### UNIT-V

Embryology: Flower as a reproductive organ, anther, microsporogenesis, types of ovules, megasporogenesis, development of male and female gametophyte, pollination, mechanisms, self incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarpy.

#### Books Recommended:

Amal  
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Ravi  
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Shruti  
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Shruti  
13.6.19

Singh, Pandey, Jain. *Diversity and Systematics of Seed Plants*, Rastogi Publications Merrut

Sharma OP, *Plant Taxonomy*, Tata Mc Graw Hill, New Delhi

Pandey BP, *Taxonomy of Angiosperms*, S. Chand Publishing, New Delhi

Pandey, BP, *Plant Anatomy*, S.Chand Publishing, New Delhi

Pandey, BP, *Economic Botany*, S.Chand Publishing, New Delhi

Bhojwani, SS and Bhatanagar SP, *Embryology of Angiosperm*, Vikas Publication House, New Delhi

Singh, Pandey, Jain, *Embryology of Angiosperms*, Rastogi Publication, Meerut

Sharma, V, Alum, A. *Ethnobotany*, Rastogi Publications, Meerut

Tayal, MS *Plant Anatomy*, Rastogi Publication, Meerut



(Dr. J.N. Verma)

Proff. & Head

Govt. D.B. Girls PG College

Raipur, (C.G.)

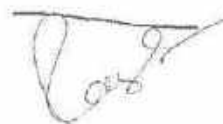


(Dr. Rekha Pimpalgaonkar)

Proff. & Head

Govt. N PG Science College

Raipur, (C.G.)

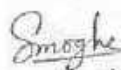


(Dr. Ranjana Shrivastava)

Proff. & Head

Govt. VYTPG Science College

Raipur, (C.G.)



(Mrs. Sanchal Moghe)

Govt. Bilasa Girls College, Bilaspur



(Mr. Shivakant Mishra)

(Mr. Sudheer Tiwari)

Amal  
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Ravi  
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Sanu  
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Pratik  
13.6.19

**B.Sc.-II (BOTANY) PAPER-II**  
**(ECOLOGY AND PLANT PHYSIOLOGY)**

**UNIT-I**

Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptations in hydrophytes, xerophytes and epiphytes.

**UNIT-II**

Population and community characteristics, Raunkiaer's life forms, population interactions (e.g. Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes, ecads, keystone species

Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web, concept of ecological pyramids

Biogeochemical cycles: carbon cycle, nitrogen cycle and phosphorus cycle

**UNIT-III**

Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic potential and water potential, Types of soil water, water holding capacity, wilting, Absorption of water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms, Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration, guttation.

**UNIT-IV**

Photosynthesis: Photosynthetic apparatus and pigments, light reaction mechanism of ATP synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting photosynthesis.

Respiration: Aerobic and anaerobic respiration, Glycolysis, Krebs's cycle, factors affecting respiration, R.Q.

**UNIT-V**

Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and germination, plant movement.

**Books Recommended:**

Koromondy, E.J. *Concepts of Ecology*, Prentice Hall, USA

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Singh, JS Singh SP and Gupta SR. *Ecology and Environmental Science and Conservation*, S. Chand Publishing, New Delhi

Sharma, PD. *Ecology and Environment*, Rastogi Publications, Meerut

Hopkins, WG and Huner, PA. *Introduction to Plant Physiology*, John Wiley and Sons.

Pandey SN and Sinha BK, *Plant Physiology*, Vikas Publishing, New Delhi

Taiz, L and Zeiger, E. *Plant Physiology*, 5<sup>th</sup> edition, Sinauer Associates Inc. M.A, USA

Srivastava, HS *Plant Physiology and Biotechnology*, Rastogi Publications, Meerut

## B.Sc. II (BOTANY)

### Practical

1. Taxonomy: Detailed description and identification of locally available plants of the families as prescribed in the theory paper.
2. Economic Botany: Identification and comment on the plants and plant products belonging to different economic use categories
3. Preparation of Herbarium of local wild plants.
4. Quantitative vegetation analysis of a grassland ecosystem.
5. Anatomical characteristics of hydrophytes and xerophytes.
6. Demonstration of root pressure.
7. Demonstration of transpiration.
8. Demonstration of evolution of O<sub>2</sub> in photosynthesis, factors affecting of photosynthesis.
9. Comparison of R.Q. of different respiratory substrates.
10. Demonstration of fermentation.
11. Determination of BOD of a water body.
12. Demonstration of mitosis.

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## PRACTICAL SCHEME

TIME: 4 Hrs.

M.M. : 50

1.	Anatomy	08
2.	Economic Botany	04
3.	Physiology	08
4.	Ecology	10
5.	Spotting	10
6.	Viva-Voce	05
7.	Project Work/ Field Study	10



(Dr. J.N. Verma)

Proff. & Head

Govt. D.B. Girls PG College

Raipur, (C.G.)




(Dr. Rekha Pimpalgaonkar)

Proff. & Head

Govt. N PG Science College

Raipur, (C.G.)



(Dr. Ranjana Shrivastava)

Proff. & Head

Govt. VYTPG Science College

Raipur, (C.G.)



(Mrs. Sanchal Moghe)

Govt. Bilasa Girls College, Bilaspur



(Mr. Shivakant Mishra)

(Mr. Sudheer Tiwari)



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# **Hemchand Yadav Vishwavidyala, Durg (C.G.)**

## **Zoology**

### **B.Sc. Part – II (2019-20)**

#### **Paper – I**

#### **(Anatomy and Physiology)**

Comparative Anatomy of various organ systems of vertebrates:

##### **Unit: I**

- Integument and its derivatives: structure of scales, hair and feathers
- Alimentary canal and digestive glands in vertebrates
- Respiratory organs : Gills and lung , air-sac in birds

##### **Unit: II**

- Endoskeleton: (a) Axial Skeleton- Skull and Vertebrae, (b) Appendicular Skeleton Limbs and girdles
- Circulatory System: Evolution of heart and aortic arches
- Urinogenital System: Kidney and excretory ducts

##### **Unit: III**

- Nervous System: General plan of brain and spinal cord
- Ear and Eye: structure and function
- Gonads and genital ducts

##### **Unit: IV**

- Digestion and absorption of dietary components
- Physiology of heart, cardiac cycle and ECG
- Blood Coagulation
- Respiration: mechanism and control of breathing

##### **Unit: V**

- Excretion: Physiology of excretion, osmoregulation
- Physiology of muscle contraction
- Physiology of nerve impulse, Synaptic transmission

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**Zoology**  
**B.Sc. Part – II (2019-20)**

Paper-II

**VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY  
BEHAVIOUR, EVOLUTION AND APPLIED ZOOLOGY**

**Unit: I**

- Structure and function of Endocrine glands
- Hormone receptor
- Biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones
- Endocrine disorder of pituitary, thyroid, adrenal and pancreas

**Unit:II**

- Reproductive cycle in vertebrates
- Menstruation, lactation and pregnancy
- Mechanism of parturition
- Hormonal regulation of gametogenesis

**Unit: III**

- Evidences of organic evolution.
- Theories of organic evolution.
- Variation, Mutation, Isolation and Natural selection.
- Evolution of Horse

**Unit:IV**

- Introduction to Ethology: Branches and concept of ethology.
- Patterns of Behaviour, Taxes, Reflexes, Drives and Stereotyped behaviour.
- Reproductive behavioural patterns.
- Drugs and behavior, Hormones and behaviour

**Unit:V**

- Prawn Culture
- Sericulture
- Apiculture
- Pisciculture
- Poultry keeping
- Elements of Pest Control: Chemical & Biological Control

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**Zoology**  
**B.Sc. Part II (2019-20)**  
**Practical**

The practical work in general shall be based on the syllabus prescribed and the students will be required to show the knowledge of the following:

- Study of the representative examples of the different chordates (Classified characters).
- Dissection of various systems of scoliodon-Afferent and Efferent branchial cranial nerves, internal ear.

**Alternative methods: By Clay/Thermacol/ Drawing/ Model etc.)**

- Simple microscopic technique through unstained or stained permanent mount.
- Study of prepared slides histological, as per theory papers.
- Study of limb girdles and vertebrae of Frog, Varanus, Fowl and Rabbit.
- Identification of species and individual of honey bee.
- Life cycle of honey bee and silkworm.
- Exercise based on Evolution and Animal behavior.

**Scheme of Practical Exam**

**Time: 3:30hrs**

• Major dissection (Cranial nerves/efferent branchial vessel)	10
• Exercise based on evolution	05
• Exercise based on applied zoology	05
• Exercise based on animal behavior	04
• Spotting-8 (slides-4,bones-2,specimen-2)	16
• Viva	05
• Sessional marks.	05

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# MICROBIOLOGY

## BSc-2<sup>nd</sup>

### Paper- I: Molecular Biology and Genetic Engineering

#### UNIT-1: FUNDAMENTALS OF MOLECULAR BIOLOGY

History and scope of molecular biology, concept and mechanism of heredity. DNA as genetic material- experimental evidences. DNA replication- mechanism, process and enzymes/proteins involved in replication.

#### UNIT-2: CENTRAL DOGMA OF PROTEIN SYNTHESIS

Transcription- initiation, elongation, termination, RNA polymerases and sigma factor. Transcription inhibitors (antibiotics, drugs). Translation- initiation, elongation and termination. Factors involved in translation. Genetic code.

#### UNIT-3: MUTATION AND DNA REPAIR MECHANISM

Introduction and Types of Gene mutations- Base substitution, frame shift mutation (insertion, deletion, miss-sense, nonsense mutation.) mutagens – physical and chemical. Reverse mutation in bacteria. DNA repair mechanism (mismatch repair, photo-reactivation, excision and SOS repair). Beneficial and harmful effect of mutation.

#### UNIT-4: GENE REGULATION

Concept of gene- Cistron, Recon, Muton. Operon Concept- lac Operon, tryptophan Operon, His Operon. Activator, Co-activator and Repressor. Introduction to Bioinformatics- Elementary genome Database.

#### UNIT-5: GENETIC ENGINEERING

Basic concept of Genetic Engineering, DNA modifying enzymes Restriction endonuclease, DNA ligase, terminal transferase. Vectors- pBR322, pUC19, BAC and YAC. Phage based vectors, expression of vector. Transformation – physical and chemical method. Bacterial Host. Screening of recombinant vector Blue white Screening, Colony Hybridization.

### Text Books Recommended:

1. Gene Cloning by T.A. Brown.
2. General Microbiology by Power and Daganwala.
3. Zinssers Microbiology by KJ Wolfgang. McGraw- Hill Company.
4. Microbial Genetics by RM Stanley, F David and EC John.
5. Bacteriological Techniques by FJ Baker.
6. Molecular Biology of the Cell; 3rd Edition; Bruce Alberts ,et.al; Garland Publishing.
7. Cell biology; C.B. Powar; Himalaya Publishing House; Fifth edition
8. Cell & Molecular Biology; Gerald Karp; Fourth edition
9. A Textbook of Microbiology; Dubey&Maheshwari; S.chand& Sons.
10. Cell biology & Genetics; P. K. Gupta
11. Introduction to Bioinformatics; T K Atwood and D J Parry-Smith; Pearson Education Ltd

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**Paper- II: Bioinstrumentation and Biostatistics****UNIT-1: MICROSCOPY AND CENTRIFUGATION**

Simple and compound light microscope, Bright field, Dark field, Phase contrast and Electron microscope. Centrifugation- principle and types of centrifuges (analytical and preparatory), types of centrifugation- differential and rate zonal centrifugation.

**UNIT-2: pH metry and chromatography**

Principle of pH meter, types of electrodes, factors affecting pH measurements, and application of pH meter. Chromatography- principle, types- paper, TLC and column chromatography, HPLC.

**UNIT-3: SPECTROPHOTOMETRY**

Electromagnetic spectrum, Beers-Lamberts law, Types (Principles, working and application)- colorimeter, UV - Vis Spectrophotometry and IR- Spectrophotometry, Turbidometry.

**UNIT-4: Electrophoresis and X-Ray Diffraction**

Principle of electrophoresis, instrumentation and Application, types of Paper, Gel electrophoresis and Immunoelectrophoresis. X-ray diffraction- principle and application.

**UNIT-5: Biostatistics**

Data- Types, characteristics, presentation and distribution. Data analysis- central tendency (Mean, Median and Mode), Deviation (variance SD and SE). Concept of probability.

***Text Books Recommended:***

1. Introduction to Instrumental analysis by Robert Braun.
2. Instrumental Techniques by Upadhyay and Upadhyay.
3. Instrumental Methods of Chemical Analysis by BK Sharma.
4. Bio statistics; Sunder Rao
5. Statistical Methods; S. P. Gupta; Sultan Chand & Sons

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## PRACTICAL

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Determination of antibiotic resistance by plating method.  
 Assaying of microbial enzymes; Catalase, Proteases, Peroxidases,  
 Cellulase, Cellobioases, Amylase, Diastase.  
 Exercise on paper, thin layer, column chromatography.  
 Exercise on paper and gel electrophoresis.  
 determination of pH of various water and soil sample.  
 testing of lambert beer's law.  
 Determination of lamda max of dye by spectrophotometer  
 Isolation of resistant bacteria from soil and water sample

## Scheme of Practical Examination

Time - 4 hours

M.M. 50

1. Exercise on spectrophotometer/ pH meter	10
2. Exercise on chromatography	10
3. Exercise on genetics	05
4. Spotting (1-5)	10
5. Viva-Voce	05
6. Sessional	10

Total 50

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# HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)

## Scheme of Examination

कक्षा	प्रश्नपत्र	विषय समूह	सैद्धा. अंक	प्रायो. अंक	योग
BSc. I year	I	भूगतिकी एवं भू-आकृति विज्ञान (Geodynamics & Geomorphology)	50	50	150
	II	खनिज एवं क्रिस्टल विज्ञान (Mineralogy & Crystallography)	50		
BSc. II year	I	शैलिकी (Petrology)	50	50	150
	II	संरचनात्मक भूविज्ञान (Structural Geology)	50		
BSc. III year	I	जीवाश्म विज्ञान एवं संस्तर विज्ञान (Palaeontology & Stratigraphy)	50	50	150
	II	भूसंसाधन एवं व्यावहारिक भूविज्ञान (Earth Resources & Applied Geology)	50		

### -: Note :-

प्रत्येक वर्ष के विद्यार्थियों हेतु पाठ्यक्रम में उल्लेखित भूवैज्ञानिक क्षेत्रीय अध्ययन अनिवार्य होगा।

  
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कक्षा / Class- B.Sc-II  
Paper –I  
शैलिकी  
(PETROLOGY)

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- इकाई—01
- (i) मैग्मा; परिभाषा, उत्पत्ति एवं संगठन
  - (ii) बॉवेन की अभिक्रिया श्रेणी, मैग्मीय विभेदन एवं स्वांगीकरण
  - (iii) तंत्र, प्रावस्था एवं घटक, उष्मागतिकी के सिद्धांत, एकघटकीय (सिलिका) द्विघटकीय ऐल्बर्ट—एनॉर्थाइट तथा डायोप्साइड—एनॉर्थाइट एवं त्रिघटकीय सिलिकेट सिस्टम डायोप्साइड—एल्बर्ट—एनॉर्थाइट क्रिस्टलीकरण, प्रावस्था संतुलन
  - (iv) आग्नेय शैलों का गठन, संरचनायें एवं वर्गीकरण
  - (v) आग्नेय शैलों का रूप
- इकाई—02
- (i) दिक्काल में शैल—संलग्नता, शैल—ग्रंथियों की अवधारणा
  - (ii) अम्लीय आग्नेय शैलों का शिला विवरणात्मक अध्ययन
  - (iii) क्षारीय आग्नेय शैलों का शिला—विवरणात्मक अध्ययन
  - (iv) अल्पसिलिक आग्नेय शैलों का शिलाविवरणात्मक अध्ययन
  - (v) अत्यल्पसिलिक आग्नेय शैलों का शिलाविवरणात्मक अध्ययन
- इकाई—03
- (i) अवसाद की उत्पत्ति, परिवहन एवं निक्षेपण
  - (ii) अवसाद निक्षेपण की वायूढ़, जलोढ़, तटीय, एवं गंभीर समुद्री वातावरण की गतिकी
  - (iii) अवसादी संलक्षणाओं की अवधारणा
  - (iv) डायजिनेसिस की अवधारणा
  - (v) अवसादी शैलों का गठन एवं संरचनायें
- इकाई—04
- (i) अवसादी शैलों का वर्गीकरण
  - (ii) अवसादी शैलों की शैलिकी : रूडेशियस, एरेनेशियस, केल्केरियस अवसादी शैल
  - (iii) कायान्तरण: परिभाषा एवं कारक, संलक्षणा, कायान्तरण श्रेणी
  - (iv) कायान्तरित शैलों का गठन, संरचना एवं वर्गीकरण
  - (v) कायान्तरण प्रक्रियाओं की साम्य एवं असाम्य अभिक्रियायें

  
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- इकाई—05
- (i) पैराजिनेटिक—आरेख: प्रक्षेपीय विश्लेषण, ए.सी.एफ. एवं ए.के.एफ. आरेख
  - (ii) मृण्मय अवसादों का प्रगामी कायान्तरण
  - (iii) अशुद्ध चूना पत्थरों का प्रगामी—उष्मागतिक कायान्तरण
  - (iv) अल्प सिलिक शैलों का प्रगामी उष्मागतिक कायान्तरण
  - (v) भारत का शैलिकीय—प्रादेशिक विभाजन

#### **प्रायोगिक कार्य—**

- (1) आग्नेय, अवसादी एवं कायान्तरित शैलों के विभिन्न रूपों एवं संरचनाओं को रेखाचित्र की सहायता से प्रदर्शित करना।
- (2) विभिन्न आग्नेय शैलों का स्थूलदर्शी अध्ययन एवं सूक्ष्मदर्शी अध्ययन
- (3) विभिन्न अवसादी शैलों का स्थूलदर्शी एवं सूक्ष्मदर्शी अध्ययन
- (4) विभिन्न कायान्तरित शैलों का स्थूलदर्शी एवं सूक्ष्मदर्शी अध्ययन
- (5) भारत के शैलिकीय प्रदेशों का मानचित्र में प्रदर्शन
- (6) नार्म कैलकुलेशन

#### **Suggested Readings:-**

- |  |   |  |
|--|---|--|
| (1) शैलिकी के सिद्धान्त                                | — | डॉ. अंबिका प्रसाद अग्रवाल              |
| (2) शैलिकी के सिद्धान्त                                | — | ए. जी. झिंगरन                          |
| (3) Principles of petrology                            | - | G.W. Tyrell                            |
| (4) Petrology  | - | H. William, F.J. Turner & E.M. Gilbert |
| (5) Petrology of igneous & metamorphic rocks of India- |   | S.C. Chattarjee                        |
| (6) A text book of sedimentary petrology               | - | Verma & Prasad                         |
| (7) Metamorphism & Metamorphic rocks of India-         |   | S. Ray                                 |
| (8) Sedimentary rocks                                  | - | F.J. Pettijohn                         |
| (9) Introduction of sedimentology                      | - | S. Sengupta                            |
| (10) Sedimentary Environment                           | - | H.G. Readings                          |

  
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<b>Unit:1</b>	<ul style="list-style-type: none"> <li>(i) Magma, definition, origin &amp; composition</li> <li>(ii) Bowen's reaction series, magmatic differentiation &amp; assimilation</li> <li>(iii) System, phases &amp; component, principles of thermodynamics, Crystallisation and phase equilibrium of unicomponent magma:(Silica), Bi-component magma: Albite-Anorthite and Diopside-Anorthite Tri-component magma: Diopside-Albite-Anorthite</li> <li>(iv) Textures, structures &amp; classification of igneous rocks</li> <li>(v) Forms of igneous rocks</li> </ul>
<b>Unit:2</b>	<ul style="list-style-type: none"> <li>(i) Rock association in Time &amp; Space, concepts of rock kindreds</li> <li>(ii) Petrographic studies of Acid igneous rocks.</li> <li>(iii) Petrographic studies of Alkaline igneous rocks</li> <li>(iv) Petrographic studies of Basic igneous rock</li> <li>(v) Petrographic studies of Ultrabasic igneous rocks.</li> </ul>
<b>Unit:3</b>	<ul style="list-style-type: none"> <li>(i) Origin, transportation &amp; deposition of sediments</li> <li>(ii) Dynamics of sedimentary depositional environment; Aeolian, fluvial, coastal and abyssal environment.</li> <li>(iii) Concept of sedimentary facies</li> <li>(iv) Concept of diagenesis</li> <li>(v) Textures &amp; structures of sedimentary rocks.</li> </ul>
<b>Unit:4</b>	<ul style="list-style-type: none"> <li>(i) Classification of sedimentary rocks.</li> <li>(ii) Petrography of sedimentary rock; rudaceous, arenaceous, calcareous sedimentary rocks.</li> <li>(iii) Metamorphism; definition, agents, facies &amp; grade</li> <li>(iv) Textures, structures &amp; classification of metamorphic rocks.</li> <li>(v) Equilibrium &amp; non-equilibrium reactions in metamorphism.</li> </ul>
<b>Unit:5</b>	<ul style="list-style-type: none"> <li>(i) Paragenetic diagrams; projective analysis A.C.F &amp; A.K.F. diagrams</li> <li>(ii) Progressive metamorphism of Argillaceous rocks.</li> <li>(iii) Progressive dynamo-thermal metamorphism of impure limestone.</li> <li>(iv) Progressive dynamo-thermal metamorphism of basic igneous rocks.</li> <li>(v) Petrographic provinces of India.</li> </ul>

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**Practical:**

- (1) Diagrammatic representation of various forms & structures of igneous, sedimentary & Metamorphic rocks
- (2) Megascopic studies of various sedimentary, metamorphic & igneous rocks.
- (3) Microscopic studies of various sedimentary, metamorphic & igneous rocks.
- (4) Norm calculation
- (5) Diagrammatic representation of petrographic provinces of India in outline map of India.

**Suggested Readings:-**

- |  |   |  |
|--|---|--|
| (1) शैलिकी के सिद्धान्त                                | — | डॉ. अंबिका प्रसाद अग्रवाल              |
| (2) शैलिकी के सिद्धान्त                                | — | ए. जी. झिंगरन                          |
| (3) Principles of petrology                            | - | G.W. Tyrell                            |
| (4) Petrology  | - | H. William, F.J. Turner & E.M. Gilbert |
| (5) Petrology of igneous & metamorphic rocks of India- |   | S.C. Chattarjee                        |
| (6) A text book of sedimentary petrology               | - | Verma & Prasad                         |
| (7) Metamorphism & Metamorphic rocks of India-         |   | S.Ray                                  |
| (8) Sedimentary rocks                                  | - | F.J. Pettijohn                         |
| (9) Introduction of sedimentology                      | - | S.Sengupta                             |
| (10) Sedimentary environment                           | - | H.G. Readings                          |

  
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कक्षा / Class- B.Sc-II  
Paper –II  
संरचनात्मक भू-विज्ञान  
(STRUCTURAL GEOLOGY)

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- इकाई—01 (1) संरचनात्मक भूविज्ञान की परिभाषा एवं अध्ययन क्षेत्र।  
(2) शैल दृष्यांशों का अध्ययन। दृष्यांशों पर नति तथा ढाल के प्रभाव।  
(3) संस्तरण की पहचान। नति एवं नतिलम्ब की माप।  
(4) क्लाइनोमीटर एवं ब्रन्टन कम्पास।  
(5) संस्तरों के शीर्ष तथा तल की पहचान।  
(6) शैलविरूपण की अवधारणा। प्रतिबल तथा विकृति दीर्घवृत्तज की अवधारणा।
- इकाई—02 (1) वलन की आकारिकी।  
(2) वलन की ज्यामितिक एवं जननिक वर्गीकरण।  
(3) स्थलीय तथा भूवैज्ञानिक मानचित्र में वलन की पहचान।  
(4) दृष्यांशों पर वलन के प्रभाव।  
(5) वलन क्रियाविधि की प्राथमिक अवधारणा।
- इकाई—03 (1) भ्रंश आकारिकी। सर्पण और सेपरेशन।  
(2) भ्रंश का ज्यामितिक एवं जननिक वर्गीकरण।  
(3) स्थलक्षेत्र तथा भूवैज्ञानिक मानचित्र में भ्रंश की पहचान।  
(4) दृष्यांशों पर भ्रंश के प्रभाव।  
(5) भ्रंशन क्रियाविधि की प्राथमिक अवधारणा।
- इकाई—04 (1) संधि; आकारिकी, संधि का ज्यामितिक एवं जननिक वर्गीकरण।  
(2) पत्रण की परिभाषिक शब्दावली, प्रकार, उत्पत्ति एवं विशाल संरचनाओं से संबंध।  
(3) रेखण की परिभाषिक शब्दावली, प्रकार, उत्पत्ति एवं विशाल संरचनाओं से संबंध।  
(4) लवण गुम्बद,  
(5) प्लूटान; विवर्तनिकी एवं अभिस्थापन
- इकाई—05 (1) विषमविन्यास के प्रकार एवं पहचान।  
(2) पुरान्तशायी एवं नवान्तशायी, अतिव्यापन तथा अपव्यापन।  
(3) विवर्तनिकी की अवधारणा।  
(4) प्रायद्वीपीय, सिंधु गंगा के मैदान तथा प्रायद्वीपेत्तर भारत का विवर्तनिकी विन्यास।  
(5) त्रिविमीय प्रक्षेपण का संरचनात्मक भूविज्ञान में अनुप्रयोग।

  
22-5-19

  
22/5/19

## प्रायोगिक कार्य—

- (1) प्राकृतिक संरचनात्मक प्रादर्शों का अध्ययन ।
- (2) विभिन्न संरचनाओं का प्रादर्शों के माध्यम से अध्ययन ।
- (3) मानचित्र में दृश्यांश को पूरा करना ।
- (4) सरल से जटिल संरचनाओं को प्रदर्शित करने वाले मानचित्रों से भूवैज्ञानिक काट बनाना एवं भूवैज्ञानिक इतिहास की विवेचना करना ।
- (5) संरचनात्मक भूविज्ञान में स्टिरियोग्राफिक प्रोजेक्शन का अनुप्रयोग ।
- (6) सात दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन ।

  
22-5-19

  
22/5/19

Class- B.Sc - II  
Paper –II  
(STRUCTURAL GEOLOGY)

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- Unit:1**
- (i) Definition and scope of Structural Geology. Study of outcrops. Effects of dip and slope on outcrops.
  - (ii) Identification of bedding. Dip and strike measurement.
  - (iii) Clinometer and Brunton compass.
  - (iv) Recognition of top and bottom of beds.
  - (v) Concept of rock deformation. Concept of stress and strain ellipsoids.
- Unit:2**
- (i) Fold morphology.
  - (ii) Geometric and genetic classification of folds.
  - (iii) Recognition of folds in the field and on geological maps.
  - (iv) Effect of folds on outcrops.
  - (v) Elementary idea of mechanics of folding.
- Unit:3**
- (i) Fault morphology. Slip and separation.
  - (ii) Geometric and genetic classification of faults.
  - (iii) Recognition of faults in the field and on geological maps.
  - (iv) Effect of faults on outcrops.
  - (vi) Elementary idea of mechanics of faulting.
- Unit:4**
- (i) Joint morphology; geometric and genetic classification of joints.
  - (ii) Foliation; terminology, kinds, origin and relation to major structures.
  - (iii) Lineation: terminology, kinds, origin and relation to major structures.
  - (iv) Salt domes.
  - (vii) Plutons; tectonics & emplacement.
- Unit:5**
- (i) Types and recognition of Unconformity.
  - (ii) Outlier and inlier. Overlap & offlap.
  - (iii) Concept of tectonics.
  - (iv) Tectonic framework of Peninsula, Indo-Gangetic Plains and Extra-Peninsular India.
  - (v) Stereographic projection & its use in Structural Geology.

  
27-5-19

  
27/5/19

**Practical-**

- (1) Study of Natural Structures in hand specimens.
- (2) Study of structures with the help of models.
- (3) Completion of outcrops.
- (4) Preparation of geological section from simple to complex geological maps and its interpretation.
- (5) Application of stereographic projection in structural geology.
- (6) Geological excursion for seven days.

**Books recommended:**

- (1) संरचनात्मक भूविज्ञान — डॉ.डी.के. श्रीवास्तव
- (2) भूवैज्ञानिक संरचनाएँ — डॉ. भरत सिंह राठौर
- (3) प्रायोगिक भूविज्ञान (भाग-2) — आर.पी. मांजरेकर
- (4) Structural Geology : M.P. Billings.
- (5) Theory of Structural Geology : Gokhale, N.W.
- (6) Exercises on Geological maps and dip-Strike: Gokhale, N.W.
- (7) Outlines of structural Geology: E.S. Hills.
- (8) Structural Geology : Hobbs, Means and Williams.
- (9) Geological maps : Chiplonkar and Pawar.

  
27-5-19

  
27/5/19

## **B.A./B.Sc. – Second Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- First  
Name of the Paper :- ARCHAEOLOGICAL ANTHROPOLOGY

Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT – I      Meaning and scope of Archaeological Anthropology, branches of Archaeology: Classical Archaeology, Historical Archaeology, Prehistoric Archaeology and Protohistoric Archaeology. Anthropology as Archaeology. Differences between the Old world and new world Archaeological Traditions. Absolute and Relative Dating.
- UNIT – II      Geological time scale. The Great Ice Age  
Stratigraphy and other evidences of Ice Age: River terraces. Moraines etc. Pluvial and interpluvials  
Stone Age tools: Types and Technology.
- UNIT – III      Age of Paleolithic savagery:  
European lower Paleolithic period: Stone tools and cultures  
Indian lower Paleolithic period: Sohan Culture & Madrasian Culture.  
European Middle Paleolithic Period: Tools & culture; Flake tool complex in India  
European Upper Paleolithic period; Tools and Culture, main characteristics of the European Paleolithic Home and Cave art and its significance.
- UNIT – IV      Mesolithic complex in North Europe. Mesolithic complex in Western Europe, Mesolithic Culture in India. Chief feature of Neolithic revolution. Neolithic complex in India.
- UNIT – V      Metal Age: Copper, Bronze and Iron Age  
Urban revolution: General Features  
Indus valley civilization: Main Features, Town Planning, Economic activities, origin and decay

  
20/06/19

## **B.A. /B.Sc. – Second Year**

**Session: 2019-20**

Name of the Subject :- Anthropology  
Paper :- Second  
Name of the Paper :- TRIBAL CULTURE OF INDIA  
Total Marks : 50

Pass Marks : 17

### **Syllabus**

- UNIT-I** Define tribe and scheduled tribe. Geographical distribution of Indian tribes and their racial and linguistic classification. Contribution of Anthropology in the study of Indian tribes.  
Sacred complex, Universalisation and parochialisation, Sanskritisation, westernization, dominant caste.  
Tribes and caste, Difference between S.C. and S.T.  
Particularly Vulnerable Tribes Group (PVTG) of Chhattisgarh (Kamar, Birhor, Hill Korwa, Abujmariya, Baiga)
- UNIT-II** Primitive economy:-  
Stages of tribal economy: Hunting, food gathering, fishing, shifting and settled agriculture.  
Concept of Property and ownership in tribal societies  
Problems of tribal people: land alienation, bonded labour, indebtedness, shifting cultivation, irrigation, Unemployment, agricultural labour; Forest and Tribals  
New economic anthropology: Exchange- Gifts, barter, trade, ceremonial exchange and market economy
- UNIT-III** The problems of culture contact: Problems due to urbanization and industrialization, Regionalism  
Tribal religion: origin & function, animism, totemism.  
Concept and practices of Magic and witchcraft, shamanism, head hunting.
- UNIT-IV** Political organisation of Indian tribes: Distinction between state and stateless society, law in primitive society  
Social organization of Indian Tribes: Matriarchal and patriarchal family,. Lineage and clan, Ways of acquiring mates in tribal societies.  
Youth dormitories: Type, organisation and functions.
- UNIT-V** Tribal development: History of tribal development, the constitutional safeguards for the scheduled tribes.  
Tribal problem: isolation, migration, acculturation, detribalization.  
Policies, plans and programmes of tribal development and their implementation. Tribal revolts in India.  
Contributions of anthropology to tribal development.  
Response of the tribal people for development programs of government and NGO

  
20/06/19

Recommended Readings:

1. Chaudhary, Bhudadeb (Ed.). Tribal Development in India.
2. Elwin, V.A. Philosophy for NEFA.
3. Haimendorf. The Tribes of India: Struggle for survival.
4. Shara B.D. Basic Issues in tribal Development.

Smit  
20/06/19



## **B.A./B.Sc. – Second Year**

**Session : 2019-20**

Name of the Subject :- Anthropology  
Paper :- Practical  
Name of the Paper :- MATERIAL CULTURE AND RESEARCH TOOLS

Total Marks : 50

Pass Marks : 17

### **OBJECTIVES :**

The objective of this practical course is to introduce the student with the primitive material culture and technology used by primitive man and the student will be introduced with various techniques commonly used by social Anthropology.

### **MATERIAL CULTURE :**

- Part – I. Identification and technological descriptions of the following.
1. Implements for food gathering, hunting, fishing and agriculture
  2. Fire making implements
  3. Types of habitations
  4. Land and water transport
- Part-II Sketching, identification and the description of Paleolithic, Mesolithic and Neolithic tools
- ( It is essential that students should draw at least five tools of each age )
- Part- III Construction of schedule, Geneology and Questionnaire
- Each student should collect information through above tools from 10 Respondents.
- The Student will be required to maintain practical records of all work done in the practical class.

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**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**  
**Syllabus for B.A. / B.Sc. Course, 2019-20**  
**Subject: Statistics**

Each year of B.A. /B.Sc. I, II, III shall have two theories and one practical course. All the Theory as well as Practical Examinations will be of 3 hours duration. In each practical examination 10% marks shall be fixed for viva –voce and 20% marks for practical record.

Scheme of Examination

	<b>Title of the paper</b>	<b>MAX. Marks</b>
<b>B.A./B.Sc. I</b>	<b>Paper-I</b> (Code No. 0803): <b>Probability I</b>	50
	<b>Paper-II</b> (Code No. 0804): <b>Descriptive Statistics I</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. II</b>	<b>Paper-I</b> (Code No. 0853): <b>Statistical Methods</b>	50
	<b>Paper-II</b> (Code No. 0854): <b>Sampling Theory and Design of Experiments</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>
<b>B.A./B.Sc. III</b>	<b>Paper I</b> (Code No. 0907): <b>Applied Statistics</b>	50
	<b>Paper II</b> ( Code No. 0908): <b>Statistical Quality Control and Computational Techniques</b>	50
	<b>Paper III: Practical-</b> Based on Theory Papers I & II	50
	<b>Total</b>	<b>150</b>

**B.A./B.Sc. –II**  
**Subject: Statistics**  
**Paper-I( Paper Code-0853)**  
**Statistical Methods**

**Unit I**

Sampling from a distribution: Definition of a random sample, simulating random sample from standard distributions (uniform, Normal, Exponential), concept of derived distributions of a functions of random variables, concept of a statistics and its sampling distribution. Point estimate of a parameter. Properties of a good estimator, Concept of bias and standard error of an estimate .Standard errors of sample mean, sample proportion. Sampling distribution of sum of Binomial, Poisson and mean of Normal distributions. Independence of sample mean and variance in random sampling from a Normal distribution (without derivation).

**Unit II**

Statistical tests and interval estimation: Null and alternative hypothesis. Types of errors, level of significance, p values, one and two tailed tests, Procedure for testing of hypothesis. Statement of chi-squares, Student's t and F statistics. Testing for the single mean and variance of a univariate normal distribution, testing the equality of two means and testing for the equality of two variances of two univariate normal distributions. Related confidence intervals. Testing for the significance of sample correlation in sampling from bi-variate normal distribution and for equality of means and equality of variances in sampling from bivariate normal populations.

**Unit III**

Large sample tests: use of central limit theorem for testing and interval estimation of a single mean and a single proportion and difference of two means and two proportions, Fisher's Z transformation and its uses. Pearson's chi-square test for goodness of fit and for homogeneity for standard distributions. Contingency table and test of independence in a contingency table.

**Unit IV**

Nonparametric tests: Definition of order statistics and their distributions, Non-parametric tests, Sign test for univariate and bivariate distributions, Wilcoxon test, Mann-Whitney test, Run test, median test and Spearman's rank correlation test.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Frund J.E. (2001) Mathematical Statistics, Prentice Hall of India.
2. Goon A.M., Gupta M.K., Das Gupta.B. (1991): Fundamentals of Statistics, Vol.I, World Press, Culcutta.
3. Gupta and Kapoor: Fundamentals of Mathematical Statistics S.Chand & Sons.
4. Hodges, J.L. and Lehman E.L. (1964): Basic Concepts of Probability and Statistics, Holden Day.
5. Mood A.M, Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGraw Hill.

## **ADDITIONAL REFERENCES**

- 1..Bhat B.R., Shrivienkatramana T and Rao Madhava K.S. (1997): A Beginner's Text, Vol. II, New age International (P) Ltd.
2. Rohatgi, V.K. (1967): An Introduction to Probability Theory and Mathematical Statistics, John Wiley & Sons.
3. Snedecor, G.W. and Cochran W.G. (1967): Statistical Methods. Iowa State University Press.

**Paper-II** (Paper Code-0854)  
**Sampling Theory and Design of Experiments**

**Unit I**

Concepts of population and sample, need for sampling, Census and sample survey, Basic concepts in sampling, organizational aspects of survey sampling, sample selection and sample size.  
Some basic sampling methods – simple random sampling (SRS) with and without replacement.

**Unit II**

Stratified random sampling, Systematic sampling, Allocation problems, ratio and regression methods of estimation under SRS.

Non-sampling errors, acquaintance of working (questionnaires, sampling design, methods followed in field investigation, principal findings, etc) of NSSO and other agencies undertaking sample surveys.

**Unit III**

Analysis of variance for one way and two-way classifications. Need for design of experiments, fundamental principal of design, basic designs- CRD, RBD, LSD and their analysis.

**Unit IV**

Missing plot technique. Analysis of co-variance. Factorial experiments :  $2^2$ ,  $2^3$  factorial experiments, illustrations, main effects and interactions, confounding and illustrations. Yates method of finding treatment totals.

**Unit V**

Four short notes, one from each unit will be asked. Students have to answer any two.

**REFERENCES**

1. Cochran W.G. (1977): Sampling Techniques, John Wiley and Sons.
2. Des Raj (2000): Sample Survey Theory, Narosa Publishing House.
3. Murthy M.N.(1967): Sampling Theory and Methods, Statistical Publishing Society, Calcutta.
4. Singh, D. and Chaudhary, F.S. (1986): Theory and analysis of Sample Survey Designs. New Age International Publisher.
5. Sukhatme P.V., Sukhatme B.V., Sukhatme S. and Ashok C.(1984), : Sample Survey Methods and Its Applications, Indian Society of Agricultural Statistics, New Delhi.
6. Das M.N. and Giri (1986) : Design and analysis of experiments, Springer Verlag.
7. Goon A.M., Gupta M.K., Das Gupta B. (1986): Fundamentals of Statistics, Vol.II, World Press, Calcutta.
8. Joshi, D.D.(1987): Linear Estimation and Design of Experiments, Wiley Eastern.
9. Kempthorne O.(1965) : The Design and Analysis of Experiments, Wiley Eastern.

### **Paper III:**

#### **Practical : Practicals Based on Paper I & II**

1. drawing random samples from standard univariate discrete and continuous distributions such as Binomial, Poission, Normal, Cauichy and Exponential.
2. Tests of significance based on Student's t, Chi-square, F. Test of significance of sample correlation coefficient. Use of Z Transformation. Testing of equality of means and equality of variance in sampling from bivariate normal.
3. Large sample tests for means and proportions, tests of goodness of fit and independence of attributes in contingency tables.
4. Nonparametric tests: Sign, Run, Median, Wilcoxon, Mann-Whitney tests.
5. Selection of samples and determination of sample size. Simple random sampling, Statified and systematic sampling. Allocation problem in stratified sampling. Ratio and regression methods of estimation.
6. Analysis of variance for one way and two way classifications. Analysis of CRD, RBD and LSD. Analysis of  $2^2$  and  $2^3$  experiments.

**DEFENCE - STUDIES**  
**PAPER - I**  
**WESTERN MILITARY HISTORY**

**(Paper Code - 0867)**

**Note :** The aim of this paper is to give a historical, political & social back ground of the state engaged in the conflicts under study and the factors influencing the development of different forms of warfare and weapons system.

**Note :** Question will be set from each unit there will be only Internal choice.

- UNIT-I**
1. Sun Tzu - Founder of Military Theory and philosophy.
  2. Clausewitz - War and its relationship with politics.
  3. Machiavelli - Renaissance of Art of war.
  4. Jomini - Concept of mass armies.
- UNIT-II**
1. Churchill.
  2. Mahatma Gandhi.
  3. Kautilya.
  4. A. Hitler.
- UNIT-III**
1. Mao Tse Tung.
  2. Che Guevara.
  3. Economic and Psychological war.
  4. Collective Security.
- UNIT-IV**
1. Indo-China War -1962 Causes of war, political & military lesson.
  2. Indo - Pak War -1965 Causes of war, political & military lesson.
  3. Indo - Pak War - 1971 Causes of war, political & military lesson.
  4. Kargil Conflict 1999.
- UNIT-V**
1. Internal & External threats of National Security.
  2. Insurgency and Counter-Insurgency.
  3. Terrorism-Problem and Solution.
  4. Naxalism - Problem and solution.

**REFERENCE BOOKS:**

1. Howard M. : Theory and Practice of war
2. ---, --- : Clausewitz
3. Mao Tse Tung : Guerilla warfare
4. Palit, D.k. : The lightning War Tadi Yudh
5. Mankekar : War of 1971
6. आर.सी. जोहरी : पाश्चात्य सैन्य विचारक
7. शर्मा च निगम : सैन्य विचारक ।

## **PRACTICAL**

There shall be a practical examination of 3.5 hours duration carrying 50 Marks. The division of marks shall be as follow:

- |                                    |            |
|------------------------------------|------------|
| (a) Exercise based on Map-reading: | 15marks    |
| (b) T.W.E.S.T.                     | : 15marks  |
| (c) Sessional work                 | : 10marks  |
| (d) Viva-Voce                      | : 10markss |

### **PART - A**

Map-reading:

1. Scales - Definition, method of expressing, construction of simple, time, diagonal and comparative.
2. Relief and its representation.
3. Slopes and Gradient.
4. Visibility and inter-visibility by Gradient, proportionate and section method.
5. Re-section and inter-section.
6. Grid system-Map reference, Index to map. Four figure and Six figure.

### **PART - B**

7. Organization and equipment of infantry Platoon and Section.
8. Section Formation.
9. Indication of Target by various methods.
10. Fire control order.
11. Patrols.
12. Battle Procedures (ROFT).
13. Verbal Order.
14. Message-Writing.

### **BOOKS RECOMMENDED:**

1. Manual of Map Reading: Landon Her
2. युद्ध स्थल कला : चौ. नरेन्द्र सिंह
3. एन.सी.सी. परिचय : विष्णु कांत शर्मा ।

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## INDUSTRIAL CHEMISTRY

### PAPER – I

(Paper Code - 0871)

M.M. 34

**UNIT-I** Material Science : Mechanical Properties of materials and change with respect to temperature. **02L**

**Material of constructions used in Industry :**

**Metals and Alloys :** Important metals & alloys; iron, copper, aluminium lead, nikel, titanium and their alloys- Mechanical and chemical properties and their applications. **06L**

**Cement :** Types of cement, composition, manufacturing process, setting of cement. **04L**

**Ceramics :** Introduction, Types, Manufacturing process, Applications. Refractories. **04L**

**UNIT-II** Polymeric Mateials : Industrial polymer and comoposite materials- Their constitution, Chemical and physical properties, Industrial applications. **06L**

**UNIT-III Glass :** Types, composition, manufacture, physical and chemical properties, Applications. **04L**

**Corrosion :** Various types of corrosion relevant to chemical Industry-Machanism, Preventive methods. **04L**

**UNIT-IV** Pollution : Air, Oxygen, nitrogen cycle, water, Biosphere, flora and fauna, Energy, soil. **05L**

Pollutants and their statutory limits, pollution evaluation methods. **04L**

**UNIT-V** Air pollution-various pollutants. water pollution-organic/inorganic pollutants, Noise pollution, sewage analysis, pesticide pollution, Radiation pollution, green house effect, future. **10L**

### Books Recommended :

1. Pollution control in chemical & Allied Industries, S.P. Mahajan.
2. Poolution Control in Industries, A Sories of Books by Jones, H.P.
3. Air Pollution - Vol.1 to 4, Editor, STERN, A.C.; Academic Press.
4. Environmental Engineering, G.N. Pandey, Tata McGraw Hill.
5. Homd Book of Air Pollution, A. Parker, Tata McGraw Hill.
6. Science of Ceromic chemical Processing, Hench, L.L.
7. Science of Ceramics, Stewarts, G.H.
8. Chemistry of Cement.
9. Properties of Glass, Morcy, G.W.
10. Chemistry of Glasses, Paul, A.
11. Corrosion, causes & Prevention, Spellur, F.N.



**PAPER - II**  
**(Paper Code - 0872)**

**M.M. 33**

**UNIT-I** Unit processes in organic chemicals manufacture -

**Nitration** : Introduction - Nitrating agents, Kinetics and mechanism of nitration processes such as nitration of :

- i. Paraffinic hydrocarbons
- ii. Benzene to nitrobenzene and m-dinitrobenzene
- iii. Chlorobenzene to o and p nitrochloro benzenes.
- iv. Acetanilide to p-nitroacetanilide
- v. Toluene

Continuous vs batch nitration.

**12L**

**UNIT-II Helogenation:** Introduction-Kinetics of helogenation reactions reagents for elogenation, Helogenation of aromatics-side chain and nuclear helogenations, commercial manufacture of chlorobenzenes, chloral, monochloroacetic acid and chloromethanes, dichloro fluormethane.

**09L**

**UNIT-III Sulphonation** : Introduction-sulphonating agents, chemical and physical factors in sulphonation, Kinetics and mechanism of sulphonation reaction, commercial sulfonation of benzene, naphthalene, alkyl benzene, Batch vs continuous sultphonation.

**09L**

**UNIT-IV Effluent Treatment and waste Management** : Principles and equipments for aerobic, anaerobic treatment, adsorption, filtration, sedimentation. **09L**

**UNIT-V** Bag fillters, electrostatic precipitator, mist eliminators, wet scrubbers, absorbers, solid waste management, industrial safety. **09L**

**Books Recommended :**

1. Unit process in Organic synthesis P.M. Groggins, McGraw Hill.
2. Effluent Treatment in process Industries - Inst. of Cham. Engg.
3. Effluent Treatment and waste Disposal - Inst. of Chem. Engg.
4. Effluent Treatment and Disposal - Inst. of Chem. Engg.

  
The image shows six handwritten signatures, each followed by the date '24.7.17'. The signatures are written in blue ink on a white background. The first signature is 'Abhinav', the second is 'Abhishek', the third is 'Aashu', the fourth is 'Dhruv', the fifth is 'Pratik', and the sixth is 'Vijay'.

**PAPER - III**  
**(Paper Code - 0873)**

**M.M. 33**

**UNIT-I Oxidation :** Introduction-Types of oxidation reactions, oxidizing agents, kinetics and mechanism of oxidation of organic compounds liquid phase oxidation, vapor phase oxidation, commercial manufacture of benzoic acid, maleic anhydride, phthalic anhydride, acrolein, acetaldehyde, acetic acid. **07L**

**UNIT-II Hydrogenation :** Introduction-Kinetics and thermo-dynamics of hydrogenation reactions, catalysts for hydrogenation reactions, hydrogenation of vegetable oil. manufacture of methanol from carbon monoxide and hydrogen, hydrogenation of acids and esters to alcohols, catalytic reforming. **07L**  
**Alkylation:** Introduction; Types of alkylation, Alkylating agents, Thermodynamics and mechanism of alkylation reactions, manufacture of - alkyl benzenes (for detergent manufacture), ethyl benzene, phenyl ethyl alcohol, N-alkyl anilines (mono and di- methyl anilines) **03L**

**UNIT-III Esterification :** Introduction; Hydrodynamics and kinetics of esterification reactions, Esterification by organic acids, by addition of unsaturated compounds, esterification of carboxy acid derivatives, commercial manufacture of ethyl acetate, dioctyl phthalate, vinyl acetate, cellulose acetate. **04L**

**Amination : (A) By reduction :** Introduction, Methods of reduction-metal and acid, catalytic, sulfide, electrolytic, metal and alkali sulfites, metal hydrides, sodium metal, concentrated caustic oxidation, reduction, commercial manufacture of aniline, m-nitroaniline, p-amino phenol.

**(B) By aminolysis :** Introduction, aminating agents, factors affecting. **09L**

**Hydrolysis :** Introduction; hydrolysing agents, kinetics, thermodynamics and mechanism of hydrolysis. **02L**

**UNIT-IV Process Instrumentation :** concept of measurement and accuracy Principle, construction and working of following measuring instruments.

**Temperature :** Glass thermometers, bimetallic thermometer pressure spring thermometer, vapour filled thermometers resistance thermometers. radiation pyrometers.

**Pressure :** Manometers, barometers, bourdon pressure gauge ; bellow type, diaphragm type pressure gauges, macleod gauges, pirani gauges, etc. **12L**

**UNIT-V Liquid level :** Direct-indirect liquid level measurement, Float type liquid level gauge, ultrasonic level gauges; bubbler system, density measurement, viscosity measurement. **07L**

  
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**Books Recommended :**

1. Unit process in organic synthesis, P.M. Groggins, McGraw Hill.
2. Industrial Instrumentation, Bekmen, D.P., John Wiley.
3. Applied Instrumentation in process Industries, Vol. I, II & III, Andrews, W.G., Gulf Publication.
4. Instrumentation and Control for the process Industries, Borer, S. Elsevier Applied Science Publishers.
5. Chemical Engineer's Hand book, Perry, J.H. and Green, D. McGraw Hill.

**Time : 4 Hours****PRACTICALS****M.M. 50****Unit Process :** One to two examples of each of the following unit processes.

Nitration, sulphonation, Friedel-Crafts reaction, esterification, hydrolysis, oxidation, Halogenation, chloro-sulphonation, reduction, polymerization, reactions of diazonium salts. **Instrumental methods of analysis :** Use of colourimeter pH meter, potentiometer, conductometer, refractometer, polarimeter

**Material testing:** Testing of alloys identification of plastics/rubber estimation of yield point, Young's modulus, flaredness; Optical, thermal mechanical and electrical properties. **Process Instrumentation :** Transducers of different types. use of Transducer for measuring flow control. Determination of flash point and ignition points of liquids.

**Water analysis :** Solid contents, Hardness, COD and other tests as per industrial specifications.

**Flow measuring devices :** Floats Monographs of representative raw materials such as sulphuric acid, toluene, sodium carbonate, sodium hydroxide, carbon tetrachloride benzoic acid (5-6 compounds). Limit tests for heavy metals Pb, As, Hg, Fe and ash content.

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**VOCATIONAL COURSE IN ELECTRONIC  
EQUIPMENT MAINTENANCE  
SCHEME OF EXAMINATION**

		<b>Max. Marks</b>	<b>Min. Pass Marks</b>
Paper - I	Operational Principles of Audio	50	17
Paper - II	Microprocessor Based Instrumentation and Control	50	17
	Practicals	50	17

**1. SUBJECT OBJECTIVE :**

The objective of this syllabus is to familiarize students with the fundamentals of electronics and prepares him/her to keep in track with fast change in this field so that he/she is prepared to takenup advance studies or go for self employment. It is proposed to give the students an idea of basics of all the developments in the field of electronics. Efforts are directed to impart some knowledge of computer hardware and software too, which fall in the realu of electronics so that the students become aware of fast changing scene of information superhigh wey also.

**2. JOB POTENTIALS :**

The students in (by) taking up this course may find adequta job- opportunities in industries or manufacturing firms. They may opt for setting up their own small scale industries of electronics, thus enhancing self employment.

3. **Contents :** As per attached syallbus.

4. Subject scheme.
5. On the job training will be imparted in Summer days.
6. As detailed out in the prospectus.
7. As per the draft given in the syllabus.
8. Permissible combination of subject Physics, Mathemetics & Electonic equipment mathematics.

## **PAPER - I**

**(Paper Code - 0859)**

### **OPERATIONAL PRINCIPLES OF AUDIO AND VIDEO EQUIPMENTS**

**M.M. 50**

**UNIT-I** Revision of All and FH, communication bands, signal sources, Basic Principles of propagation of e.m. wave through atmosphere and ionosphere; ground waves, sky waves, space waves, dead zones etc.

**RECEIVING ANTENNAE:** Antenna Parameters like gain, radiation pattern, effective aperture. Ferrite AE. Type of antennae like wire, loop, dish, Yagi, telescopic, their construction and operating principles.

**SUPERHETERODYNE RECEIVERS:** Principles, advantages, block diagram, RF input and AE coupling arrangements, RF amplifiers, mixer, local oscillator, IF amp. Detector, audio amplifier, loud speaker, power requirements, tuning/aligning of receivers, waveforms and voltages at different check points. Circuit reading of various radio sets, repair and trouble shooting, automobile radios.

**UNIT-II ELEMENTS OF A TELEVISION SYSTEM :** Picture transmission, sound transmission, picture reception, sound reception, synchronisation.

**TYPE VIDEO SIGNAL :** Scanning sequence details, sync details of the 625 line system, channel bandwidth, vestigial sideband transmission, reception of vestigial sideband signals, frequency modulation, FH channel bandwidth, channel bandwidth for colour transmission, allocation of frequency bands for television bandwidth for colour transmission, allocation of frequency bands for television signal transmission, television standards.

Picture tubes- monochrome and colour : Beam deflection, face plate, picture tube characteristics, picture tube circuit controls.

**UNIT-III TELEVISION RECEIVERS :** Types of television receivers, receiver sections, video detector, video section fundamentals, video amplifiers-design principles, video amplifier circuits, automatic gain control and noise cancelling circuits, sync separation circuits, sync-processing and AFC circuits, deflection circuits, sound system, RF tuner, video IF amplifiers, receiver power supplies, television receiver antennae, colour television antennae.

**TELEVISION APPLICATIONS :** Television broadcasting, cable television, closed circuit television, theatre television, picture phone and facsimile, video tape recording (VTr, television via satellite, TV games, HDTV, flatpanel TV teleconferencing.

**UNIT-IV TAPE RECORDERS :** Principles of magnetic recording, characteristics of magnetism, the hysteresis loop, recording head, recorded wave-length, response of head during reply, the effect of gap length, low frequency loss, other losses, equalization, the effect of non-linear characteristic of magnification recording bias, A.C. bias, erasing the tape, block diagram of audio tape recorder.

Oscillator, preamplifier, dolby, amplifier, record (play back) head, erase head, tapes (metal polymer), mechanical transport system, stereo recording, double deck, single deck, microphones (RF, Cable), noise, maintenance of mechanical parts, head cleaners, head alignment, graphic equalisers.

**UNIT-V TELEPHONES :** Modulation, demodulation, modem, subscriber frequency allotment, channel organisation, signalling, switching, manual exchanges, STD, ISD, EFABX, Intercom-system on equipment and EPABX, Value added services like FAX E mail.

**MEASURING INSTRUMENTS :** Multimeters analog/digital, oscilloscopes, signal generators, noise and sound level meters, frequency counters, error sources and precautions during measurement.

**GENERAL NOTE :** Familiarisation with catalogues, standard specification, knowledge about companies referring to service manual.

**PAPER - II**  
**MICROPROCESSOR BASED INSTRUMENTATION AND CONTROL**  
**(Paper Code - 0860)**

**M.M. 50**

**UNIT-I MICROCOMPUTER FUNDAMENTALS :** Introduction, simplified microcomputer architecture, simplified memory organization, instruction set, simplified CPU organisation, microcomputer operation, Personal computer organization and Word Processor. Data sheet descriptions, pin diagram and function, microprocessor architecture, using the data/address register, using the stack pointer.

**UNIT-II THE INTEL 8080/8085 MICROPROCESSOR :** Introduction, the 8085 pin diagram and functions, the 8085 architecture, addressing modes, the 8080/8085 instructions set, the 8080/8085 data transfer instructions, the 8080/8085 arithmetic instructions, the 8080/8085 logical instructions, the 8080/8085 stack, I/O, and machine control instructions.

**UNIT-III PROGRAMMING THE MICROPROCESSOR :** Machine and assembly languages, simplified instruction set, instruction set, arithmetic operations, instruction set-logical operations, instruction set-data transfer operations, instruction set branch operations, instruction set-subroutine call and return operations, instruction set-miscellaneous operations, writing a program, addressing modes, program branching, program looping using subroutines.

Programming the 8080/8085 microprocessor : Introduction, straight-line programs, looping programs, mathematical programs.

**UNIT-IV INTERFACING THE MICROPROCESSOR :** Introduction, interfacing with ROM, interfacing with RAM, input/output interfacing basics, interfacing with practical I/O ports, synchronizing I/O data transfers using interrupts. address decoding.

**UNIT-V Application to illustrate the use of microprocessor in :**

- (i) Traffic control
- (i) Temperature control
- (i) Digital clock
- (iv) Stepper motor control
- (v) Washing machine control



## PRACTICALS

A student is required to do atleast 12 experiments in an academic year, and one month Summer Training. The scheme of practical examination will be as follows :

(i) One experiment of 3 hours duration and one Month Summer Training.

(i) Marks

Experiment : 25 Marks

Sessional : 10 Marks

One Month Summer Training : 15 Marks

**Total 50 Marks**

\* The marks for summer training will be awarded by the teachers teaching the students on the basis of the certificate issued by the external supervisor of the summer training.

## LIST OF PRACTICALS

1. Development of soldering skill by constructing a few circuits and testing.
2. PCB making.
3. Study of modulator.
4. Study of oscillator.
5. Tape recorder-testing, assembly and dis-assembly.
6. Radio receiver-testing.
7. Study of PA system and i.s. testing.
8. Study of EPABK, wiring and connectivity with telephone instruments.
9. Familiarisation with 8085 Based microprocessor trainer kit. Location of 8085, 8279, 8253 keyboard, display fields, EPROM Programmer, expansion slot, TTY and serial lines.
10. Entering and executing an assembly language program, codes for insertion, deletion, memory move, block fill, setting and examining registers and memory, single step execution of a program.
11. Writing of a program to add, subtract and multiply two numbers stored in memory (nnnn & nnnn \* 1) and place the result in the subsequent memory, (nnn \* 2).
12. Writing of a program to test R.H. for errors by writing 0's & 1's in alternate location and reading it for checking.
13. Making of a board with a 3 LED's and four switches to connect to the 8085 kit on the expansion slot (8279).
14. Making of a board with a 8 LED's and four switches to connect to the 8-85 kit on the expansion slot (8255).
  - (a) Program the 8255 to glow/switch of LED's.
  - (b) Program the 8255 to switch on and OFF the LED's every few second according to a given pattern (Hint : The pattern can be 01010101 and 10101010 or 001001100, or any other).

**Reference Books:**

1. Fundamentals of acoustics : Kinsler & Frey
2. System trouble shooting : Luces K, Faulken Berry  
Handbook (John Wiley & Sons)
3. Monochrom & Colour Television : P.R. Gulati
4. Television Engineering : Dhake
5. Microprocessor : Gaonkar
6. Microprocessor : B. Ram
7. Microprocessor : Shaum Saries

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**B.SC.-II  
COMPUTER SCIENCE  
PAPER - I  
COMPUTER HARDWARE  
(PAPER CODE - 0855)**

**DURATION 3 HOURS**

**MAX.MARKS 50**

**AIM -** The emphasis is on the design concepts & organisational details of the common PC, learning the complicated electronics of the system of the computer Engineers.

**OBJECT OF THE COURSE -**

1. To introduce the overall organisation of the microcomputers.
2. To introduce the common peripheral devices used in computers.
3. To introduce the hardware components, use of micro processor and function of various chips used in microcomputer.

**N.B. :** Since the computer organisation study is very vast & complicated, so the study is restricted to only the description and understanding part, hence the paper setter is requested to keep this important factor in mind.

**UNIT-I CLASSIFICATION AND ORGANIZATION OF COMPUTERS**

Digital and analog computers and its evolution. Major components of digital computers; Memory addressing capability of CPU; word length and processing speed of computers. Microprocessors single chip microcomputers; large and small computers. User interface Hardware software and firmware. multi programming multi user system. Dumb smart and intelligent terminals computer network and multi processing, LAN parallel processing. Flynn's classification of computers. Computer flow and data flow computers.

**UNIT-II CENTRAL PROCESSING UNIT.**

CPU organization, ALU control unit registers. Instructions for INTEL 8085, Instruction word size, Various addressing mode interrupts and exceptions, some special Control signals and I/O devices. Instruction cycle fetch and execute operation, time Diagram, data flow.

**UNIT-III MEMORY OF COMPUTERS.**

Main memory secondary memory, backup memory, cache memory; real and virtual Memory Semiconductor memory. Memory controller and magnetic memory; RAM; disks, optical disks Magnetic bubble memory; DASD, destructive and non destructive readout. Program of data Memory and MMU.

**UNIT-IV I/O DEVICES.**

I/O devices of micro controller; processors. I/O devices, printer, plotter, other output devices, I/O port serial data transfer scheme, Micro controller, signal processor, I/O processor I/O processor arithmetic processor.

**UNIT-V SYSTEM SOFTWARE AND PROGRAMMING TECHNIQUE.**

ML, AL, HLL, stac subroutine debugging of programs macro, micro programming, Program Design, software development, flow & chart multi programming, multi user, multi tasking Protection, operating system and utility program, application package.

**RECOMMENDED BOOKS :**

1. Computer Fundamentals : Architecture and Organization - By B.Ram (Wilky Eastern Ltd.)
2. Computers Today - By Donal H. Sanders
3. Computers Fundamental - By Rajaraman.
4. IBM PC - XT Clones - By Govinda Rajalu

The bottom of the page contains four handwritten signatures and dates. From left to right: 1. A signature that appears to be 'S. Sharma' with the date '19/11/19'. 2. A signature that appears to be 'M. J.' with the date '19/11/19'. 3. A signature that appears to be 'K. D. Dubey' with the date '19/11/19'. 4. A signature that appears to be 'R. Singh' with the date '19/11/19'.

**B.Sc.-II**  
**PAPER - II**  
**SOFTWARE**  
**(Paper Code - 0856)**

AIM - Introduction to the web-language-HTML & problem solving through the concept of object oriented programming.

**OBJECT OF THE COURSE -**

1. To introduce the internet & web related technology & learn the intricacies of web-page designing using HTML.
2. To introduce the object oriented programming concept using C++ language.
3. To introduce the problem solving methodology using the C++ programming features.

**N.B. : Examiners are requested to prepare unit-wise Questions papers.**

**UNIT-I HTML BASICS & WEB SITE DESIGN PRINCIPLES**

Concept of a Web Site, Web Standards, What is HTML? HTML Versions, Naming Scheme for HTML Documents, HTML document/file, HTML Editor, Explanation of the Structure of the homepage, Elements in HTML Documents, HTML Tags, Basic HTML Tags, Comment tag in HTML, Viewing the Source of a web page, How to download the web page source? XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet language (XSL), Some tips for designing web pages, HTML Document Structure. HTML Document Structure-Head Section, Illustration of Document Structure, <BASE> Element, <ISINDEX> Element, <LINK> Element, <META>, <TITLE> Element, <SCRIPT> Element, Practical Applications, HTML Document Structure-Body Section:-Body elements and its attributes: Background; BackgroundColor; Text; Link; Active Link (ALINK); Visited Link (VLINK); Left margin; Top margin, Organization of Elements in the BODY of the document: Text Block Elements; Text Emphasis Elements; Special Elements — Hypertext Anchors; Character-Level Elements; Character References, Text Block Elements: HR (Horizontal Line); Hn (Headings); P (Paragraph); Lists; ADDRESS; BLOCKQUOTE; TABLE; DIV (HTML3.2 and up); PRE (Preformatted); FORM, Text Emphasis Elements, Special Elements — Hypertext Anchors, Character-Level Elements: line breaks (BR) and Images (IMG), Lists, ADDRESS Element, BLOCKQUOTE Element, TABLE Element, COMMENTS in HTML, CHARACTER Emphasis Modes, Logical & Physical Styles, Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER.

**UNIT-II IMAGE, INTERNAL AND EXTERNAL LINKING BETWEEN WEBPAGES**

Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER Insertion of images using the element IMG (Attributes: SRC (Source), WIDTH, HEIGHT, ALT (Alternative), ALIGN), IMG (In-line Images) Element and Attributes; Illustrations of IMG Alignment, Image as Hypertext Anchor, Internal and External Linking between Web Pages Hypertext Anchors, HREF in Anchors, Link to a Particular Place in a Document, NAME attribute in an Anchor, Targeting NAME Anchors, TITLE attribute, Practical IT Application Designing web pages links with each other, Designing Frames in HTML. Practical examples.

**UNIT-III INTRODUCTION TO OOP**

Advantages of OOP, The Object Oriented Approach, Characteristics of object oriented languages- Object, Classes, Inheritance, Reusability, Polymorphism and C++.

Function: Function Declaration, Calling Function, Function Defines, Passing Argument to function, Passing Constant, Passing Value, Reference Argument, returning by reference, Inline Function, Function Overloading, Default Arguments in function.

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## UNIT-IV OBJECT CLASSES AND INHERITANCE

Object and Class, Using the class, class constructor, class destructors, object as function argument, copy constructor, struct and classes, array as class member, Static Class Data, Static Member Functions, Friend function, Friend class, operator overloading. Type of inheritance, Base class, Derive class. Access Specifier: protected. Function Overriding, member function, String, Template Function.

## UNIT-V POINTERS AND VIRTUAL FUNCTION

pointers: & and \* operator pointer variables, pointer to pointer, void pointer, pointer and array, pointer and function, pointer and string, memory management, new and delete, pointer to object, this pointer Virtual Function: Virtual Function, Virtual member function, accesses with pointer, pure virtual function  
File and Stream: C++ streams, C++ Manipulators, Stream class, string I/O, char I/O, Object I/O, I/O with multiple object, Disk I/O,

## RECOMMENDED BOOKS :

- |                                       |   |  |
|---------------------------------------|---|--|
| 1. Introduction to HTML               | : | Kamlesh Agarwala, O.P. Vyas, Prateek A. Agrawala (Kitab Mahal Publication) |
| 2. Let us C++                         | : | Y. Kanetkar B.P.B Publication  |
| 3. Programming in C++                 | : | E. Balaguruswami   |
| 4. Mastering in C++                   | : | Venu Gopal   |
| 5. Object Oriented Programming in C++ | : | Lafore R, Galgotia Publications.   |

  
Shweta  
19/01/19

  
M. S. Dubey  
19/01/19

  
K. S. Dubey  
19/01/19

  
G. S. Dubey  
19/01/19

# Hemchand Yadav Vishwavidyalaya, Durg (C.G.)

Session 2019-20

June 2019 onwards

Class: B.Sc. Electronics

## Scheme of Examination

Paper Code	Course Opted	Title of Course	Theory	Practical	Grand Total	Minimum Passing Marks
First Year						
ELB-101	Core Course	Network Analysis And Analog Electronics	50		100	33
ELB-102	Core Course	Linear and Digital Integrated Circuits	50			
ELB-103P	Core Course Practical/Tutorial	Networks Analysis and Analog Electronics Lab	25	50	50	17
ELB-104P	Core Course Practical/Tutorial	Linear and Digital Integrated Circuits Lab	25			
Second Year						
ELB-201	Core Course	Communication Electronics	50		100	33
ELB-202	Core Course	Microprocessor and Microcontrollers	50			
ELB-203P	Course Practical/Tutorial	Communication Electronics Lab	25	50	50	17
ELB-204P	Course Practical/Tutorial	Microprocessor& Microcontroller Lab	25			
Third Year						
EL301	Skill Enhancement Course	Industrial Electronics	50		100	33
EL302	Skill Enhancement Course	Mobile Application Programming and Introduction to VHDL	50			
EL303P	Skill Enhancement CoursePractical	Industrial Electronics Lab	25	50	50	17
EL304P	Skill Enhancement Course Practical	Mobile Application Programming and Introduction to VHDL Lab	25			

# **B . S c . P a r t I I**

## **ELECTRONICS**

### **Paper I**

#### **ELB 201: COMMUNICATION ELECTRONICS**

**Theory:**

**Max. Marks :50**

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#### **Unit-1**

**Electronic communication:** Introduction to communication – means and modes. Need for modulation. Block diagram of an electronic communication system. Brief idea of frequency allocation for radio communication system in India (TRAI). Electromagnetic communication spectrum, band designations and usage. Channels and base-band signals. Concept of Noise, signal-to-noise (S/N) ratio.

#### **Unit-2**

**Analog Modulation:** Amplitude Modulation, modulation index and frequency spectrum. Generation of AM (Emitter Modulation), Amplitude Demodulation (diode detector), Concept of Single side band generation and detection. Frequency Modulation (FM) and Phase Modulation (PM), modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM using VCO, FM detector (slope detector), Qualitative idea of Super heterodyne receiver

**Analog Pulse Modulation:** Channel capacity, Sampling theorem, Basic Principles-PAM, PWM, PPM, modulation and detection technique for PAM only, Multiplexing.

#### **Unit-3**

**Digital Pulse Modulation:** Need for digital transmission, Pulse Code Modulation, Digital Carrier Modulation Techniques, Sampling, Quantization and Encoding. Concept of Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), and Binary Phase Shift Keying (BPSK).

**Optical Communication:** Introduction of Optical Fiber, Block Diagram of optical communication system.

#### **Unit-4**

**Introduction to Communication and Navigation systems:**

**Satellite Communication–** Introduction, need, Geosynchronous satellite orbits, geostationary satellite advantages of geostationary satellites. Satellite visibility, transponders (C - Band), path loss, ground station, simplified block diagram of earth station. Uplink and downlink.

## Unit-5

**Mobile Telephony System** – Basic concept of mobile communication, frequency bands used in mobile communication, concept of cell sectoring and cell splitting, SIM number, IMEI number, need for data encryption, architecture (block diagram) of mobile communication network, idea of GSM, CDMA, TDMA and FDMA technologies, simplified block diagram of mobile phone handset, 2G, 3G and 4G concepts (qualitative only). GPS navigation system (qualitative idea only)

### Reference Books:

1. Electronic Communications, D. Roddy and J. Coolen, Pearson Education India.
  2. Advanced Electronics Communication Systems- Tomasi, 6<sup>th</sup> edition, Prentice Hall.
  3. Modern Digital and Analog Communication Systems, B.P. Lathi, 4<sup>th</sup> Edition, 2011, Oxford University Press.
  4. Electronic Communication systems, G. Kennedy, 3<sup>rd</sup> Edn., 1999, Tata McGraw Hill.
  5. Principles of Electronic communication systems – Frenzel, 3rd edition, McGraw Hill
  6. Communication Systems, S. Haykin, 2006, Wiley India
  7. Electronic Communication system, Blake, Cengage, 5<sup>th</sup> edition.
  8. Wireless communications, Andrea Goldsmith, 2015, Cambridge University Press
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**Paper II**  
**ELB 202 :MICROPROCESSOR ANDMICROCONTROLLER**

**Theory:**

**Max. Marks :50**

**Unit-1**

**Microcomputer Organization:** Input/Output Devices. Data storage (idea of RAM andROM). Computer memory. Memory organization & addressing. Memory Interfacing. Memory Map.

**8085 Microprocessor Architecture:** Main features of 8085. Block diagram. Pin-outdiagram of 8085. Data and address buses. Registers. ALU. Stack memory. Program counter.

**Unit-2**

**8085 Programming :**Instruction classification, Instructions set (Data transfer includingstacks. Arithmetic, logical, branch, and control instructions). Subroutines, delay loops. Timing & Control circuitry. Timing states. Instruction cycle, Timing diagram of MOV and MVI. Hardware and software interrupts.

**Unit-3**

**8051 microcontroller:** Introduction and block diagram of 8051 microcontroller,architecture of 8051, overview of 8051 family, 8051 assembly language programming, Program Counter and ROM memory map, Data types and directives, Flag bits and Program Status Word (PSW) register, Jump, loop and call instructions.

**Unit 4**

**8051 I/O port programming:** Introduction of I/O port programming, pin out diagram of8051 microcontroller, I/O port pins description & their functions, I/O port programming in 8051 (using assembly language), I/O programming: Bit manipulation.

**8051 Programming:** 8051 addressing modes and accessing memory locations usingvarious addressing modes, assembly language instructions using each addressing mode, arithmetic and logic instructions,

**Unit 5**

8051 programming in C: for time delay & I/O operations and manipulation, for arithmetic and logic operations, for ASCII and BCD conversions.

**Introduction to embedded system:** Embedded systems and general purpose computersystems. Architecture of embedded system. Classifications, applications and purpose of embedded systems.

**Reference Books:**

1. Microprocessor Architecture Programming & applications with 8085, 2002, R.S. Goankar, Prentice Hall.
  2. Embedded Systems: Architecture, Programming & Design, Raj Kamal, 2008, Tata McGraw Hill
  3. The 8051 Microcontroller and Embedded Systems Using Assembly and C, M.A. Mazidi, J.G. Mazidi, and R.D. McKinlay, 2<sup>nd</sup> Ed., 2007, Pearson Education India.
  4. Microprocessor and Microcontrollers, N. Senthil Kumar, 2010, Oxford University Press
  5. 8051 microcontrollers, Satish Shah, 2010, Oxford University Press.
  6. Embedded Systems: Design & applications, S.F. Barrett, 2008, Pearson Education India
  7. Introduction to embedded system, K.V. Shibu, 1<sup>st</sup> edition, 2009, McGraw Hill
  8. Embedded Microcomputer systems: Real time interfacing, J.W. Valvano 2011, Cengage Learning
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## **ELECTRONICS LABORATORY**

*The scheme of practical examination will be as follows-*

<b>Experiment</b>	<b>--</b>	<b>30</b>
<b>Viva</b>	<b>--</b>	<b>10</b>
<b>Sessional</b>	<b>--</b>	<b>10</b>
<b>Total</b>	<b>--</b>	<b>50</b>

### **ELB 203P: COMMUNICATIONELECTRONICS LAB (Hardware and Circuit Simulation Software) 60 Lectures Max.Marks:25**

1. To design an Amplitude Modulator using Transistor
2. To study envelope detector for demodulation of AM signal
3. To study FM - Generator and Detector circuit
4. To study AM Transmitter and Receiver
5. To study FM Transmitter and Receiver
6. To study Time Division Multiplexing (TDM)
7. To study Pulse Amplitude Modulation (PAM)
8. To study Pulse Width Modulation (PWM)
9. To study Pulse Position Modulation (PPM)
10. To study ASK, PSK and FSK modulators

#### **Reference Books:**

1. Electronic Communication systems, G. Kennedy, 1999, Tata McGraw Hill.
2. Electronic Communication system, Blake, Cengage, 5th edition.

**ELB 204P: MICROPROCESSOR AND MICROCONTROLLER**  
**LAB(Hardware and Circuit Simulation Software)**

**Max.Marks:25**

**At least 06 experiments each from Section-A and Section-B**

***Section-A: Programs using 8085 Microprocessor***

1. Addition and subtraction of numbers using direct addressing mode
2. Addition and subtraction of numbers using indirect addressing mode
3. Multiplication by repeated addition.
4. Division by repeated subtraction.
5. Handling of 16-bit Numbers.
6. Use of CALL and RETURN Instruction.
7. Block data handling.
8. Other programs (e.g. Parity Check, using interrupts, etc.).

***Section-B: Experiments using 8051 microcontroller:***

1. To find that the given numbers is prime or not.
2. To find the factorial of a number.
3. Write a program to make the two numbers equal by increasing the smallest number and decreasing the largest number.
4. Use one of the four ports of 8051 for O/P interfaced to eight LED's. Simulate binary counter (8 bit) on LED's .
5. Program to glow the first four LEDs then next four using TIMER application.
6. Program to rotate the contents of the accumulator first right and then left
7. Program to run a countdown from 9-0 in the seven segment LED display.
8. To interface seven segment LED display with 8051 microcontroller and display 'HELP' in the seven segment LED display.
9. To toggle '1234' as '1324' in the seven segment LED display.
10. Interface stepper motor with 8051 and write a program to move the motor through a given angle in clock wise or counter clockwise direction.
11. Application of embedded systems: Temperature measurement & display on LCD

**Reference Books:**

1. Microprocessor Architecture Programming & applications with 8085, 2002, R.S. Goankar, Prentice Hall.
2. Embedded Systems: Architecture, Programming & Design, Raj Kamal, 2008, Tata McGraw Hill
3. The 8051 Microcontroller and Embedded Systems Using Assembly and C, M.A. Mazidi, J.G. Mazidi, and R.D. McKinlay, 2<sup>nd</sup> Ed., 2007, Pearson Education India.
4. 8051 microcontrollers, Satish Shah, 2010, Oxford University Press.
5. Embedded Microcomputer systems: Real time interfacing, J.W. Valvano 2011, Cengage Learning.

**B.Sc.-II**  
**INFORMATION TECHNOLOGY**  
**PAPER - I**  
**DIGITAL CIRCUITS & COMPUTERH/W**  
**(Paper Code - 0874)**

**UNIT-I(A) Number Systems :**

Octal and hexadecimal number, decimal rep., complements, addition, subtraction, multiplication, division, fixed point rep, floating point rep., other binary code- gray code, excess 3 gray, 2421, etc. error detection code.

**(B) Boolean Algebra :**

Laws, demorgan's theorem, Simplification boolean expression & logic diagram, positive & negative logic, K-map and simplification of K-map.

**UNIT-II Combinational circuits :**

Half adder, full adder, flip-flop : SR, JK, D,T, sequential circuits : encoder, decoder, multiplexer, shift register, binary counters, BCD adder.

**UNIT-III Multivibrator circuits :**

Monostable, astable, bistable, smitt trigger, clocked RS, master-slave flip-flop, edge triggered flip-flop, latch.

Intergrated circuits :

RTL, DITL, TTL, CMOS, MOS.

**UNIT-IV (A) Central Processing Unit :**

Introduction, register organisation, stack organisation, Instruction formats, Addressing modes.

**(B) I/O Organisation :**

I/O interfaces, Data transfer, types and modes, interrupts, DMA, IOP.

**UNIT-V Memory Organisation :**

Memory hierarchy, main memory, Auxiliary memory, Associative memory, cache memory, virtual memory, memory management techniques.

**REFERENCE TAXT BOOK :**

- |  |   |                 |
|--|---|-----------------|
| 1. Integrated Electronics                  | - | Millman&Halkias |
| 2. Principle of Electronics                | - | V.K. Mehta      |
| 3. Digital Electronics                     | - | R.P. Jain       |
| 4. Computer System Architecture            | - | Morris Mano     |
| 5. Digital Electronics & Computer Hardware | - | Morris Mano     |

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**B.Sc.-II**  
**PAPER - II**  
**(Paper Code - 0875)**

**UNIT-I Introduction to OPP :** Advantages of OPP, the Object oriented approach, characteristics of object oriented languages : object, classes, inheritance, reusability, polymorphism and C++.

**UNIT-II Function :** function declaration, calling function, function definition, passing arguments to function, passing constant, passing value, fegerence argument, returning by reference, inline function, function overloading, default arguments in function.

**UNIT-III Object and Classes,** using the Classes Constructor, class destructor, object as function argument, copy constructor, struct and classes, array as class member, static class data, static member functions, friend function, friend class, operator overloading, type of inheritance, base class derive class, access speceifier, protected, member function.

**UNIT-IV Pointers :** & and \* operator pointer variables, pointer to pointer, void pointer, pointer and array, pointer and functions, pointer and string, memory management, new and delete, pointer to object, this pointer, virtual function : virtual function, virtual member function, accesses with pointer, pure virtual function.

**UNIT-V File and stream :** C++ steams, C++ manipulators, Stream class, string I/O, char I/O, object I/O, I/O with multiple objects, disk I/O.

**REFERENCE TEXT BOOKS:**

- |   |                                    |   |                  |
|---|------------------------------------|---|------------------|
| 1 | Programming in C++                 | - | E. Balaguruswami |
| 2 | Mastering in C++                   | - | VenuGopal        |
| 3 | Object Oriented Programming in C++ | - | Robert Lafore    |
| 4 | Let us C++                         | - | Y. Kanetkar      |

**PRACTICAL WORK**

1. The sufficient Practical work should be done for understanding the paper 2.
2. At least five programs on each unit from unit 2 to unit 5 be prepared.
3. All practical works should be prepared in form of print outs and be valuated while practical examination.

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## INDUSTRIAL MICROBIOLOGY

Paper	Title	Time	Marks
First	Environmental Microbiology and Biostatistics	3 hrs.	50
Second	Microbial Physiology and Immunobiotechnology	3 hrs.	50
	PRACTICAL Examination (including sessionals)	4 hrs.	50 (40+10)

**Note :** During Two months Summer Vacation, students will visit some Industries. He/She will submit "Summer Job-Training Report" in B.Sc. IIRD Year Viva Voce Exam.

### PAPER - I ENVIRONMENTAL MICROBIOLOGY AND BIOSTATISTICS (Paper Code - 0876)

**M.M.50**

**UNIT-1** Our environment : Soil, water and air. Concept of environment in relation to microbes. Environment included physiological adaptations in microorganisms. Nature of microbial population in soil, water and air. Biogeochemical cycling - Carbon, Nitrogen, Sulphur and Phosphorus.

**UNIT-2** Population interactions : Neutralism, Commensalism, Synergism, Mutualism, Antagonistic relationships. Mycorrhizal associations. VAM and its importance.

**UNIT-3** Nitrogen fixation by symbiotic and non-symbiotic microorganisms. Use of microorganisms as biofertilizers. Mass cultivation of Rhizobium and Azotobacter. Use of blue-green algae as biofertilizers.

**UNIT-4** Liquid waste disposal. Nature of domestic and municipal waste and sewage. Sewage treatment. Solid waste disposal. Methods of disposal of Agricultural waste.

**UNIT-5** Basic idea of probability, normal, binomial and poisson distribution. Mean, Mode and Median. Chi-Square test. Exponential and Logarithmic Functions.

### PRACTICALS

1. Isolation of Microorganisms from Air.
2. Isolation of Microorganisms from Water.
3. Isolation of Microorganisms from soil.
4. Determination of MPN of faecal contaminants in water.
5. Measurement & confirmation of E. coli in water sample.
6. Biochemical tests for identification of enteric bacteria.
7. Study of Rhizobium from root nodules.
8. Study of symbiotic and non-symbiotic blue-green algae.
9. Problems based on the determination of Mean, Median and Mode.
10. Problems on Chi-Square Test.
11. Experiments to demonstrate Symbiotic, Antagonistic activities and relations amongst microbes and their interactions with plants.

  
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**RECOMMENDED BOOKS :**

1. Introduction to Soil Microbiology by Martin Alexander.
2. General Microbiology by Pelczar, Reid & Chan.
3. Biofertilizers in Agriculture by N.S. Subba Rao.
4. Statistics by Mishra & Mishra.
5. General Microbiology, Vol. II, by Power & Dagainawala.

**PAPER - II****MICROBIAL PHYSIOLOGY AND IMMUNABIOTECHNOLOGY  
(Paper Code - 0877)****M.M. 50**

**UNIT-1** Diffusion, gaseous exchange, Osmosis, Plasmolysis, Biochemical properties of membranes, Passive and Active transport mechanism. Role of ionophores, group translocation across the membranes.

**UNIT-2** Photosynthetic microbes, Oxygenic and non-oxygenic reaction centre. Electron transport, Photophosphorylation, Calvin Cycle. Photorespiration and its significance. Effect of various factors on rate of photosynthesis.

**UNIT-3** Respiration mechanisms - Breakdown of carbohydrates through glycolysis, Krebs's cycle. Fermentation. Pentose Phosphate Pathway. Fermentation of alcohol, Citric acid and acetic acid.

**UNIT-4** Methanogens and Methylophiles. Sulphur utilizing bacteria. Sulphate reduction pathway. Economic importance of Methylophiles and sulphur utilizing bacteria.

**UNIT-5** History and Scope of immunology, Types of immunity. Antigen-Antibody reactions. Immunoglobulins - Structure and functions. Production of Vaccines and Monoclonal antibodies.

**PRACTICAL**

1. Isolation of photosynthetic bacteria and cyanobacteria from soil.
2. Isolation and characterisation of Methanogens.
3. Study of Hydrogen-production by bacteria.
4. Measurement of nitrate uptake by microorganisms.
5. Study of nitrate and nitrite reduction by microorganisms.
6. Demonstration of evolution during photosynthesis.
7. Demonstration of plasmolysis, osmosis, active and passive transport mechanism.
8. Testing of Blood Groups.
9. Titration of Antigen and Antibody.
10. Precipitation reaction of antigens and antibodies.

**BOOK RECOMMENDED :**

1. Cell Biology by Pawar.
2. General Microbiology, Vol. II, by Power and Dagainawala.
3. Immunology by Davis.
4. Immunology by G.P. Tandon.

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**BIOCHEMISTRY**  
**PAPER - I**  
**ENZYMOLOGY**

**M.M. 50**

**UNIT-I INTRODUCTION**

History, general characteristics, nomenclature, IUB enzyme classification (rationale, over view and specific examples), significance of numbering system. Definitions with examples of holoenzyme, apoenzyme, coenzymes. cofactors, activators, inhibitors, active site (identification of groups excluded), metallo-enzymes, units of enzyme activity, specific enzymes, Isoenzymes, monomeric enzymes, oligomeric enzymes and multienzyme complexes. Enzyme specificity. Historical perspective, nature of non-enzymatic and enzymatic catalysis. Measurement and expression of enzyme activity-enzyme assays. Definition of IU, Katal, enzyme turn over number and specific activity. Role of non-protein organic molecules and inorganic ions coenzyme, prosthetic groups. Role of vitamins as coenzymes precursors (general treatment).

**UNIT-I ENZYME CATALYSIS**

Role of cofactors in enzyme catalysis : NAD/NADP<sup>+</sup>, FMN/FAD, coenzyme A, biocytin, cobamide, lipoamide, TPP, pyridoxal phosphate, tetrahydrofolate and metal ions with special emphasis on coenzyme functions. Acid-base catalysis, covalent, proximity and orientation effects, strain and distortion theory. Mechanism of action of chymotrypsin, carboxypeptidase, ribonuclease and lysozyme.

**UNIT- I ENZYME PURIFICATION**

Methods for isolation, purification and characterization of enzymes.

**UNIT-IV ENZYME KINETICS**

Factors affecting enzyme activity : enzyme concentration, substrate concentration, pH and temperature. Derivation of Michaelis-Menten equation for uni-substrate reactions.  $K_m$  and its significance. Line weaver-Burk plot and its limitations. Importance of  $K_m$ . Bi-substrate reactions-brief introduction to sequential and ping-pong mechanism with examples.

Kinetics of zero and first order reactions. Significance and evaluation of energy of activation and free energy.

Reversible and irreversible inhibition, competitive, non-competitive and uncompetitive inhibitions. determination of  $K_m$  &  $V_{max}$  in presence and absence of inhibitor. Allosteric enzymes.

**UNIT-V INDUSTRIAL AND CLINICAL APPLICATION OF ENZYME.**

Immobilization of enzyme and their industrial applications. Production of glucose from starch, cellulose and dextran; use of lactase in dairy industry; production of glucose-fructose syrup from sucrose; use proteases in food, detergent and leather industry; medical application of enzymes. use of glucose oxidase in enzyme electrodes.



## PAPER - II

### INTERMEDIARY METABOLISM

M.M. 50

#### UNIT-I INTRODUCTION TO METABOLISM

General features of metabolism, experimental approaches to study metabolism; use of intact organism, bacterial mutants, tissue slices, stable and radioactive isotopes.

#### CARBOHYDRATE METABOLISM

Reactions and energetics of glycolysis. Alcoholic and lactic acid fermentations. Entry of fructose, galactose, mannose etc. Reactions and energetics of TCA cycle. Gluconeogenesis, glycogenesis and glycogenolysis, Reactions and physiological significance of pentose phosphate pathway. Regulation of glycolysis and TCA cycle. Photosynthesis, a brief review.

#### UNIT-II ELECTRON TRANSPORT CHAIN AND OXIDATIVE PHOSPHORYLATION

Structure of mitochondria, sequence of electron carriers, sites of ATP production, inhibitors of electron transport chain. Hypothesis of mitochondrial oxidative phosphorylation (basic concepts). Inhibitors and uncouplers of oxidative phosphorylation. Transport of reducing potentials into mitochondria.

#### UNIT-III LIPID METABOLISM

Introduction, hydrolysis of triacylglycerols, transport of fatty acids into mitochondria.

$\beta$ -oxidation of saturated fatty acids, ATP yield from fatty acid oxidation. Biosynthesis of saturated and unsaturated fatty acids. Metabolism of ketone bodies, oxidation of unsaturated and odd chain fatty acids. Biosynthesis of triglycerides and important phospholipids, glycolipids, sphingolipids and cholesterol. Regulation of cholesterol metabolism.

#### UNIT-IV AMINO ACID METABOLISM

General reactions of amino acid metabolism : transamination, oxidative deamination and decarboxylation. Urea cycle. Degradation and biosynthesis of amino acids. Glycogenic and ketogenic amino acids.

#### UNIT-V NUCLEOTIDE METABOLISM

Sources of the atoms in the purine and pyrimidine molecules. Biosynthesis and degradation of purines and pyrimidines. Regulation of purine and pyrimidine biosynthesis.

#### PORPHYRIN METABOLISM

Biosynthesis and degradation of porphyrins. Production of bile pigments.

  
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## PRACTICAL

1. Separation of Blood Plasma and Serum
  - a. Estimation of proteins from serum by biuret and lowry methods.
  - b. Determination of albumin and A/G ratio in serum.
2. Estimation of bilirubin (conjugated and unconjugated) in serum.
3.
  - i. Estimation of total lipids in serum by vanillin method.
  - ii. Estimation of cholesterol in serum.
4. Estimation of lipoproteins in plasma.
5. Estimation of lactic acid in blood before and after exercise.
6. Estimation of blood urea nitrogen from plasma.
7. Separation and identification of amino acids by (a) paper chromatography and (b) thin-layer chromatography.
8. Separation of polar and non-polar lipids by thin-layer chromatography.
9. Estimation of SGPT and SGOT in serum.
10.
  - a. Assay of serum alkaline phosphatase activity.
  - b. Inhibition of alkaline phosphatase activity by EDTA.
  - c. Effect of substrate concentration on alkaline phosphatase activity and determination of its  $K_m$  value.
11.
  - a. Effect of temperature on enzyme activity and determination of activation energy.
  - b. Effect of pH on enzyme activity and determination of optimum pH.
  - c. Effect of enzyme concentration on enzyme activity.
12.
  - a. Preparation of starch from potato and its hydrolysis by salivary amylase.
  - b. Determination of achromatic point in salivary amylase.
  - c. Effect of sodium chloride on amylases.

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# **Syllabus of Biotechnology**

**(B. Sc. II Year)**

**Session**

**2019-2020**

**2020-2021**

  
10.6.19 10.6.19 10/6/19 10.6.19

**HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

**B.Sc. II  
BIOTECHNOLOGY**

**PAPER – I**

**MOLECULAR BIOLOGY & BIOPHYSICS**

**M.M. 50**

**UNIT-I**

1. Nucleic Acid: Bases, Nucleosides and Nucleotides, DNA and RNA structure.
2. Plasmids.
3. Transposons: Repetitive elements, LINEs & SINEs, Structure of Gene.

**UNIT-II**

1. DNA Replication: Enzymes involved and mechanism of DNA Replication in Prokaryotes.
2. Mutation: Molecular level of Mutation, Types of Mutagens, Spontaneous and Induced Mutation.
3. DNA Repair: NER, BER and Mismatch Repair.

**UNIT-III**

1. Genetic Code: Features, Condon Assignment and Wobble hypothesis.
2. Transcription: Initiation, Elongation and Termination in Prokaryotes.
3. Translation: Initiation, Elongation and Termination Translation machinery in Prokaryotes.  
Operon-Concept of Operator, Regulator, Promoter gene, Inducer and Co-repressor.

**UNIT –IV**

1. Biophysics : Introduction, Scope and Application
2. Principle, Structure, Functions of the following:
  - a. Microscopy
  - b. Colorimeter and Spectroscopy
  - c. Electrophoresis
  - d. Centrifugation
  - e. Chromatography.

**UNIT –V**

1. Radioisotopes techniques: Measurement of radioactivity, Ionization Chambers, Geiger Muller and Scintillation Counter.
2. Autoradiography and DNA Fingerprinting.
3. Biosensor.



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## List of Books

1. Gerald Karp - Cell and Molecular biology, 4th Edition (2005).
2. Lewis J.Klein Smith and Valerie M.Kish-Principles of cell and molecular biology-Third  
3. Edition (2002)
4. P.K. Gupta- Cell and molecular biology, Second Edition (2003), Rastogi publications.
5. Richard M-Twyaman-Advanced Molecular Biology, First South Asian Edition (1998),  
VivaBooks Pvt. Ltd.
6. K. Wilson and J.Walker (2012) Principle and Techniques of Biotechnology and  
MolecularBiotechnology.
7. Upadhya and Upadhya : Biophysical Chemistry.
8. David, I. Nelson and Michael M.Cox :Lehninger : Principal of Biochemistry 4th Edition. W.H.  
Freeman and Company, New York.
9. Buchanan, Gruissem& Jones (2015) Biochemistry & Molecular Biology of Plant, 2<sup>nd</sup>  
edition.

  
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**B.Sc. II**  
**BIOTECHNOLOGY**

**PAPER II**

**RECOMBINANT DNA TECHNOLOGY AND GENOMICS**

**M.M. 50**

**UNIT-I**

1. Recombinant DNA technology: General concept. Steps in gene cloning and application.
2. Host controlled Restriction Modification System, Ligases and Polymerases, Klenow fragment, Taq, Pfu polymerase and Nuclease (Endo, Exo and restriction endonuclease).
3. Modification Enzyme (Kinase, Phosphatases and terminal deoxynucleotidyl transferase). Reverse Transcriptase.

**UNIT –II**

1. Vectors: Plasmid, Bacteriophages, Cosmid, SV40 and Expression vectors.
2. Gene Library: Genomic and cDNA library.
3. Selection and Screening of Recombinants: Genetic and Hybridization methods.

**UNIT –III**

1. PCR: Types of PCR, Steps (Denaturation, Annealing and Extension); Applications, Advantages and Limitation of PCR.
2. Molecular Marker-RFLP, RAPD and Micro array.
3. Human Genome Project.

**UNIT-IV**

1. Basic concept of Gene Transfer Methods: Microinjection, Electroporation, Lipofection and Microprojectile.
2. Gene Therapy: *In vivo* and *Ex vivo*, Germ line and Somatic gene therapy.
3. Basic idea of Stem cell technology: Types of stem cell cultures and their Significance.

**UNIT-V**

1. Introduction to Bioinformatics: History, Objective and Application.
2. Major Bioinformatics Resource – NCBI , Types of Databases (Primary and Secondary Databases) , BLAST and FASTA
3. Basic concept of Genomics and Proteomics

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## List of Books

1. B.D. Singh (2004) Biotechnology, Expanding Horizons. First Edition. Kalyani Publishers, Ludhiana.
2. P.K. Gupta (2005) Biotechnology and Genomics, Rastogi Publication, Meerut.
3. Stan bury and Whittaker - Principles of Sterilization techniques, First Indian reprint Edition (1997). Aditya Book (P) Ltd. New Delhi.
4. L.E. Casida (1994) Industrial Microbiology Edition .
5. A.H. Patel (2003) Industrial Microbiology 4th Edition.
6. K.S. Bilgrami and A.K. Pandey(1998) Introduction to Biotechnology Edition 2nd (1998)
7. U Satyanarayan (2005) Biotechnology, First Edition Books and Allied (P) Ltd. Kolkata.
8. Atul kumar and VandanaA.Kumar (2004) Plant Biotechnology and tissue culture, Principle and Perspectives, International Books Distributing Co. Lucknow.
10. S Choudhuri, and DB Carlson (2008) Genomics: Fundamentals and applications, 1st edition.
11. TK Attwood and DJ Parry (2009) Introduction of Bioinformatics.
12. Philip E Bourne Helge Whisking (2003) Structural Bioinformatics.
13. Des Higgins and Willie Taylor (2000) Bioinformatics Sequence, Structure and Databanks.

  
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## List of Practical's

### MOLECULAR BIOLOGY, BIOPHYSICS, RECOMBINANT DNA TECHNOLOGY AND GENOMICS

1. Isolation of DNA from Plant cell.
2. Estimation of DNA by DPA method.
3. Isolation RNA from yeast cells

Experiment based on-

4. Centrifugation
5. Spectrophotometer/Colorimeter
6. Electrophoresis
7. Paper chromatography/TLC

Experiment based on Bioinformatics -

8. Retrieve DNA /Protein sequence from Biological Data Bases (NCBI).
9. Use of tools studied

  
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## SCHEME FOR PRACTICAL EXAMINATION

**Time: 4 hrs. M.M.: 50**

- |                                       |          |
|---------------------------------------|----------|
| 1. Experiment based on DNA/RNA        | 10 marks |
| 2. Experiment based on Instruments    | 10 marks |
| 3. Experiment based on Bioinformatics | 10 marks |
| 4. Spotting                           | 10 marks |
| 5. <i>Viva - Voce</i>                 | 05 marks |
| 6. Record / Sessional                 | 05 marks |

  
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