

(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 वितर्तन, भूसतुलन ।
- 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 तत्त्व, 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 विशेषताएं और विश्व प्रतिरूप ।
- इकाई -5. महासागरीय उच्चावच प्रशांत महासागर, आंध्रमहासागर एवं हिन्द महासागर । सामुद्रिक तापमान लवणता जलधाराएं एवं, ज्वारभाटा, सामुद्रिक निक्षेप एवं प्रवाल भित्ती, 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.



(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, युशमेन, पिग्मी, गोड, मसाई, और नागा ।
- इकाई -3. वैश्विक जनसंख्या- वृद्धि, घनत्व, जनसंख्या के वितरण को प्रभावित करने वाले स्थानिक कारक, जनाधिक्य, न्यूनतम जनसंख्या और अनुकूलतम आदर्श जनसंख्या, जनसंख्या एवं प्रवास ।
- इकाई -4. अधिवास- नगरीय अधिवास नगरीकरण 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 निर्वनीकरण, 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, 10th 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, 5th 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, 2nd 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.



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

(कौड क्रमांक 0187)

अधिकतम अंक: 50

- इकाई-1 : आर्थिक भूगोल का अर्थ, विषय क्षेत्र एवं उपागम, आर्थिक भूगोल की आधारभूत संकल्पनाएँ, संसाधन : संकल्पनाएँ एवं वर्गीकरण, प्राकृतिक संसाधन : मिट्टी, वन एवं जल ।
- इकाई-2 : खनिज संसाधन : लौह अयस्क एवं बाक्सাইट, शक्ति संसाधन कोयला, पेट्रोलियम एवं जल विद्युत, संसाधन संरक्षण , प्रमुख फसलें: गेहूँ, चावल, गन्ना, एवं चाय ।
- इकाई-3 : विश्व के कृषि प्रदेश (किटलसी 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 Chattoraj, 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.



- 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 - लौह 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. Chauthan, 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, 7th edition.
14. Sukhwal, 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.

27.5.19
(Dr. S. K. Das)

27.5.19

27/05/19
DR. R. Sharma



GEOGRAPHY

1. The B.A. Part III Examination in Geography will be of 150 marks. There will be two theory papers and one practical each of 50 marks as follows :
Paper - I Resource and Environment
Paper - II Geography of India (with special reference to Chhattisgarh)
Paper - III Practical Geography
2. Each theory paper shall be of three hours' duration.
3. Candidates will be required to pass separately in theory and practical examinations.
4. Each theory paper is divided into five units.
5. (a) In the practical examination the following shall be allotment of time and marks.

i) Lab work	-	20 marks	up to three hours
ii) Survey	-	10 marks	Two hours
iii) Field Report	-	10 marks	
iv) Practical Record and viva-voce	-	10 marks	

(b) The external and internal examiners shall jointly submit marks.
(c) The candidates shall present at the time of the practical examination their practical records regularly signed by the teachers concerned.

PAPER - I

RESOURCES AND ENVIRONMENT

MM. 50

(Paper Code-0248)

A. Resources

UNIT-I Meaning, nature and components of resources and environment. Resources and environment interface. Classification of resources : renewable and nonrenewable : biotic (forests, wild-life, live-stock, fisheries, agricultural crops) and abiotic (land, water, mineral)

UNIT-II Distribution and utilization of water mineral and energy resources, their economic and environmental significance and conservation. Types and distribution of forests, fauna and fisheries, their economic, and environmental significance and conservation. Major soil types and their distribution; problems of soil erosion and soil conservation.

UNIT-III Number, density, growth and distribution of population: population pressure and resource utilization.

B. Environment

UNIT-IV Classification of environment: Natural and Human. Man environment interrelations with respect to population size, types of economy and technology; exploitation of natural resources and environmental hazards.

UNIT-V Emerging environmental issues - population explosion; food security; deforestation; global warming; conservation of bio-diversity; sustainable development.



PAPER - II
GEOGRAPHY OF INDIA
(With Special reference to Chhattisgarh)
(Paper Code-0249)

MLM 50

UNIT - I Physical features : Structure, Relief and 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 : Agriculture - Major crops, impact of green revolution and
agricultural regions; Industries - Iron and steel, Cotton Textile, Cement, Sugar,
Population - growth, density and distribution. Transport, Foreign Trade.

UNIT-IV Chhattisgarh :
Physical Features : Structure, Physiography, Drainage, Climate, Soils, Natural
vegetation, Water resources - availability and development. Mineral and Power
resources, Power projects.

UNIT-V Chhattisgarh :
Cultural features : Agriculture, Industries, Population - growth, distribution and density,
social groups, literacy and sex-ratio, urbanisation. Major tribes-their habitat, economy
and society. Transport and Tourism.

SUGGESTED READING :

1. Sharma, T.C. and Coutinho, O. : Economic and Commercial Geography of India, Vikas Pub.
House, New Delhi, 1988.
2. Singh, R.L. (Ed.) : India : A regional Geography, Nat. Geog. Soc. of India, Varanasi, 1971.
3. Spate, O.H.K. and Learmonth, A.T.A. India and Pakistan : A General and Regional
Geography, Methuen & Co. Ltd. London, 1967.
4. Tiwari, R.C. : Geography of India, Prayag Pustak Bhawan, Allhabad, 2003.
5. प्रमीला कुमार (सम्पादक) : मध्यप्रदेश का प्रादेशिक भूगोल, म.प्र. हिन्दी ग्रंथ अकादमी, भोपाल
6. अग्रवाल प्रेमचंद : भारत का भौतिक भूगोल



1.31.19

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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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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ZOOLOGY

Paper-I (Paper Code-0917)

Ecology, Environmental-biology ; Toxicology ; Microbiology and Medical Zology.

2. Attempting one question from each unit will be compulsory. 100% chice be given.

UNIT-I (ECOLOGY)

1. Aims and scopes of Ecology.
2. Major ecosystems of the world-Brief intruduction
3. Population- Characteristics and regualtion of densities.
4. Communities and Ecosystems.
5. Biogeochemical cycles
6. Air and water pollution
7. Ecological succession

UNIT-II (ENVIRONMENTAL BIOLOGY)

1. Laws of limiting factors
2. Food chain in a freshwater ecosystem.
3. Energy flow in ecosystem-Trophic levels
4. Conservation of Natural resources
5. Environmental impact Assessment

UNIT-III (TOXICOLOGY)

1. Definition of Toxicity
2. Classification of toxicants
3. Principle of systematic toxicology
4. Toxic agents and their action- Metallic and inorganic agents
5. Animal poisons - Snake-venom, Scorpion and bee poisoning
6. Food pisoning

UNIT-IV (MICROBIOLOGY)

1. General and Applied microbiology.
2. Microbiology of Domestic water and sewage.
3. Microbiology of milk and milk products.
4. Industrial microbiology.

UNIT-V (MEDICAL MICROBIOLOGY)

1. Brief introduction to pathogenic micro-organisurs, Rickettsia, Spirochaetes and Bacteria.
2. Brief account of life-history and pathogenicity of the following pathogens with reference to man ; Prophylaxis and treatment -
 - (a) Pathogenic Protozoans - Entamoeba, Trypanosoma, and Giardia
 - (b) Pathogenic helminths - Schistosoma
 - (c) Nematode Pathogenic parasites of man
3. Vector insects

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PAPER-II

(Paper Code-0918)

(GENETICS, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES)

Note : Attempting one question from each unit will be compulsory, 100% choice be given.

UNIT-I (GENETICS)

1. Linkage and Linkage maps
2. Varieties of gene expression - Multiple alleles ; lithogenesis ; Pleiotropic genes ; gene interaction ; epistasis.
3. ~~Sex chromosome systems, and sex-linkage~~
4. Mutation and chromosomal alterations ; meiotic consequences.
5. Human genetics - chromosomal and single gene disorders (somatic cell genetics)

UNIT-II (CELL PHYSIOLOGY)

1. General idea about pH and Buffer.
2. Transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.
3. Active transport and its mechanism; Active transport in Mitochondria and Endoplasmic reticulum.
4. Hydrolytic enzymes - Their chemical nature, Activation and specificity.

UNIT-III (BIOCHEMISTRY)

1. Amino acids and Peptides - Basic structure and biological function.
2. Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cosei-cycle.
3. Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.
4. Protein metabolism - Deamination, Transamination, Transmethylation; Biosynthesis of Protein;

UNIT-IV (BIOTECHNOLOGY)

1. Biotechnology - Scope and importance.
2. Recombinant DNA and Gene cloning.
3. Cloned genes and other tools of biotechnology.
4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.

UNIT-V (BIOTECHNIQUE)

Principles and techniques about the following

1. pH meter
2. Colorimeter
3. Microscopy-Light microscopes, Phase contrast and Electron microscopes.
4. Centrifugation
5. Separation of biomolecules by chromatography, and Electrophoresis
6. Histochemical methods for determination of Protein, Lipids, and carbohydrate

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PRACTICAL WORK

The Practical work in general shall be based on syllabus prescribed in theory.

The candidates will be required to show knowledge of the following :

1. Estimation of population density, Percentage frequency, Relative density.
2. Analysis of Producers and consumers in grassland.
3. Detection of gram-negative and gram-positive bacteria.
4. Blood group detection (A,B, AB & O).
6. R.B.C., W.B.C. count.
6. Blood coagulation time.
7. Preparation of Hematin crystals from blood of rat.
8. Observation of Drosophila, wild and mutant.
9. Chromatography-Paper or gel.
10. Colorimetric estimation of hemoglobin.
11. Mitosis in onion root tip.
12. Biochemical detection of Carbohydrate, Protein and Lipid.
13. Study of Permanent slides of Parasites, based on theory paper.
14. Working Principles of pH meter, Colorimeter, centrifuge and microscopes.

SCHEDULE FOR PRACTICALEXAMINATION

Duration : 4 Hrs.		Max Marks : 50	
1.	Haematological Experiment : (R.B.Cs./W.B.Cs. Counting/Blood group detection)	08	marks
2.	Ecological Experiment : (Estimation of Population Density/Frequency/relative Density)	06	marks
3.	Staining of Gram +ve and Gram -ve Bacteria/cytological experiment : Mitosis in onion root tip	05	marks
4.	Biochemical Experiment : (biochemical detection of carbohydrate/protein lipid)	06	marks
5.	Chromatography	05	marks
6.	Spotting : Study of permanent slides of Parasites : 3 Comments on working Principles of pH meter / Calorimeter / centrifuge and Microscope :	10	marks
7.	Viva Voce	05	marks
8.	Sessional :	05	marks

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PAPER-I (Paper Code-0923)

MOLECULAR BIOLOGY AND GENETIC ENGINEERING M.M.50

UNIT-I History of molecular biology, model systems, concepts of molecular biology, Early history of genetic engineering, genetic engineering concepts, ethical issue.

UNIT-II Mutation; spontaneous and induced, base pair change, frame shift, deletion, inversion, random duplication, insertion, useful phenotypes (auxotrophs, conditional lethal, resistance). Reversion vs suppression, Ames's test.

UNIT-III Function of macromolecules; early observation on the mechanism of heredity, DNA as genetic material; basic mechanism of replication, enzymes involved in replication, Enzymes involved in transcription translation, genetic code, regulation of gene expression-transcription, translation and control of gene expression in microbes.

UNIT-IV DNA repair and restriction, types of repair systems, restriction modification systems, types of restriction enzymes, properties and uses, methylation. Biology of plasmids. Bacteriophages, lytic vs lysogenic phages, single standard DNA phages, M 13, restriction modification systems, restriction enzymes.

UNIT-V Plasmid and phage vectors, restriction and ligation of vector and passenger DNA, transformation of host cells, selection vs. screening of recombinant colonies, analysis of recombinant clones, DNA sequencing, protein separation and identification methods.

TEXT BOOKS :

1. Essentials of Molecular Biology by GM Malacinski.
2. Genes IX by Benjamin Lewin
3. Molecular Biology by TA Brown.

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PRACTICAL FOR B.SC. PART III
(MICROBIOLOGY)

- Characterization of genetic markers of known bacterial strain Isolation of DNA from bacteria
Isolation of plasmid DNA
Simple cloning using plasmid DNA as vector and transformation of competent E. coli Electrophoresis of protein / DNA.
Isolation of microorganisms from air, soil and water.
Isolation of pathogenic microorganisms.
Study of rhizospheric and phyllospheric microbes from economically important plants.
Biodegradation of some organic molecules.
Microbial assessment of potable water.
Analysis of sewage waste, solid waste (garbage).
Isolation of aquatic fungi (zoosporic) by baiting technique.
Isolation of keratinophilic fungi soil by baiting technique
Demonstration of bacterial antagonism.
Microscopic observation of root colonization by VAM fungi.

SCHEME FOR PRACTICAL EXAMINATION

Time : 4 hours

M.M. : 50

1. Characterization and identification of microorganism from given source/ Isolation of plasmid DNA/Genomic DNA	15
2. Biochemical identification of some biodegraded organic molecules/ Microbial assessment of potable water/BOD/COD	10
3. Spotting (1-5)	10
4. Viva-Voce	05
5. Sessional	10
Total	150

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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 Jatropha, 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:

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PRACTICAL SCHEME

M.M. : 50

TIME: 4 Hrs.

1. Anatomy
2. Economic Botany
3. Physiology
4. Ecology
5. Spotting
6. Viva-Voce
7. Project Work/ Field Study

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(Dr. J.N. Verma

Proff. & Head

Govt. D.B. Girls PG College
Raipur, (C.G.)

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(Dr. Rekha Pimpalgaonkar)

Proff. & Head

Govt. N PG Science College
Raipur, (C.G.)

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(Dr. Ranjana Shrivastava)

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Govt. VYTPG Science College
Raipur, (C.G.)

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(Mrs. Sanchal Moghe)

Govt. Bilasa Girls College, Bilaspur

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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, 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:

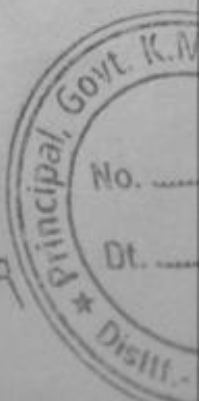
Koromondy, E.J. *Concepts of Ecology*, Prentice Hall, USA

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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 Humer, 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*, 5th 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 O₂ 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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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. पूर्व पाषाण काल एवं उत्तर पाषाण काल
4. इक्ष्वाकु सभ्यता- निर्माण, प्रसार, नगर योजना, राजनीतिक, सामाजिक, आर्थिक संरचना

इकाई-2

5. जैन धर्म - राजनीतिक, सामाजिक, आर्थिक
6. ईसा पूर्व छठी शताब्दी का भारत - महाजनपद काल
7. बौद्ध एवं जैन धर्म
8. सिंधु का आक्रमण और उसका प्रभाव

इकाई-3

9. चंद्रगुप्त मौर्य एवं अशोक
10. मौर्य प्रशासन, कला एवं संस्कृति, अशोक का धर्म
11. मौर्योत्तरकाल - शुंग, कुषाण एवं सातवाहन
12. समुद्रगुप्त- साहित्य, संस्कृति, चोल एवं पाण्ड्य

इकाई-4

13. गुप्तगुप्त- समुद्रगुप्त की विजय एवं चंद्रगुप्त द्वितीय, प्रशासन, आर्थिक, सामाजिक, सांस्कृतिक दृष्टि
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 कल्युरी वंश, राजनीतिक एवं प्रशासनिक व्यवस्था

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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 विशेषताएँ, 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 क्रांति
3. इंग्लैण्ड में गृह युद्ध : घटनाएँ, कारण एवं परिणाम
4. गौरव पूर्ण क्रांति (1688)

इकाई-3

1. अमेरिका का स्वतंत्रता संग्राम
2. फ्रांस की क्रांति 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 क्रांति
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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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 उपलब्धियाँ, 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. पिजयनगर 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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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- मेइजी पुनर्स्थापना एवं जापान का आधुनिकीकरण

इकाई-2

4. रूस-जापान युद्ध : कारण एवं परिणाम
5. चीन अफ्रीम 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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Prasanna
31.5.19



इतिहास
प्रश्न-पत्र प्रथम
भारत का इतिहास सन् 1761 ई. से 1950 ई. तक
(विपर कोड-0240)

पृष्ठक 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य आधुनिक काल में भारत के राजनीतिक, सामाजिक, आर्थिक एवं सांस्कृतिक इतिहास से विद्यार्थियों को अवगत कराना है।

इकाई-1

1. ब्रिटिश साम्राज्य का विस्तार एवं सुदृढीकरण - युद्ध एवं कूटनीति - कनार्टक युद्ध
2. ब्रिटिश साम्राज्य का विस्तार एवं सुदृढीकरण - पत्तारी एवं बक्सर
3. सहायक संधि एवं हड़प्पा नीति (व्यपगत का सिद्धांत)
4. ब्रिटिश प्रशासन एवं सुधार - बेटिंग, रिटर्न, रिजर्व, कर्जन

इकाई-2

1. वाणिज्यवाद - उद्योगों का पतन
2. वाणिज्यवाद - व्यापार का पतन
3. कृषि का ऋण एवं कृषक आन्दोलन
4. भूराजस्व व्यवस्थाएं - रियाई बन्दोबस्त, रियातवाड़ी, महालवाड़ी

इकाई-3

1. भारतीय पुनर्जागरण - ब्रह्म समाज, आर्य समाज, प्रार्थना समाज,
2. अम्मकृष्ण मिशन, थियोसोफिकल सोसायटी, अलीमद आन्दोलन
3. पारवर्त्य शिक्षा का विकास एवं प्रेस
4. विभिन्न सामाजिक वर्ग - कृषक, मजदूरी, मध्यम वर्ग एवं महिलाएं

इकाई-4

1. राष्ट्रवाद का उदय एवं 1857 की क्रांति
2. भारतीय राष्ट्रीय कांग्रेस - उदारवादी, उग्रवादी
3. कान्तिकारी आन्दोलन गांधीवादी आन्दोलन

इकाई-5

1. साम्प्रदायिकता : उदय एवं विकास
2. सुभाषचन्द्र बोस एवं आजाद हिन्द सेना
3. भारत का संवैधानिक विकास : 1919 ई. - द्वैध शासन 1935 - प्रान्तीय स्वायत्तता
4. भारत की स्वतंत्रता तथा भारतीय संविधान की विशेषताएं।

संदर्भ ग्रंथ :

- | | | |
|--------------------|---|--|
| 1. Sarkar and Dutt | - | Modern India (English and Hindi Version) |
| 2. Singh, Nihal | - | Landmarks in Indian Constitutional Development and National Movement. |
| 3. Agrawal R.C. | - | Indian Constitutional Development and National Movement in India. |
| 4. राधेशरण | - | भारत की सामाजिक एवं आर्थिक संरचना और संस्कृति के मूल तत्व (आदिकाल से 1950 ई. तक) (म.प्र. हिन्दी ग्रंथ अकादमी का प्रकाशन) |

Narain
20/7/17

[Signature]



प्रश्न- पत्र द्वितीय
विश्व इतिहास - सन् 1871 ई. से 1945 ई. तक
(पेपर कोड - 0241)

पूर्णांक 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य विश्व इतिहास की प्रमुख घटनाओं से विद्यार्थियों को अवगत कराना है साथ ही अन्तर्राष्ट्रीय परिदृश्य का ज्ञान भी इन्हें देना है ।

इकाई-1

1. फ्रांस का तृतीय गणतंत्र
2. बिस्मार्क - सह एवं विदेश नीति
3. विलियम द्वितीय की विदेश नीति
4. अफ्रीका का विभाजन

इकाई-2

1. जापान का आधुनिकीकरण
2. रूस - जापान युद्ध : कारण एवं परिणाम
3. चीन की कान्ति - कारण एवं परिणाम
4. डाफ. सन-यत-सेन

इकाई-3

1. पूर्वी समस्या- बलिदान कांग्रेस, युवा तुर्क आन्दोलन
2. बाल्कन युद्ध : कारण एवं परिणाम
3. प्रथम विश्व युद्ध : कारण एवं परिणाम
4. रूस की कान्ति 1917

इकाई-4

1. वर्साई की संधि
2. फासीवाद - मुसोलिनी
3. नजीवाद - हटलर
4. जापान का सैन्यवाद - तोजो

इकाई-5

1. राष्ट्रसंघ : स्थापना एवं विल्सन के 14 सूत्र
2. द्वितीय विश्वयुद्ध - कारण एवं परिणाम
3. संयुक्त राष्ट्र संघ - स्थापना एवं संगठन
4. संयुक्त राष्ट्र संघ - उपलब्धियां

अनुशंसित ग्रंथ :

1. Grant and Temperley
2. Kettelby
3. Moon
4. Plamor & Parkins
5. Parks, Hengy Bamford

- Europe in the 19th and 20th Century (also Hi-- Version)
- History of the Modern Times
- Imperialism in World Politics
- International Politics
- The United States of America A History



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