

REVISED SYLLABUS

B.A. PART-III (ECONOMICS)

PAPER-I (Paper code : 0242)

DEVELOPMENT AND ENVIRONMENTAL ECONOMICS

UNIT 1

Economic Growth and Development : Factor affecting economic growth (Labour, capital and Technology), Developed and under developed Economy, Poverty-absolute and relative, Marxian model of Economic Growth, Mahalanobis Model of Economic Growth. Balanced and unbalanced growth.

UNIT 2

Problems of Population and growth pattern of population. Theory of demographic transition. Population, poverty and environment. Schumpeter's theory of economic growth, Theory of Big-Push, Nelson's theory of low-level income equilibrium trap, Theory of Critical minimum efforts.

UNIT 3

Harrod and Domar growth model, Solow's model of economic growth, Meades Neo classical models., Mrs. Joan Robinson's growth model, A. Lewis theory of unlimited supply of labour.

UNIT 4

Environment : Environmental and use, environmental disruption as an allocation, problem, valuation of environmental damages- land, water, air- and forest, prevention control and abatement of pollution, choice of policy instruments in developing countries, environmental legislation indicators of sustainable development. environmental accounting.


UNIT 5

Concept of Intellectual Capital : Food Security, Education, Health and Nutrition, Role of agriculture in economic development, Land reforms, Efficiency and Productivity in Agriculture, new Technology and Sustainable agriculture, Globalization and agriculture growth, the choice of technique appropriate technology & employment.

B.Sc. Part-III
ZOOLOGY
PAPER-I

**ECOLOGY, ENVIRONMENTAL BIOLOGY:
TOXICOLOGY, MICROBIOLOGY AND MEDICAL ZOOLOGY**

- UNIT- I **(Ecology)**
- Aims and scopes of ecology
 - Major ecosystems of the world-Brief introduction
 - Population- Characteristics and regulation of densities
 - Communities and ecosystem
 - Bio-geo chemical cycles
 - Air & water pollution
 - Ecological succession
- UNIT- II **(Environmental Biology)**
- Laws of limiting factor
 - Food chain in fresh water ecosystem
 - Energy flow in ecosystem- Trophic levels
 - Conservation of natural resources
 - Environmental impact assessment
- UNIT-III **(Toxicology)**
- Definition and classification of Toxicants
 - Basic Concept of toxicology
 - Principal of systematic toxicology
 - Heavy metal Toxicity (Arsenic, Mercury, Lead, Cadmium)
 - Animal poisons- snake venom, scorpion & bee poisoning
 - Food poisoning
- UNIT-IV **(Microbiology)**
- General and applied microbiology
 - Microbiology of domestic water and sewage
 - Microbiology of milk & milk products
 - Industrial microbiology: fermentation process, production of penicillin, alcoholic beverages, bioleaching.
- UNIT-V **(Medical Zoology)**
- Brief introduction to pathogenic microorganisms, Rickettsia, Spirochetes, AIDS and Typhoid
 - Brief account of life history & pathogen city of the following pathogens with reference to man: prophylaxis & treatment
 - Pathogenic protozoan's- Endameba, Trypanosome & Plasmodium
 - Pathogenic helminthes- Schist soma
 - Nematode pathogenic parasites of man
 - Vector insects


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B.A./B.Sc./B.Com./B.H.Sc. Part III
Foundation Course
English Language

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 b) Vocabulary based on text	05 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 Geoeconomic 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 Diberlialiation 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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Govt. Dr. Jyoti Bai College
Bhopal (M.P.) C.G.
Govt. College
Bhopalpur (C.G.)

B.A./ B.Sc. Part - III
GEOGRAPHY
PAPER - III
PRACTICAL GEOGRAPHY

Max. Marks: 50

SECTION-A

MAP READINGS AND INTERPRETATION

(M.M. 20)

- UNIT-I** Graphical Representation: Band graph, Climograph, Square root, Cube-root.
- UNIT-II** Topographical Sheets: Classification and numbering system (National and International), Interpretation of Topographical Sheets with respect to cultural and physical features.
- UNIT-III** Satellite Imageries: Describing the Marginal Information, Image interpretation: Visual Methods – Land use / Land cover, Mapping, Use and Application of GPS.

SECTION B

SURVEYING AND FIELD REPORT

(M.M.20)

- UNIT-IV** Surveying: Plane Table Survey, Basic Principles of plane table surveying, Plane table survey including intersection and resection.
- UNIT-V** Field work and field report: physical, social and economic survey of a micro-region.

PRACTICAL RECORD AND VIVA VOCE

(M.M.10)

BOOKS RECOMMENDED:

1. Archer, J.E. and Dalton, T.H. (1968): Field Work in Geography. William Clowes and Sons Ltd. London and Beccles.
2. Bolton, T. and Newbury, P.A. (1968): Geography through Fieldwork. Brandford Press, London.
3. Campell, J. B. (2003): Introduction to Remote Sensing. 4th edition. Taylor and Francis, London.
4. Chanel, D. D. (2004): Remote Sensing and Geographical Information System (in Hindi), Sharda Pustak Bhawan, Allahabad.
5. Gracknell, A. and Ladson, H. (1990): Remote Sensing Year Book, Taylor and Francis, London.
6. Curran, P.J. (1985): Principles of Remote Sensing. Longman, London.
7. Davis, R.E. and Foote, F.S. (1953): Surveying, 4th edition. McGraw Hill Publication, New York.
8. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing, Indian Academy of Science, Bangalore.
9. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation. W.H. Freeman, New York.
10. Gautam, N.C. and Radhaswamy, V. (2004). Land Use/ Land Cover and Management Practices in India. B.S. Publication., Hyderabad.
11. Jensen, J.R. (2004): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice-Hall, Englewood Cliffs, New Jersey. Indian reprint available.
12. Jones, P.A. (1968): Fieldwork in Geography. Longmans, Green and Company Ltd., First Publication, London.
13. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Leveling, Vol I and II V.G. Prakashan, Poona.


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B.Sc. Part-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, stomata 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' cycle, factors affecting respiration, R.Q.
- UNIT-V** Plant growth hormones: Auxin, Gibberellins, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization, Seed dormancy and germination, plant movement.

Books Recommended:

1. Koromondy, E.J. **Concepts of Ecology**, Prentice Hall, USA
2. Singh, JS Singh SP and Gupta SR. **Ecology and Environmental Science and Conservation**, S. Chand Publishing, New Delhi
3. Sharma, PD. **Ecology and Environment**, Rastogi Publications, Meerut
4. Hopkins, WG and Huner, PA. **Introduction to Plant Physiology**, John Wiley and Sons.
5. Pandey SN and Sinha BK. **Plant Physiology**, Vikas Publishing, New Delhi
6. Taiz, Land Zeiger, E. **Plant Physiology**, 5th edition, Sinauer Associates Inc, M.A. USA
7. Srivastava, HS **Plant Physiology and Biotechnology**, Rastogi Publications, Meerut


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Syllabus B.Sc. Part-II Botany **Bastar University, Jagdalpur (C.G.)**

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REFERENCE:-

1. Behrman's And T.N. Srinivasan (1995) "Hand book of Development Economics," Vol 1, 2, & 3 Elsevier; Amsterdam.
2. Ghatak (1986) "An introduction to development Economics", Allen & Elnein, London.
3. Sen, A.K. (Ed.) 1990 "Growth Economics", Penguin, Hormones worth.
4. Mehrotra, S. And J. Richard (1998), Development with a Human Face, Oxford University Press New Delhi.


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Session - 2021-22

B.Sc. Part-III
ZOOLOGY
PAPER-I

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SULLABUS FOR ENVIRONMENTAL STUDIES "FOR UNDER GRADUATE COURSES"

1. इन्वायरमेंटल साइंसेस के पाठ्यक्रम को स्नातक स्तर भाग-एक की कक्षाओं में विश्वविद्यालय अनुदान 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 किसी भी वर्ष में पर्यावरण प्रश्न-पत्र उत्तीर्ण करना, अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।
2. पाठ्यक्रम 100 अंकों का होगा, जिसमें से 75 अंकर सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंक क्षेत्रीय कार्य (Field Work) पर होंगे।
3. सैद्धांतिक प्रश्नों पर अंक-75 (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें आंतरिक विकल्प रहेगा)
(अ) लघु प्रश्नोत्तर -25 अंक
(ब) निबंधात्मक -50 अंक
4. Field Work - 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रयोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेंगे।
5. उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा।
6. 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 में संयुक्त रूप से 33% (तीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।
7. 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 अधीक्षकों/परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।


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**SULLABUS FOR
ENVIRONMENTAL STUDIES**

M.M. 100

UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, Scope and Importance

Natural Resources:

Renewable and Nonrenewable Resources :

Natural resources and associated problems.

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

Role of an individual in conservation of natural resources.

Equitable use of resources for sustainable life-styles.

UNIT-II ECOSYSTEM

Concept, of an ecosystems.

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 The following ecosystem:
 - a. Forest, Ecosystem.
 - b. Grassland ecosystem
 - c. Desert ecosystem
 - d. Aquatic ecosystems (Ponds, streams, lakes, rivers, oceans, estuaries)

UNIT – III Biodiversity and its Conservation

- Introduction -- Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity : consumptive use, productive use, social, ethical, 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/wildlife conflicts.
- Endangered and endemic species of india.
- Conservation of biodiversity : In situ and Ex-situ conservation of biodiversity


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UNIT-IV Environmental Pollution

Definition

Causes, effects and control measures of

- Air pollution
- Water pollution
- soil pollution
- Marine pollution
- Noise pollution
- Nuclear hazards.

Solid waste management : Causes, effects and control measures of urban and industrial

Wastes.

Role of an individual in prevention of pollution.

pollution case studies

Disaster management : floods, earthquake, cyclone and landslides.

Human Population and the Environment

population growth, variation among nation.

population explosion - Family Welfare programme.

Environment and human health.

Human Rights, and control measures of

UNIT - V Social Issues and the Environment

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. Case studies.

Environmental ethics : Issues and possible solutions, and control measures of urban and

Climate change, global warming, acid rain, ozone Layer depletion nuclear accidents and holocaust Case studies.

Wasteland reclamation: prevention of pollution.

Consumerism and Waste products. Environment Protection Act

Air (Prevention and Control of pollution) Act, floods and landslides.

Water (Prevention and Control of pollution) Act.

Wildlife protection Act, variation among nation.

Forest Conservation Act, family Welfare programme

Issues involved in enforcement of Environment legislation.

public awareness.

Value Education in Environment

HIV/AIDS - sustainable to Sustainable development.

Women and Child Welfare, NGOs.

Role of Information Technology in Environment and Human Health.

Case Studies: and rehabilitation of people, its problems and concerns. Case

FIELD WORK

- visit to a local area to document environmental assets- river/forest/grassland/hill/mountain/industrial zone/ ozone Layer depletion nuclear
- visit to local polluted site : urban/Rural/Industrial/Agriculture. Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture Hours) and Control of pollution Act.
- Air (Prevention and Control of pollution) Act
- Wildlife protection Act.
- Forest Conservation Act
- Issues involved in enforcement of Environment legislation
- public awareness
- Value Education
- HIV/AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health.
- Case Studies



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