

Total No. of Questions : 8]

SEAT No. :

P3078

[5537]-11

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-101 : Environmental Geoscience

(2008 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Answer to the two sections should be written in separate answer books.*

SECTION - I

Q1) Answer any two from the following : **[10]**

- a) Describe in brief the structure of Earth Atmosphere.
- b) Explain in detail green house effect and heat budget.
- c) Terrestrial radiation has a major effect on earth atmosphere. Explain.

Q2) Answer any two from the following : **[10]**

- a) Discuss the role of pressure measurement and distribution in atmospheric studies.
- b) Explain the model of general circulation of the atmosphere.
- c) Atmospheric disturbance are directly or indirectly related to lightening.

Q3) Attempt any two from the following : **[10]**

- a) How are drought formed? Add a note on its effect on environment.
- b) Explain various forms of condensation.
- c) Write in brief the evolution theory of Earths atmosphere.

Q4) Write short notes on any two : **[10]**

- a) Environmental lapse rate.
- b) Floods.
- c) Jet stream.

P.T.O.

SECTION - II

Q5) Attempt any two from the following : **[10]**

- a) Explain in short classification of trace element.
- b) Trace Element mobility is related to Geochemical cycle.
- c) Discuss the Global Water Balance related to water resources.

Q6) Answer any two from the following : **[10]**

- a) What are Sedimentary rocks? How are Sedimentary rock classified.
- b) Major rivers and dams are major source of surface water to human. Explain.
- c) Explain various types of Volcanoes and mitigation methods associated to them.

Q7) Attempt any two from the following : **[10]**

- a) Major element are directly or indirectly useful to human health.
- b) Explain various factors influencing the surface water.
- c) Ice sheets are related to sea level changes. Explain.

Q8) Write short notes on any two : **[10]**

- a) Biochemical factors in environmental health.
- b) Types of water.
- c) Biochemical parameters in Soil formation.



Total No. of Questions :8]

SEAT No. :

P3079

[5537]-12

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV:102 -Environmental Chemistry

(2008 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All question carry equal marks.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Answer to the two section should be written in separtae answer books*

SECTION-I

Q1) Attempt any two from the following.

[10]

- a) Define-
 - i) LD50
 - ii) Builders in detergents
 - iii) Chronic toxicity
 - iv) Bio transframation
 - v) Environmental chemistry
- b) Enlist the functions of various types of proteins.
- c) Explian the sources and effects of PAH with examples.

Q2) Answer any two from the following.

[10]

- a) Define pesticides provide a broad outline of classification of pesticides with suitable examples.
- b) Draw the structure of surfactant. Explain rate of detergents in environment.
- c) Discuss the concept and mechanism of carcinogenesis.

Q3) Attempt any two from the following.

[10]

- a) What are the physiologicaldis orders associated with lead toxicits?
- b) Explain in brief effeds of hydrocarbons an macro and micro-organisms.
- c) How Biosphere is influenced by hydrosphere?

P.T.O.

- Q4)** Write short notes on any two. [10]
- a) Water as prime supporter of life.
 - b) Polymer decay and photosensitizer additives
 - c) Embryogenesis

SECTION-II

- Q5)** Attempt any two from the following. [10]
- a) Explain the working of HPLC with schematic diagram.
 - b) Explain the carbonate system with reference to its sources and reactions.
 - c) Explain toxicity of aflatoxin with reference to its structural configuration.

- Q6)** Answer any two from the following. [10]
- a) Comment on the methods used for destruction of aflatoxins.
 - b) Explain principle and applications of GC with schematic diagram.
 - c) Explain the principle, merits and demerits of AAS.

- Q7)** Attempt any two from the following. [10]
- a) What are the sources and effects of radionuclides in environment
 - b) Explain destruction procedure for the chromium and importance of destruction.
 - c) Explain the importance of x-ray technique in analysis of environmental pollutants.

- Q8)** Write short notes on any two. [10]
- a) Gibb's energy
 - b) Polarography technique
 - c) Chemical equilibria and chemical potential.



Total No. of Questions :8]

SEAT No. :

[Total No. of Pages :2

P3080

[5537]-13

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-103 Enviromental Biology

(2008 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) Attempt not more than 5 questions of which at least 2 questions must be from each section.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) All questions carry equal marks.*

SECTION-I

Q1) Attempt the following.

- a) Describe two methods for measurement of population density.
- b) Discuss classification of microorganism.
- c) What is ecosystem? Give its components in detail.

Q2) Answer the following:

- a) Give details of Biogeographical classification of India.
- b) Explain applications of micro-organism in Environmental science.
- c) Describe trophic structure of forest ecosystem.

Q3) Explain the following.

- a) Food chain, food web and energy pyramid.
- b) Role of Biotechnology in conservation of species.
- c) Factors influencing wild life management.

P.T.O.

Q4) Write short notes.

- a) Protected Area network.
- b) Red data Book
- c) Wild-life Protection Act.

SECTION-II

Q5) Attempt the following.

- a) Describe significance of wet lands.
- b) Enumerate important wildlife projects in India.
- c) Discuss major threats to Biodiversity in India.

Q6) Answer the following

- a) Write types of wetlands.
- b) Explain classification of biomes.
- c) Describe association of micro-organism with man, animal and plants.

Q7) Explain the following.

- a) Secondary succession
- b) Ecotone
- c) Role of local communities in wildlife management.

Q8) Write short notes.

- a) Endemic species
- b) Critically endangered species.
- c) RAMSAR site



Total No. of Questions :4]

SEAT No. :

P3081

[5537]-14

[Total No. of Pages :2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-104 Statistical & Research methods

(2008 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *All questions carry equal marks.*
- 3) *Figures to the right indicate full marks.*
- 4) *Statistical tables will be provided on request.*
- 5) *Pocket calculators are allowed.*

SECTION-I

Q1) Solve any two of the following.

[20]

- a) Explain in brief the following terms.
 - i) stratified Random sampling
 - ii) Quartile Deviation.
 - iii) O give curve
 - iv) Positive correlation.
- b) In a class of 50 students, 10 have failed and their average marks is 2.5. The total marks secured by the entire class was 281. Find the average marks of students who have passed.
- c) Explain the term skewness and kurtosis. State the types of skewness and kurtosis. Describe the procedure to measure it.

Q2) Solve any two of the following.

[20]

- a) Write down difference between correlation and regression analysis?
- b) The median and mode for the following data are 33.50 and 34 respectively. Find the missing frequencies.

Value	0-10	10-20	20-30	30-40	40-50	50-60	60-70	Total
freq(f)	4	16	?	?	?	6	4	230
- c) What is dispersion? Explain various methods of measures of dispersion? Which measure of dispersion better and why?

P.T.O.

SECTION-II

Q3) Solve any two of the following.

- a) Write short notes on [20]
- i) Random variable
 - ii) Type I and Type II Error
 - iii) Probability and laws of probability
 - iv) Level of significance
- b) The mean and variance of Binomial Distribution are 3 and 2 respectively. Find the probability that the variate takes values.
- i) Exactly 2
 - ii) at most 2
- c) Explain the procedure of testing difference between two sample mean by t-test.

Q4) Solve any two of the following.

[20]

- a) Define the Normal probability density function and state different properties of Normal probability curve.
- b) Obtain the solution of the following system of linear equation.
- $$4x - 3y + z = -10$$
- $$2x + y + 3z = 0$$
- $$-x + 2y - 5z = 17$$
- c) Dry seeds were irradiated with three different doses of gamma rays. Germination percentage is given below. Analyse your data statistically using F-test.

Gamma ray doses

Replicates	10kR	20kR	30kR
1	90	85	75
2	95	80	80
3	90	85	75
4	85	75	60
5	80	70	65



Total No. of Questions : 8]

SEAT No. :

P3082

[5537]-21

[Total No. of Pages : 2

M.Sc. (Environmental Science)
ENV - 201 : ENVIRONMENTAL ECONOMICS
(2008 Course) (Semester - II)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Figures to the right side indicate full marks.*

SECTION - I

Q1) Attempt any two of the following. **[10]**

- a) What are the reasons for failure of the market? Explain.
- b) Explain in brief how quality of environment is depends on economy.
- c) Enlist the problems related to design social cost.

Q2) Attempt any two of the following. **[10]**

- a) Explain how economic instrument protect the environment.
- b) Explain in brief options for decrease the subsidies.
- c) 'Valuation of resources is important while making policies'. Explain in detail.

Q3) Attempt any two of the following. **[10]**

- a) How cost-benefit analysis helps to audit the resources? Explain.
- b) What are non-renewable resources? Explain in detail.
- c) 'Environmental policies are not only effective instrument to protect the environment'. Justify the statement.

Q4) Write a short notes (any two) **[10]**

- a) Problems in cost-benefit analysis.
- b) Exploitation of natural resources and economy.
- c) Externalities.

P.T.O.

SECTION - II

Q5) Attempt any two of the following. **[10]**

- a) Explain in detail long term impact of global warming.
- b) Write in detail enviromental Kuznets curve.
- c) How dose climate change impact environmental economics in India.

Q6) Attempt any two of the following. **[10]**

- a) Write in brief note on concept and issue in sustainable development.
- b) Enlist the various methods of environmental growth and quality measurement.
- c) What are the alternative options for combating the climate change?

Q7) Attempt any two of the following. **[10]**

- a) Carbon trading is effective tool for environmental management.
- b) How sustainable development helps to solve the different environmental problems? Explain with examples.
- c) Climate change makes impact on environmental economics. Explain.

Q8) Write a notes on (any two). **[10]**

- a) Problem of social cost.
- b) Foreign Direct Investment.
- c) Components of strategic planning.



Total No. of Questions : 8]

SEAT No. :

P3084

[5537]-23

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-203 : Environmental Pollution : Water and Soil

(2008 Pattern) (Semester-II)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) Attempt not more than 5 questions of which at least 2 questions must be from each Section.*
- 2) Answer to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) All questions carry equal marks.*

SECTION-I

- Q1)** a) Describe various methods used to find water pollution level.
b) Give brief account of drinking water standards.
- Q2)** a) What are heavy metals? Explain the effects of heavy metals on biological component of environment.
b) What are consequences of marine water pollution?
- Q3)** a) What is water pollution? Describe the effects of biological pollutants.
b) Discuss the types of pollution on the basis of sources and comment on disposal of sewage.
- Q4)** Write notes on any two of the following:
a) Characteristics of agricultural waste.
b) Effects of water pollution on economy.
c) Ballast water.

P.T.O.

SECTION-II

- Q5)** a) What are specifications for disposal of sewage on land for irrigation?
b) What are the methods of wastewater disposal in India?
- Q6)** a) What is deterioration of soil? Explain the case study of restoration of land due to disposal of fly ash.
b) What are the effects of mining activities on environment?
- Q7)** a) Comment on interaction of radiations with matter.
b) Discuss any two sources of soil pollution.
- Q8)** Write notes on any two of the following:
- a) G.M. Counter.
 - b) Domestic waste & agricultural waste.
 - c) Conversion of solid wastes energy.



Total No. of Questions : 8]

SEAT No. :

P3085

[5537]-24

[Total No. of Pages : 3

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-204 : Environmental Law, Ethics and Policy

(2008 Pattern) (Semester-II)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Answer to the two sections should be written in separate answer books.*

SECTION-I

Q1) Attempt any two from the following: **[10]**

- a) Discuss in detail, 1972's Stockholm conference on Human Environment.
- b) What is 'agenda 21'? Discuss important features of the same.
- c) What is 'ozone depleting substance'? Write a short summary of protocol developed for mitigation of ozone depletion problem.

Q2) Answer any two from the following: **[10]**

- a) Write a note on history of environmental laws in India.
- b) Why 'Environment (Protection) Act 1986' is called as an 'Umbrella legislation'?
- c) Discuss the role & responsibilities of central and state pollution control board constituted under water (P & CP) Act 1974.

P.T.O.

Q3) Attempt any two from the following: [10]

- a) Biomedical waste management rules.
- b) Principles of national environmental policy 2006.
- c) Concept of sustainable development.

Q4) Answer the following (any two): [10]

- a) Discuss in detail, the features of water (P & CP) act 1974.
- b) Which protocol was developed for control of carbon emissions and thereby global warming? Write a brief summary of it.
- c) Discuss the significance of Johannesburg Summit (Rio + 10).

SECTION-II

Q5) Attempt any two from the following: [10]

- a) Discuss the concept of environmental audit.
- b) Why the 'Earth Summit' held at Rio de Janeiro is considered as an important step in the history of mankind?
- c) Briefly discuss, millennium development goals.

Q6) Answer any two from the following: [10]

- a) Enlist rules related to waste management and briefly state, features of municipal solid waste management rules.
- b) Define the terms 'conservation', 'exploitation' and 'utilization'.
- c) Explain the relationship of development with environment.

Q7) Attempt any two from the following:

[10]

- a) Discuss the objectives and provisions under CITES convention.
- b) Comment on fundamental rights and duties for conservation/protection of environment.
- c) Discuss the provisions of air (P & CP) act 1981, with respect to violation of it.

Q8) Write short notes on any two:

[10]

- a) UNFCCC.
- b) Steps involved in the environmental audit.
- c) Role of natural resources in development.



Total No. of Questions : 8]

SEAT No. :

P3086

[5537]-31

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-301 : Air Pollution and Climate Change

(2008 Pattern) (New) (Semester - III)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *All questions carry equal marks.*
- 4) *All questions are compulsory.*

SECTION - I

Q1) Answer any two of the following :

- a) Write a note on the chemical composition of the atmosphere.
- b) What are the effects of air pollutants on human health?
- c) What are the different strategies to control vehicular pollution?

Q2) Attempt any two of the following :

- a) Explain the radiation budget of earth / atmospheric system.
- b) How does climate change affect agriculture?
- c) Write a note on La Nina phenomenon and its effects.

Q3) Answer any two of the following :

- a) What are the sources of air pollution in agro based industry?
- b) Write a note on preventive measures for industrial air pollution.
- c) What are the effects of ozone depletion? Give examples of ozone depleting substances.

Q4) Write short notes on any two :

- a) Acid rain.
- b) Wet and dry deposition.
- c) PM_{2.5}.

P.T.O.

SECTION - II

Q5) Answer any two of the following :

- a) How can air pollution be controlled by process modification? Explain with examples.
- b) List the different methods for dry and wet collection of particulates. What are the advantages and disadvantages of dry & wet collection.
- c) Give the principle of electrostatic precipitation. Write about the different types of electrostatic precipitators.

Q6) Attempt any two of the following :

- a) Write about the different problems associated with the working of bag house filters.
- b) Differentiate between venturi scrubber & cyclone scrubber.
- c) List the factors to be considered while selecting condensation for air pollution control. What are the types of condensers.

Q7) Answer any two of the following :

- a) What are the salient features of the Kyoto protocol?
- b) What is carbon sequestration?
- c) Give the background and working of IPCC.

Q8) Write short notes on :

- a) Reverse jet filter.
- b) Vapour incineration.
- c) UNFCCC.



Total No. of Questions : 8]

SEAT No. :

P3087

[5537]-32

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

**ENV-302:EIA And Environmental Auditing
(2008 Pattern) (Semester - III)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All question carry equal marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Answer to the two sections should be written in separate answer books.*

SECTION-I

Q1) Attempt any two from the following. **[10]**

- a) Describe the steps/stages of EIA.
- b) Explain the procedure for constitution of state EIA authority and state expert appraisal committee.
- c) Define and describe objectives of EIA and discuss how EIA is an effective tool for decision maker.

Q2) Answer any two from the following. **[10]**

- a) Explain the checklist method of EIA and its importance.
- b) Discuss the significance of meteorological (Climate) data in EIA.
- c) Describe the methodology of baseline data collection on water environment and its application in EIA.

Q3) Attempt any two from the following. **[10]**

- a) Explain the significance of ecology & biodiversity data in river valley development project.
- b) Which aspects are highly significant in impact assessment of thermal power plant? Explain.
- c) Discuss advantages and limitations of public hearing process.

Q4) Write short notes on any two. **[10]**

- a) National environment policy (NEP) 2006
- b) Terminology used in EIA.
- c) Scaling- weighting technique

P.T.O.

SECTION-II

Q5) Attempt any two from the following. **[10]**

- a) Formulate environment management plan for iron & steel industry.
- b) Discuss the impact of sugar industry on social-environment.
- c) Explain the generic structure of EIA report.

Q6) Answer any two from the following. **[10]**

- a) Discuss preventive, control & mitigation measures for air pollution.
- b) Recommend environmental monitoring programme for highway project.
- c) Describe the risk assessment for petrochemical unit.

Q7) Attempt any two from the following. **[10]**

- a) Describe audit methodology and basic structure of an audit.
- b) How will you audit pollution aspect for any industry ? Explain with suitable examples.
- c) Discuss relation of development with environment. Also state the role of regulations in sustainable development.

Q8) Write short notes on any two. **[10]**

- a) ISO 14000
- b) Consumption Audit.
- c) Primary & secondary data for EIA.



Total No. of Questions :8]

SEAT No. :

[Total No. of Pages :2

P3088

[5537]-33

M.Sc.

ENVIRONMENTAL SCIENCE

**ENV-303: Remote Sensing and GIS
(2008 Pattern) (Semester-III)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) All questions carry equal marks.*

SECTION-I

Q1) Attempt any two from the following. **[10]**

- a) Describe the photographic elements of visual interpretation.
- b) Describe the basic geometric characteristics of aerial photographs.
- c) Explain the Radar Remote sensing from space.

Q2) Attempt any two from the following: **[10]**

- a) Explain the brief History of GIS.
- b) Discuss the elements of GIS.
- c) Briefly explain the SPOT satellite program.

Q3) Attempt any two from the following. **[10]**

- a) Explain the Across-Track and Along - Track scanning system.
- b) Explain the stage of GIS data modeling.
- c) Describe the use of GPS in mapping.

P.T.O.

Q4) Write short notes on any two. [10]

- a) Passive microwave sensing.
- b) Components of Data quality.
- c) Data analysis in GIS.

SECTION-II

Q5) Attempt any two from the following. [10]

- a) Explain the Agricultural Application of Remote sensing.
- b) Describe briefly the objective based vector data model.
- c) Explain the level and scale measurements in GIS.

Q6) Attempt any two from the following [10]

- a) Explain techniques of digitization
- b) Comparison between Raster and vector data models.
- c) Explain Hyperspectral sensing.

Q7) Attempt any two from the following. [10]

- a) Discuss the basic principles of Remote sensing.
- b) Describe the process of DTM Generation.
- c) General view application of Remote sensing and GIS.

Q8) Write short notes on any two. [10]

- a) GPS
- b) Radiation principles
- c) Attribute Data.



Total No. of Questions :8]

SEAT No. :

[Total No. of Pages :2

P3089

[5537]-35

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-312 Biodiversity and Conservation

(2008 Pattern) (Semester-III)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All question carry equal marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*

SECTION-I

Q1) Attempt any two from the following. **[10]**

- a) Define the term 'bio-diversity' and state the need of its assessment.
- b) Discuss in detail, the composition and levels of biodiversity.
- c) Which environmental factors are directly influences distribution of biodiversity?

Q2) Answer any two from the following: **[10]**

- a) Enlist and discuss the factors responsible for loss of genetic and species level diversity.
- b) Explain different threat categories described by IUCN.
- c) Explain ecological theories of species diversity.

Q3) Attempt any two from the following. **[10]**

- a) Give salient features of biodiversity act.
- b) Discuss in detail the planning and approaches to inventoring of biodiversity.
- c) Explain the role of biodiversity in functioning of an Eco-system.

P.T.O.

Q4) Write short notes on any two.

[10]

- a) UNEP
- b) Endemism and biodiversity.
- c) alpha-beta and gama diversity.

SECTION-II

Q5) Attempt any two from the following.

[10]

- a) Write in detail about values of biodiversity.
- b) Explain in -situ and ex-situ methods for conservation of plant diversity.
- c) Discuss in detail the role of wild and domesticated gene-pool in human life.

Q6) Answer any two from the following

[10]

- a) How biodiversity is valuable for national economy.
- b) Discuss the role of biotechnology in conservation of biodiversity.
- c) Give detailed account of magnitude and distribution of biodiversity in India.

Q7) Attempt any two from the following.

[10]

- a) Write in detail about centres of diversification.
- b) Explain the impact of loss of eco-system diversity.
- c) Discuss agro-biodiversity and its significance.

Q8) Write short notes on any two.

[10]

- a) Ramsar convention
- b) Sacred groves
- c) Value of microbial diversity.



Total No. of Questions : 8]

SEAT No. :

P3090

[Total No. of Pages : 2

[5537]-41

M.Sc.

ENVIRONMENTAL SCIENCE

**ENV - 401 : Environmental Toxicology, Health & Safety
(2008 Pattern) (Semester - IV) (Credit System)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *All questions are compulsory.*
- 4) *All questions carry equal marks.*

SECTION - I

Q1) Answer any two from following:

- a) What are health effects of mercury poisoning? Add note on Minamata.
- b) What are importance of Health, safety & Environment policy?
- c) What are potential health hazards in chemical industry?

Q2) Attempt any two from following:

- a) Write a note on public liability Insurance Act.
- b) Explain importance of physical and chemical parameters in work environment.
- c) What is biomagnification? Add note on DDT toxicity.

Q3) Answer any two From following:

- a) What is risk? Add note on “on site & off site” emergency plan.
- b) What are potential health hazards in mining industry?
- c) Write a note on role of safety officer in industry.

P.T.O.

Q4) Write short notes on any Two from the following:

- a) LC 50
- b) Factories Act 1948
- c) Safety training & mock drills.

SECTION - II

Q5) Answer any two from following:

- a) What are physiological disorders caused by noise pollution?
- b) Write in brief the sanitation situation in urban area.
- c) Explain the types of mutagenesis.

Q6) Attempt any two from following:

- a) Write psychological view of public in participation in community Development programme.
- b) What is role of NGO in public health programme.
- c) Explain the various methods of clarification of toxic compounds.

Q7) Answer any two from following:

- a) What are widespread effects of airborne bacteria on human health?
- b) What are metabolic effect of VOC?
- c) What are threats of biological weapons?

Q8) Write short notes any two of the following:

- a) Preventive measures in handling organic solvents.
- b) WHO
- c) Dispersion of atmospheric gases.



Total No. of Questions : 8]

SEAT No. :

P3092

[5537]-43

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-411 : Forestry and Habitat Management

(2008 Pattern) (Semester-IV) (Optional)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) Answer any 2 questions from each section.*
- 2) Attempt not more than 5 questions of which at least 2 questions must be from each section.*
- 3) Answer to the two sections should be written in separate books.*
- 4) Neat diagrams must be drawn wherever necessary.*
- 5) Figures to the right indicate full marks.*
- 6) All questions carry equal marks.*

SECTION-I

Q1) Attempt any two from the following:

- a) Explain the internal and external factors for determining forest resistance in plant.
- b) Explain the general concept of tree improvement along with methods.
- c) Explain the silviculture system followed to manage Mangrove forest.

Q2) Answer any two from the following:

- a) Classify the methods of regeneration of forest.
- b) Explain the scope and components of social forestry.
- c) What is role and benefits of JFMC.

Q3) Attempt any two from the following:

- a) How climatic factors influence forest vegetation.
- b) Illustrate the succession of mangroves forest in sea coast.
- c) Briefly explain the role of tribals in forest conservation.

P.T.O.

Q4) Write a short note on any two:

- a) Agri silvipastural system.
- b) Problems in tribal development programme.
- c) Forest classification.

SECTION-II

Q5) Answer any two from the following:

- a) Explain the fundamentals of forest act 1980.
- b) What are the merits and demerits of social forestry.
- c) Explain the need and importance of Wood Seasoning.

Q6) Attempt any two from the following:

- a) Write a note on-tanning and dyes.
- b) Discuss the techniques used in forest management system.
- c) Explain the methods of transport of timber on land.

Q7) Answer any two from the following:

- a) Discuss the necessity and procedure for in-situ conservation of forest genetic resources.
- b) Describe the thermal remote sensing has the specific application in forest management.
- c) Explain the advantages of calliper method.

Q8) Write short notes on any two:

- a) National Forest Policy - 1988.
- b) Extinguishing methods for forest fire.
- c) Nutrient cycling in forest.



Total No. of Questions : 8]

SEAT No. :

P3093

[5537]-44

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

**ENV-412 : Environmental Management
(2008 Pattern) (Semester-IV)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *All questions carry equal marks.*
- 4) *All questions are compulsory.*

SECTION-I

Q1) Solve any two from the following: **[10]**

- a) What is planning? Give its importance in developmental projects.
- b) What is natural resources? How they are helpful for any development.
- c) "Social willingness play important role in development". Justify the statement.

Q2) Attempt any two from the following: **[10]**

- a) "Population explosion is obstacle in Development". Justify the statement.
- b) Write important concept and parameters of planning in brief.
- c) What is regional planning? Write in brief parameters in regional planning.

Q3) Solve any two from the following: **[10]**

- a) "Environmental planning play important role in development". Justify the statement.
- b) Write in brief parameters required for rural planning.
- c) "Social willingness play important role in planning". Comment on statement.

P.T.O.

Q4) Write short notes (Any two) [10]

- a) Urban Planning.
- b) Exploitation of natural resources.
- c) Problems associated with planning.

SECTION-II

Q5) Solve any two of the following: [10]

- a) “Environment and development are two side of same coin: Justify the statement.
- b) “Central pollution play important role in protection of environment”. Comment the statement.
- c) What is solid waste? How you can plan for its disposal?

Q6) Solve any two from the following: [10]

- a) “EIA is essential tool of planning for development”. Comment the statement.
- b) “Biomedical waste doesn’t require planning for its disposal”. Justify the statement.
- c) Write an essay on importance of planning in any development.

Q7) Attempt any two from the following: [10]

- a) What is development? Write in brief environmental parameters considered for development.
- b) What is national policy? How policy helps for development.
- c) “Pollution controls boards play important role in protection of environment in India”. Comment on the statement.

Q8) Write shorts notes (Any two): [10]

- a) Exploitation and safeguard of environment.
- b) Public participation.
- c) Importance of law in protection of environment.



Total No. of Questions : 8]

SEAT No. :

P3094

[5537]-45

[Total No. of Pages : 2

M.Sc.

ENVIRONMENTAL SCIENCE

**ENV-413 : Environmental Management Systems
(2008 Pattern) (Semester-IV)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) All questions carry equal marks.*
- 4) All questions are compulsory.*

SECTION-I

Q1) Answer any two of the following:

- a) What is Environmental Management? Describe the various tools used in environmental management.
- b) Define sustainable development. Why is it important to achieve sustainability.
- c) Write a note on the background of the development of ISO standards.

Q2) Attempt any two of the following:

- a) Describe the different stages in product LCA (Life Cycle Assessment).
- b) What are the goals of Life Cycle Assessment?
- c) Describe and give the significance of system boundary and functional unit in LCA.

Q3) Answer any two of the following:

- a) What are the benefits and costs associated with Environmental Management System?
- b) Write about the three components in implementation of EMS as per ISO 14001.
- c) What are the principles of green building?

P.T.O.

Q4) Write short notes on any two:

- a) Concept of ecolabelling.
- b) Well to wheel variant of LCA.
- c) Documentation in EMS.

SECTION-II

Q5) Answer any two of the following:

- a) Explain the human health issues caused by solid wastes.
- b) What are the types and characteristics of hazardous wastes?
- c) Give an account on various environmental problems caused by solid wastes.

Q6) Answer any two of the following:

- a) Which criteria are used in identification of hazardous waste sites.
- b) Discuss the possible solutions related with solid waste management.
- c) What are the merits and demerits associated with disposal of wastes at sea?

Q7) Answer any two of the following:

- a) Discuss various processes involved in management of municipal solid wastes.
- b) What are the types and characteristics of biomedical wastes?
- c) Explain the design structure and benefits associated with incinerators.

Q8) Write short notes on any two of the following:

- a) Pyrolysis.
- b) Recycling benefits of solid wastes.
- c) Management of hazardous wastes.

