Total No. of Questions : 8]

SEAT No : ____

P 2165

[Total No. of Pages :2

[5330]-11
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 labelled diagram 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) Explain the Landuse planning and sustainable development.

b) What is meant by hydrological budget.

c) Briefly explain the confined aquifer.

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

a) Explain in brief the thermohaline circulation.

b) Differentiate between percolation and infilteration.

c) Give the composition of earth crust.

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

a) Explain the genesis of soil.

b) Draw neat labelled diagram of atmosphere.

c) Briefly explain earth radiation balance.

P.T.O.

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

a) Geostropic wind and gradient wind.

b) Atmospheric stability.

c) Adiabatic lapse rate.

SECTION-II

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

a) Briefly explain the geological evolution of earth.

b) Explain the genesis and formation of cyclone.

c) What are the hazards associated with lightning.

Q6) Attempt Any two from the following: **[10]**

a) Explain the problems associated with over exploitation of ground water.

b) Explain the sedimentary rock formation with suitable examples.

c) Describe the forms of condensation and precipitation.

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

a) Explain the short term and long term mitigation measures in earthquake hazards.

b) Write in brief the impact of imbalancing in trace elements and health

c) Explain the global warming and Sea level rinsing.

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

a) Classification of trace elements.

b) Landslide hazards.

c) Composition of sea water.

Total No. of Questions : 8]

SEAT No. :

P2166

[Total No. of Pages : 2

[5330]-12

M.Sc.

ENVIRONMENTAL SCIENCE

ENV-102: Environmental Chemistry

(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer 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) Answer any two of the following. **[10]**

a) Explain Nitrogen cycle with suitable diagram.

b) Draw the structure of water molecule and explain importance of hydrogen bonding in biological systems.

c) Enlist sources and problems of hydrocarbons in environment.

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

a) What is meant by mutation? Explain different types of mutations.

b) Enlist carcinogenic compounds and explain process of chemical carcinogenesis.

c) Define the term surfactant? Explain problems of anionic detergents.

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

a) Explain how properties of water changes by addition of solute?

b) Describe environmental problems and health effects of chemical pesticides.

c) Discuss classification of hydrocarbons with suitable examples.

P.T.O.

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

a) Modified detergents.

b) Pesticide degradation

c) Biosynthesis of RNA

SECTION - II

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

a) What are synthetic polymers? Write its classification with examples.

b) Explain physical and chemical properties of lead.

c) Describe chemical composition and types of Aflatoxins.

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

a) Explain classification of chemical pesticides with suitable examples.

b) Discuss process of polymer decay.

c) Explain working of HPLC with suitable block diagram.

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

a) What are Aflatoxins? Explain its toxicity.

b) Enlist lead compounds and explain their environmental problems.

c) Explain solubility of gases in water.

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

a) Destruction of alkali metals

b) Pesticide analysis

c) Gibb's energy

Total No. of Questions : 8]

SEAT No : ____

P 2167

[Total No. of Pages :3

[5330]-13

M.Sc.

ENVIRONMENTAL SCIENCE

ENV 103: Environmental Biology

(2008 Pattern) (Semester - I) (Credit System)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

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

SECTION - I

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

a) What are the biotic and abiotic components of ecosystem.

b) What is homeostasis ? Which factors maintain ecosystem stability?

c) Discuss the models of energy flow in an ecosystem.

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

a) What are antimicrobial agents? Discuss applications of microbes as antimicrobial agents.

b) What are biomes? Discuss characteristics of desert biome.

c) Write an account on association of microbes with man, animals and plants.

Q3) Answer any two of the following : **[10]**

a) How climate influence biodiversity? Discuss in relation with India.

P.T.O.

b) Discuss floral and faunal diversity of India.

c) What are biogeochemical cycles? Discuss their environmental significance.

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

a) Conservation of Forests in India.

b) Environmental Significance of Wetlands.

c) Population Ecology.

SECTION-II

Q5) Answer any two of the following : **[10]**

a) Write an account endemic species of India.

b) What are threatened species categories of IUCN?

c) What are the strategies applied in India for conservation of species?

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

a) What are applications of biotechnology in conservation of species?

b) Discuss protected areas network in India.

c) Discuss various tools used for data collection and management of wildlife.

Q7) Answer any two of the following : **[10]**

a) How local communities are useful in management of wildlife?

b) Discuss the salient features of marine ecosystem.

c) Write an account on projecct tiger and project elephant.

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

a) Ecological status of Forests in India.

b) Convention on Biodiversity.

c) Quarantine Regulations and Species Conservation.

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Total No. of Questions :8]

SEAT No. :

P2168

[Total No. of Pages :2

[5330] - 14

M.Sc.

ENVIRONMENTAL SCIENCE

ENV - 104 : Statistical & Research Methods

(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks :80*

Instructions to the candidates:

1) ***Answer to the two sections should be written in separate answer books.***
2) ***All question carry equal marks.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Solve any two of the following. **[20]**

a) Explain the term:

i) Varience

ii) Probability

iii) Sample

iv) Parameter

v) Mode

b) Write a brief note on skewness.

c) Calculate mean, mode and median from the following data

Class	0-5	5-10	10-15	15-20	20-25
Frequency	4	8	12	7	5

P.T.O.

Q2) Solve any two of the following. **[20]**

a) Write a brief note on correlation.

b) Discuss probability of Bionomial distribution.

c) Find the regression equation of Y on X. From the following data.

$n = 10,\ \Sigma x = 197,\ \Sigma y = 62,\ \Sigma xy = 1565,\ \Sigma x^2 = 4599,\ \Sigma y^2 = 576.$

SECTION - II

Q3) Solve any two of the following. **[20]**

a) Explain the following term:

i) Type - I & Type - II error

ii) Null hypothesis

iii) Sample space

iv) Time series model

v) Events

b) A random sample of 100 people in certain city gives average teenager content 27 with standard deviation 8. Test whether the teenager content overall the city is 30% with 5% level of significance.

c) What is time series analysis? Add a note on its application in Environmental science.

Q4) Solve any two of the following. **[20]**

a) Discuss chi - square test for goodness of fit.

b) Explain the method for one way ANOVA.

c) What is computer based models? Explain any model used for population studies.

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Total No. of Questions : 8]

SEAT No. :

P2169

[Total No. of Pages : 2

[5330]-21

M.Sc.

ENVIRONMENTAL SCIENCE

Env - 201: Environmental Economics

(2008 Pattern) (Semester - II) (Credit System)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer 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) Solve any two: **[10]**

a) What is the need of economic instruments for environmental economics.

b) Explain the impact of market failure?

c) Define non renewable resources? What are the drawbacks or non renewable resources?

Q2) Justify the statement (Any two): **[10]**

a) "Importance of Economics policies to support environmental protection".

b) "Environmental economics and international comparisons".

c) "Environmental Education is a important for economic development.

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

a) Explain modified kuznet's curve? Write its significance.

b) What are the importance of carbon trading in economic development?

c) What is population vulnerability? Explain with suitable example.

P.T.O.

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

a) Microplanning

b) Social cost

c) Externalities

SECTION - II

Q5) Solve any two: **[10]**

a) Enlist the different methods of studying economic growth?

b) Explain in brief how quality of Environment is depend on economy.

c) Which are the adaptive options used in facing climate change.

Q6) Justify the statements (Any two): **[10]**

a) "Global warming effects on Indian Economy".

b) "Development exploits the natural resources".

c) "Incentives and subsidies are major Economic Instruments".

Q7) Answer the following (Any two): **[10]**

a) What are the micro - foundation elements of environmental economics?

b) Define migration? Explain the major factors responsible for population migration.

c) Differentiate between command and control approach.

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

a) Natural Resources exploitation.

b) Economic reforms

c) CBA

Total No. of Questions : 8]

SEAT No : ____

P 2170

[Total No. of Pages :2

[5330]-22
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 202 : Water & Waste Water Engineering
(2008 Pattern) (Semester-II)

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:

a) State the types of water demand. Explain any one in detail.

b) Explain incremental increase method with example to determine water demand of a city at the end of 2051.

c) What are the physical & chemical characteristics of water?

Q2) Answer any two:

a) Design a plain sedimentation tank to treat 5MLD of water assuming horizontal velocity 0.2 m/min depth restricted to 3 m.

b) Explain the mechanism of chlorination in detail.

c) Discuss the operational problems of rapid sand filter.

Q3) Answer any two:

a) Discuss the types of hardness and their removal methods.

b) Explain the working of clarifloculator with diagram.

c) Explain the significance of disinfection in water treatment.

P.T.O.

Q4) Write short notes on:

a) Iron removed.

b) Breakpoint chlorination.

c) Population forecasting.

SECTION-II

Q5) Answer any two:

a) Distinguish between river standards and effluent standards.

b) What is the importance of physicochemical treatment of effluent.

c) Calculate the sewage generation from a community of 1000 people.

Q6) Answer any two:

a) Why is a primary clarifier placed before aeration tank in an ETP?

b) Compare aerobic and anaerobic treatment processes.

c) Explain the significance of microorganisms in effluent treatment.

Q7) Answer any two:

a) What are the characteristics of distillery effluent? Draw a flow chart of distillery ETP.

b) Explain the use of root zone technologies in waste water treatment.

c) Recovery of chromium from effluents - write a note.

Q8) Write short notes on:

a) Velocity control in grit chamber.

b) Self purification capacity

c) Microbiology of anaerobic digestion.

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Total No. of Questions : 8]

SEAT No : ____

P 2171

[Total No. of Pages :2

[5330]-23
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 203 : Environmental Pollution - I : Water & Soil
(2008 Pattern) (Semester-II)

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:

a) What are the biological pollutants in fresh water?

b) Write in detail about the characteristics of domestic waste water.

c) What is the purpose of sampling? Elaborate sampling methods.

Q2) Answer any two:

a) What are the impacts of inorganic pollutants on fresh water?

b) What are the consequences of water pollution on ecology?

c) Explain the significance of dissolved oxygen in water.

Q3) Answer any two:

a) What are the impacts of sewage disposal on marine ecology?

b) What are the consequences of oil spills?

c) What is the impact of water/marine pollution on tourism?

P.T.O.

Q4) Write short notes on:

a) Grab sampling.

b) Organic pollutants.

c) Impact of DDT.

SECTION-II

Q5) Answer any two:

a) Explain soil profile with diagram.

b) Write about the impact of urbanisation on soil.

c) Write note on disposal of fly ash.

Q6) Answer any two:

a) Explain methodology of wastewater disposal on land.

b) Write a note on transport & segregation of solid waste.

c) How is energy generated from solid waste?

Q7) Answer any two:

a) Write about the methods for detection of nuclear radiation.

b) Differentiate between ionizing & non ionizing radiation.

c) Explain the working of ICRP & its recommendations.

Q8) Write short notes on:

a) Scintillation counter.

b) Hazardous waste.

c) Composting.

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Total No. of Questions :8]

SEAT No. :

P2172

[Total No. of Pages : 2

[5330]-24
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) ***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) Answer any two of the following : **[10]**

a) Write an account on evolution and development of environmental governance.

b) Discuss important principles adopted during Rio conference.

c) What is the role of united nations authorities in protection of global environment?

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

a) Explain constitutional provisions regarding environment protection in India.

b) What are functions of central pollution control board to protect environment?

c) Discuss major environmental issues and international laws associated with them.

Q3) Answer any two of the following : **[10]**

a) What are general principles of Nairobi declaration?

b) Discuss salient features of air act, 1981.

c) Why environment protection act, 1986 is referred as umbrella act?

P.T.O.

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

a) Hazardous waste management Guidelines.

b) Role of courts in protection of environment.

c) Environment protection under factories Act.

SECTION-II

Q5) Answer any two of the following : **[10]**

a) What is meant by sustainable development? Discuss important pillers of it.

b) Elaborate on exploitation of resources and safeguards for conservation.

c) What are the principles to integrate development within carrying capacity of environment?

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

a) Differentiate between natural growth and manmade growth.

b) Discuss the functions of various institutional mechanisms created under antipollution acts.

c) Explain the linkages between economic development and environmental resources.

Q7) Answer any two of the following : **[10]**

a) What is the national policy on environment impact assessment studies?

b) What are the requirements under rule 14 for environmental audit as per EPA, 1986?

c) Discuss cost benefit analysis in relation with sustainable development.

Q8) Write short note on any two of the following : **[10]**

a) Survival Need of Mankind and Environment protection.

b) National Environmental Policy.

c) Biomedical waste management.

Total No. of Questions :8]

SEAT No. :

P2173

[Total No. of Pages :2

[5330] - 31

M.Sc. (Environmental Science)

ENV 301 : AIR POLLUTION & CLIMATE CHANGE

(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) ***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 atmosphere.

b) What are the effects of air pollutants on human health.

c) Enlist the strategies to control vehicular pollution.

Q2) Answer any two of the following:

a) Explain the radiation budget of the earths atmospheric system.

b) How does climate change affect agriculture.

c) Write a note on the role of aerosols on cloud seeding.

Q3) Attempt any two of the following:

a) Give the sources of air pollution in agro based industry.

b) Write a note on preventive measures for industrial pollution.

c) Explain the effects of ozone depletion. Give examples of ozone depleting substances.

P.T.O.

Q4) Write short notes on any two.

a) Los Angeles smog.

b) Wet and dry deposition.

c) Carbon monoxide.

SECTION - II

Q5) Attempt any two:

a) Explain with example airpollution control through process modification.

b) List the methods for dry & wet collection of particulates.

c) Give the principle of electrostatic precipitation. Give types of EST's.

Q6) Attempt any two:

a) Give the problems associated with bag house filters.

b) Differentiate between venturi scrubber & cyclone.

c) What are the factors considered while selecting air pollution control device.

Q7) Attempt any two:

a) Give the salient features of Kyoto Protocol.

b) What is carbon sequestration.

c) Give the background of IPCC.

Q8) Write short notes on:

a) Reverse jet filter.

b) Multicyclone.

c) Vapour Incineration.

Total No. of Questions : 8]

SEAT No : ____

P 2174

[Total No. of Pages :2

[5330]-32
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 302 : EIA & Environmental Auditing
(2008 Pattern) (Semester-III) (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.***

SECTION-I

Q1) Answer any two of the following:

a) What are the objectives of conducting EIA?

b) Describe the EIA process in India with respect to EIA notification 2006.

c) Give the importance of biological environment in EIA studies.

Q2) Answer any two of the following:

a) Explain the significance of meteorological data in impact prediction.

b) What are the different elements studied in biological survey?

c) Write about the overlays method of EIA.

Q3) Answer any two:

a) Give the significance of public participation in EIA.

b) Give the generic structure of EIA report.

c) Explain the term socio economic survey in relation to EIA.

Q4) Write short notes on any two:

a) Screening.

b) Terminology of EIA.

c) Impact of mining on biodiversity.

P.T.O.

SECTION-II

Q5) Predic the impact of any two on air & water environment:

a) Iron & steel.

b) Fertilizer industry.

c) Roadways project.

Q6) Answer any two of the following:

a) How are gardens & parks in urban areas to be planned in relation to Env management?

b) Prepare a detailed EMP for a Petrochemical project.

c) Write about the significance of env budgeting.

Q7) Attempt any two of the following:

a) What is environmental auditing? Give the significance.

b) Compare the parameters of financial and environmental audit.

c) Give the different types of environmental audits.

Q8) Write short notes on any two:

a) Importance of planning in EIA.

b) Consumption Audit.

c) ISO 14000.

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Total No. of Questions : 8]

SEAT No : ____

P 2175

[Total No. of Pages :3

[5330]-33

M.Sc.

ENVIRONMENTAL SCIENCE

ENV 303: Remote Sensing and GIS

(2008 Pattern) (Semester - III) (Credit System)

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) ***Answers to the two sections should be written in separate books.***

SECTION - I

Q1) Explain Any two of the following :

a) Rayleigh scattering and its effects.

b) Particle Theory and its significance.

c) Geometric characteristics of an aerial photograph.

Q2) Discuss any two of the following

a) Relief displacement in aerial photographs.

b) Characteristics of vertical and oblique aerial photos.

c) Principles of active RS system and its advantages over Passive system.

Q3) Answer any two of the following:

a) Enumerate different photo-recognition elements and describe Tone and Texture in details.

P.T.O.

b) Compare the operating principles of along-track and across-track scanners.

c) Enumerate salient features of meteorological satellites giving at least one example.

Q4) Write notes on <u>any two</u> of the following :

a) Image transmission and compression.

b) Forestry applications of Remote sensing.

c) Salient features of IRS series.

SECTION-II

Q5) Explain <u>any two</u> of the following :

a) Components of GIS

b) GIS workflow.

c) Objective of GIS.

Q6) Describe <u>any two</u> of the following :

a) Hierarchical referencing system in GIS.

b) Techniques of rasterization.

c) Representation of spatial objects in GIS.

Q7) Answer <u>any two</u> of the following :

a) Discuss the merits and demerits of vector and Raster data models.

b) Describe the components of DBMS

c) Explain the use of GPS for collecting data in GIS.

Q8) Write notes on <u>any two</u> of the following :

a) DTM generation

b) Application of RS-GIS in the study of landslides.

c) RS-GIS synergy.

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Total No. of Questions :8]

SEAT No. :

P2176

[Total No. of Pages :2

[5330] - 34

M.Sc.

ENVIRONMENTAL SCIENCE

ENV - 311 : Restoration Ecology (Optional Course)

(2008 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks :80*

Instructions to the candidates:

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

SECTION - I

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

a) Describe waste water treatment using constructed wetlands.

b) Explain stages of ecological sucession with suitable examples.

c) Discuss bioremediation of mining sites with suitable examples.

Q2) Answer any two of the following- **[10]**

a) What is ecological restoration? Explain role of pioneer species in process of restoration.

b) Explain process of phytorenediation for removal of heavy metals.

c) Discuss role of microbes in ecosystem restoration.

Q3) Answer any two of the following- **[10]**

a) Discuss remediation of solid waste dumping sites for leachate treatment.

b) Explain restoration of coastal ecosystem with suitable examples.

c) Explain criteria for selection of plant species for plantation.

P.T.O.

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

a) Bioscrubbers for odour removal.

b) Restoration of wastelands.

c) Decontanination of soil by rhizosphere microflora.

SECTION - II

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

a) Explain physical characteristics of watershed.

b) Explain Goals and significance of watershed management.

c) Describe concept of organic farming with suitable case study.

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

a) Explain role of social institutions in wastershed development.

b) Describe role of Drainline treatment in water and soil conservation.

c) Discuss process of resource appraisal in watershed management Program.

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

a) Discuss sucessful casestudy of watershed management.

b) Explain concept of silvopastural systems with suitable examples.

c) Describe the land use and land cover classification.

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

a) Role of watershed in sustainable development.

b) Roof - top water Harvesting.

c) Ethonsilvicultural refugia.

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Total No. of Questions :8]

SEAT No. :

P2177

[Total No. of Pages :2

[5330] - 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.***
4) ***Answer to the two sections should be written in separate answer books.***

SECTION - I

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

a) Define the term 'biodiversity' and state the need of its assessment.

b) Distribution of biodiversity is influenced by which environmental factors?

c) Discuss the reasons for loss of agri-biodiversity.

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

a) Discuss the role of biodiversity in functioning of an ecosystem.

b) Explain alpha-beta and gama diversity.

c) Which are the important services provided by biodivesity.

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

a) Explain the contribution of demographic bottlenecks and genetic drift in biodiversity losses.

b) Discuss in detail inventoring and monitoring of biodiversity.

c) Explain the threat categories described by IUCN.

P.T.O.

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

a) Endemism.

b) Introduced Species.

c) CITES

SECTION - II

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

a) Discuss in detail the current practices in conservation of biodiversity.

b) Explain the significance of biodiversity act.

c) Describe the role of centres of diversifications.

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

a) Explain the role of sacred groves in biodiversity conservation.

b) How loss of eco-system diversity has severe impact?

c) Discuss the importance of Agro-biodiversity.

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

a) Elaborate the process of diversification at species level.

b) Explain the prospects of participatory management of biodiversity.

c) Discuss adverse impacts of biotechnology as biodiversity.

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

a) Ethical and Asthetic values of biodiversity.

b) Ex-situ conservation methods.

c) Genetic diversity.

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Total No. of Questions : 8]

SEAT No : ____

P 2178

[Total No. of Pages :2

[5330]-41
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 401 : Environmental Health & Toxicology
(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) ***Figures to the right indicate full marks.***
4) ***All questions are compulsory.***

SECTION-I

Q1) Answer any two of the following:

a) Explain the linkage between health, safety & environmental.

b) Write about safety & health issues in petrochemical industry.

c) Give the significance of safety standards.

Q2) Attempt any two:

a) What is the difference between hazard & risk? Explain.

b) How does public awareness help in safety management?

c) What is the impact of emissions on industrial health.

Q3) Answer any two of the following:

a) Why is it essential to have a policy for emergency preparedness?

b) Describe the risk identification process.

c) Write a note on industrial environmental conditions.

Q4) Write short notes on any two:

a) ISO 18000.

b) Mock drills.

c) Safety policy.

P.T.O.

SECTION-II

Q5) Answer any two of the following:

a) What are the different disciplines of toxicology? Write in detail about ecotoxicology.

b) What is toxicity bioassay?

c) Explain about biochemical & physiological biomarkers.

Q6) Attempt any two of the following:

a) Explain the mechanism of toxicity of organophosphorous insecticides.

b) Write about the toxicity of lead with examples.

c) Differentiate between mutagens & carcinogens.

Q7) Answer any two of the following:

a) Write about the role of NGO's in community health.

b) Explain the impacts of development on health.

c) How does WHO work for eradication of diseases.

Q8) Write short notes on anytwo:

a) Disaster management.

b) Epidemics.

c) Chronic toxicity.

Total No. of Questions : 8]

SEAT No : ____

P 2179

[Total No. of Pages :2

[5330]-42
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 402 : Watershed Management
(2008 Pattern) (Semester-IV)

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) Explain geomorphological characteristics of watershed.

b) What are the benefits of watershed programme?

c) Explain the need of watershed planning.

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

a) Explain objectives of land capability classification and characteristics of land classes.

b) Discuss the importance of participatory rural appraisal.

c) Elaborate the role of hydrological processes in watershed.

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

a) Discuss causes of deterioration of watershed.

b) Elaborate the process of soil erosion due to water.

c) Explain role of women in watershed development and management.

P.T.O.

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

a) Environmental impacts of watershed projects.

b) Guidelines for watershed resource appraisal.

c) Tillage practices.

SECTION-II

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

a) Discuss objectives and functions of storage and control of water.

b) Discuss the importance of target group in evaluation of watershed programme.

c) Explain rural and integrated watershed planning.

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

a) Explain the role of continuous contour trenches in soil consevation.

b) Which temporary structures considered in watershed?

c) Discuss the benefits of grassland improvement.

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

a) Elaborate different water harvesting techniques.

b) Discuss the factors influencing wind erosion.

c) Discuss the problems related to watershed.

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

a) Reclamation of ravine land.

b) Objectives of agro-forestry.

c) Dry land farming.

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Total No. of Questions : 8]

SEAT No : ____

P 2180

[Total No. of Pages :2

[5330]-43
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 411 : Forestry & Habitat Management (Optional)
(2008 Pattern) (Semester-IV) (Term End)

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-A

Q1) Answer any two of the following:

a) Describe the terms, terminologies and scope of habitat management.

b) Discuss the various types of forest types in India with examples.

c) Write an brief account on “Forest as a ecosystem”.

Q2) Answer any two of the following:

a) Discuss the general silvicultural principles.

b) Describe the ecological and physiological factors influencing vegetation in forest.

c) Describe silviculture practices in cold desert ecosystem.

Q3) Answer any two of the following:

a) Explain the scope and necessity related to Agroforestry with suitable examples.

b) Explain the research and extension needed in trilology.

c) Explain how soil and water conservation can be achieved through forestry?

P.T.O.

Q4) Write notes on <u>any two</u> of the following:

a) Stages of tribal economy.

b) Impact of mining activity on forest.

c) Silvicultural influencing on nursery system.

SECTION-B

Q5) Explain <u>any two</u> of the following:

a) Methods and techniques used for tree improvement.

b) Cost benefit ratio in seed technology.

c) Methods and measuring of forest mensuration.

Q6) Answer <u>any two</u> of the following:

a) Describe the forest working plan in forest management system.

b) Describe the principles and types of forest engineering.

c) Explain direct environmentally sound forest harvesting practices with suitable indian examples.

Q7) Attempt <u>any two</u> of the following:

a) Discuss the various non-Timleer forest products.

b) Discuss the Indian Forest Policy of 1952 and 1990.

c) Discuss in brief about decentralization and forestry public administration.

Q8) Write notes on <u>any two</u> of the following:

a) Applications of Indian Penal Code to forestry.

b) Scope and objective of forest inventory.

c) Role of shifting cultivation and control on forestry.

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Total No. of Questions : 8]

SEAT No : ____

P 2181

[Total No. of Pages : 2

[5330]- 44
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 412 : Environmental Planning and 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) Answer any two of the following:

a) What is planning? Give its importance in development projects.

b) How historical background of planning helps in development.

c) Write in brief importance of baseline status of one resource in planning.

Q2) Attempt any two of the following:

a) What are natural resources? How they are helpful for any development.

b) Define environmental planning and add a note on advantages of planning.

c) Any development depends on population. Discuss.

Q3) Answer any two of the following:

a) "Environmental planning play important role in development". Comment on the statement.

b) Write in brief parameters required for Urban planning.

c) Discuss in short historical importance of planning.

P.T.O.

Q4) Write short notes (any two):

a) Rural planning.

b) Development Index.

c) Advese impact of planning.

SECTION-II

Q5) Answer any two of the following:

a) "Environment and development are two sides of same coin". Justify the statement.

b) "EIA is essential tool of planning". Comment the statement.

c) Enlist the Indian laws for protection of environment.

Q6) Answer any two of the following:

a) "Biomedical waste doesn't require planning for its disposal". Justify the statement.

b) What is role of pollution control boards in protection of environment.

c) "Industrial development depends on natural resource". Comment.

Q7) Attempt any two of the following:

a) What is development? Write in brief parameters considered for development.

b) What is conservation? Discuss methods of conservation.

c) "Environmental Policies are important for any development". Comment on the statement.

Q8) Write notes on (any two):

a) Exploitation of Environment.

b) National Policy on Environment.

c) Advese impact of Environmental Protection Acts.

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Total No. of Questions : 8]

SEAT No : ____

P 2182

[Total No. of Pages :2

[5330]-45
M.Sc.
ENVIRONMENTAL SCIENCE
ENV - 413 : Environmental Management System (Optional)
(2008 Pattern) (Semester-IV) (Term End)

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) Answers any two of the following:

a) What are the internal driving forces in ED.

b) What are the principles of ecolabelling.

c) Explain the concept and principles of green building.

Q2) Attempt any two of the following:

a) Explain the goal and scope of LCA.

b) Explain the importance of government sector application of LCA.

c) Explain the role of inventory analysis in LCA.

Q3) Describe any two of the following:

a) What is EMS and how does it help in regulatory compleiance.

b) Explain the principles and structure of ISO 14000.

c) What is Sustainable Development? How does environmental management help in achieving sustainable development.

P.T.O.

Q4) Write notes on <u>any two</u> of the following:

a) Pre and Post on EMS.

b) Well to wheel approach in LCA.

c) Green purchasing.

SECTION-II

Q5) Answers <u>any two</u> of the following:

a) Write about the health impact of open dumping of solid waste.

b) What are problems associated with collection and transportation of MSW in India.

c) Write the different method of segregation of solid wastes.

Q6) Attempt <u>any two</u> of the following:

a) What are the merits and demerits of waste disposal by sanitary landfill.

b) What is the principle of pyrolysis and its application in solid waste management.

c) Describe the disposal of solid waste by plasma incineration.

Q7) Explain <u>any two</u> of the following:

a) What are hazardous waste? Give the classification of hazardous wastes.

b) Which are the criteria used in identification of hazardous waste disposal site.

c) Describe any one method for the treatment of biosolids.

Q8) Write notes on <u>any two</u> of the following:

a) 3R principle.

b) Indoor method of composting.

c) Characteristic of biomedical waste.

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