Total No. of Questions : 8] SEAT No. :

P2738 [Total No. of Pages : 2

[4833] - 101
M.Sc.
ENVIRONMENTAL SCIENCE
EVSC - 101 : Environment Biology
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates :

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) What is Ecosystem? Explain in brief structure and function of ecosystem. **[4]**

b) Comment on , Role of biological processes in remedial measures and restoration. **[4]**

c) Write short note on Autecology. **[2]**

Q2) a) Write a note on feeding behaviour of plants and animals **[4]**

b) What is food web? Explain with suitable example. **[4]**

c) What are intraspecific and interspecific ecological interaction. **[2]**

Q3) a) What are different attributes of K selected species explain in detail. **[4]**

b) What are ecological pyramids? Explain pyramid of number in detail. **[4]**

c) How do the availability of water and light affect the growth of a population. **[2]**

P.T.O.

Q4) a) What are Biomes? Explain fresh water biome in detail. **[5]**

b) Write an account on Biosphere. Add a note on its ecological processes. **[5]**

Q5) a) What are microbes? Give brief classification of microbes. **[4]**

b) Write short note on micro organisms and their association with man. **[4]**

c) What are various factor's affecting cultivation of microbes. **[2]**

Q6) a) Comment on "Ecology as an Experimental science." **[4]**

b) Write an essay on population dynamics. **[4]**

c) Explain Net primary productivity. **[2]**

Q7) a) What is succession? Describe the causes, trends and basic types of succession. **[4]**

b) What is Energy flow in Ecosystem? Add a brief note on 'Y' shaped energy flow model. **[4]**

c) What is Harminious ecological interaction. **[2]**

Q8) a) What are biogeo-chmical cycles? Explain carbon cycle in detail with suitable diagram. **[5]**

b) Write a brief account on factor's determining the abundance and distribution of a species. **[5]**

Total No. of Questions : 8] **SEAT No. :**

P2739 **[Total No. of Pages : 2**

[4833] - 102

M.Sc.

ENVIRONMENTAL SCIENCE

EVSC - 102 : Environmental Chemistry

(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) Explain the physcial and chemical properties of land. **[4]**

b) Write a note on DNA structure. **[4]**

c) Define mutation. **[2]**

Q2) a) What is carcinogens? Explain the action of carcinogens on human body with suitable examples. **[4]**

b) Explain the types of RNA and their function. **[4]**

c) Draw a structure of DDT. **[2]**

Q3) a) Write the merits and demerits of XRF and XRD. **[4]**

b) What is surfactants? Give classification of surfactants with suitable examples. **[4]**

c) Draw a structure of hydrophilic and lipophilic surfactant molecules. **[2]**

P.T.O.

Q4) a) Explain the working and principle of HPLC. **[5]**

b) Enumerate the various methods of sample preparation of gas chromatography. **[5]**

Q5) a) Explain any two methods of isotopc dilution method. **[4]**

b) ABS is replace by LAS. Give its environmental significance. **[4]**

c) Enlist two compounds of cynide with their chemical structure. **[2]**

Q6) a) Explain the working of AAS and its application. **[4]**

b) Write a note on microbial distruction of polymer. **[4]**

c) Write short note on amino acids. **[2]**

Q7) a) Explain the carcino genic effect of aflatoxins. **[4]**

b) What are process of distructions of alkali metals. **[4]**

c) Lock and key model of enzyme. **[2]**

Q8) a) Write a note on biodegradation and their types. **[5]**

b) Classify the pesticides. Add a note on fate of bio pesticides. **[5]**

Total No. of Questions : 8] SEAT No. :

P2740 [Total No. of Pages : 2

[4833] - 103
M.Sc. (Semester - I)
ENVIRONMENTAL SCIENCE
EVSC - 103 : Environmental of Geosciences
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates :

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Your are advised to attempt not more than 5 questions.***

Q1) a) Draw a neat labelled diagram showing internal structure of the earth. **[4]**

b) Give characteristics of sedimentary rocks. **[4]**

c) What are minerals? **[2]**

Q2) a) Discuss the characteristics of "Fissure type of volcano." **[4]**

b) Draw a neat, labelled diagram showing sub-duction zone. **[4]**

c) What is meant by sea-floor spreading. **[2]**

Q3) a) Briefly explain the process of "chemical weathering". **[4]**

b) Describe any two erosional features of fluvial system with neat diagrams. **[4]**

c) What are 'Karst land scapes.' **[2]**

Q4) a) Give classification of soil. **[5]**

b) What do you understand by sustainable developement of land **[5]**

P.T.O.

Q5) a) Explain the characteristics of drainage basin. **[4]**

b) Discuss the factors controlling in filtration of rain water. **[4]**

c) Define "Artesian aquifer". **[2]**

Q6) a) Differentiate between waves and tides. **[4]**

b) Write a note on Thermohaline circulation. **[4]**

c) Enumerate causes of sea-level changes. **[2]**

Q7) a) Discuss the effects of coastal erosion. **[4]**

b) Give the causes of soil degradation. **[4]**

c) What are Tsunamis? **[2]**

Q8) a) Discuss the environmental effects of urbanization. **[5]**

b) Discuss the causes and effects of landslides. **[5]**

Total No. of Questions : 8]

SEAT No. :

P2741

[Total No. of Pages : 2

[4833]-104

M.Sc. (Semester- I)

ENVIRONMENTAL SCIENCE

EVSC-104 : Environmental Statistics

(2013 Pattern) (Credit System)

Time : 2 Hours] *[Maximum Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than five questions.***
5) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***

Q1) a) Define the following terms: **[4]**

i) Range

ii) Critical Region

iii) Sampling error

iv) Kurtosis

b) Give the formulae for coefficient of variation and coefficient of determination. What is the difference between them? **[4]**

c) Define the terms **[2]**

i) Probability Mass function

ii) Probability density function

Q2) a) State any two measures of skewness. Also mention how to interprate them? **[4]**

b) Explain the paired t-test. **[4]**

c) Draw the sketch of mesokurtic and leptokurtic distribution. **[2]**

Q3) a) What are merits and demerits of mode as a measure of central tendency? **[4]**

b) State the model of one way ANOVA. Also the assumptions clearly. **[4]**

c) What is the relationship between correlation coefficient and regression coefficients? **[2]**

P.T.O.

Q4) a) If $X \sim N(4,4)$ compute $P[1 < X < 3], P[|X| > 3]$ **[4]**

b) If $\bar{x} = 14.00$ $\bar{y} = 18.00$ $\sum x^2 = 952$ $\sum y^2 = 978$ $\sum xy = 1450$ and n=20 the compute byx. **[4]**

c) Explain the difference between SRSWR and SRSWOR **[2]**

Q5) a) Define the following terms **[4]**

i) Statistic

ii) Acceptance region

iii) P-value

iv) Quartiles

b) Describe the procedure of two way ANOVA. **[4]**

c) What is the difference between class mark and class limits. **[2]**

Q6) a) What do you mean by time series? What are the components of it? Explain Seasonal component. **[4]**

b) Explain the concept of 'regression' How it is useful in environmental studies. **[4]**

c) State the relationship between mean and variance of binomial distribution. **[2]**

Q7) a) Explain the procedure of testing independence of two attributes. **[4]**

b) Explain in brief method of least squares. **[4]**

c) Define the terms null and alternative hypothesis . **[2]**

Q8) a) Explain how test the variances of two populations are equal based on the two samples from two populations. **[4]**

b) Explain the graphical procedure of estimating trend in a time series. **[4]**

c) Mention the guide lines for good classification of raw data. **[2]**

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Total No. of Questions : 8]

SEAT No. :

P2742

[Total No. of Pages : 2

[4833]-201
M.Sc. (Semester - II)
ENVIRONMENTAL SCIENCES
EVSC-201 : Environmental Pollution & Control - I (Water & Soil)
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Maximum Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than five questions.***

Q1) a) Give a brief account of self purification capacity of a lotic water ecosystem **[4]**

b) Explain with suitable diagram lake turnover **[4]**

c) Define restoration. **[2]**

Q2) a) Discuss various organic pollutants that affect the water quality. **[4]**

b) What are the different biological processes in a Transformations of heavy metals **[4]**

c) Enlist different pollutants related to water. **[2]**

Q3) a) Write an account of consequences of water pollution on Biosphere. **[4]**

b) Give the impact of discharge of waste water from ships on Biota & overall quality of marine water. **[4]**

c) Define Biomagification **[2]**

Q4) a) Write in detail about importance of sampling methods in monitoring of water pollution. **[5]**

b) Write a note on consequences of oil pollution. **[5]**

P.T.O.

Q5) a) Explain various soil sampling techniques. **[4]**

b) Write a note on deterioration of soil due to mining activities. **[4]**

c) Give the examples of different types of lakes. **[2]**

Q6) a) Discuss Bioremediation and its types in restoration activities of soil. **[4]**

b) Give in detail the process of Eutrophication. **[4]**

c) What is mean by 'O' waste discharge **[2]**

Q7) a) Discuss various methods involved in estimating parameters for analysing the pollution levels **[4]**

b) Give in detail the process of organic pollution **[4]**

c) Define reference Ecosystem **[2]**

Q8) a) Write the effects and control measures of water pollution. **[5]**

b) Explain the importance of various tests for ground water pollution monitoring. **[5]**

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Total No. of Questions : 8]

SEAT No. :

P2743

[Total No. of Pages : 2

[4833]-202
M.Sc.
ENVIRONMENTAL SCIENCE
EVSC-202 : Biodiversity, Forestry & Natural Resources
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Maximum Marks : 50*

Instructions to the candidates:

1) ***Figures to the right indicate full marks.***
2) ***All questions carry equal marks.***
3) ***Your are advised to attempt not more than five questions.***
4) ***Your answer will be valued as a whole.***

Q1) a) Write a note on marine resources, their status and usage pattern. **[4]**

b) Which are traditional cultivars of crop species? Explain its importance. **[4]**

c) Write a note on IPR. **[2]**

Q2) a) Explain the role of animals in conservation of natural ecosystem. **[4]**

b) Discuss the present & potential uses of bio-resources **[4]**

c) What is ethno-botany **[2]**

Q3) a) Discuss the status of exploitation of terrestrial wild species. **[4]**

b) Explain the role of plants in modern lifestyle and economy **[4]**

c) Briefly explain magnitude of indian biodiversity **[2]**

Q4) a) Discuss the economic value of natural ecosystems **[5]**

b) Write in detail about nature, scale & intensity of threats to biodiversity. **[5]**

P.T.O.

Q5) a) Discuss in detail, the pattern, causes & consequences of human population growth. **[4]**

b) Write a note on convention on biological diversity (CBD) **[4]**

c) Define ecotourism. **[2]**

Q6) a) Discuss any two national laws focused on conservation of forests, wildlife & biodiversity. **[4]**

b) Write a note on non-formal methods of environment education. **[4]**

c) Short note on IPCC **[2]**

Q7) a) Explain working plans in forestry. **[4]**

b) Discuss the impact of economic development of technological inventions on environment. **[4]**

c) Write in brief about rare & endangered species from india **[2]**

Q8) a) Discuss the role of social forestry in forests management. **[5]**

b) Explain the role of youth in conservation education and action. **[5]**

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Total No. of Questions : 8]

SEAT No. :

P2744

[Total No. of Pages : 2

[4833]-203
M.Sc. (Semester- II)
ENVIRONMENTAL SCIENCE
EVSC-203 : Atmospheric Science
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Maximum Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than five questions.***

Q1) a) Atmosphere is part of Biospher. Justify the statement **[4]**

b) Describe physical structure of atmosphere with altitude **[4]**

c) Differentiate between weather and climate **[2]**

Q2) a) What is insolation? Explain factors affecting insolation **[4]**

b) What is black body radiation? **[4]**

c) What is radiation budget? Explain **[2]**

Q3) a) Discuss significance of temperature **[4]**

b) Explain detail different types of inversion **[4]**

c) What is urban heat Island? Give its effects. **[2]**

Q4) a) What are the effect of pressure on wind? **[4]**

b) How pressure in measured? Write its importance **[4]**

c) Write a note on gradient wind **[2]**

P.T.O.

Q5) a) Write in brief collision-colance theory of precipitation. **[4]**

b) Describe Hydrological cycle in detail. **[4]**

c) What is La-Nino. **[2]**

Q6) a) What is dry and wet adiabatic Laps rate. **[4]**

b) Write a note on polar front. **[4]**

c) Write in brief types of air masses. **[2]**

Q7) a) What is atmosphoric hazards? Explain in brief flood. **[4]**

b) Write in brief causes and effect Huricans. **[4]**

c) What is ozone depletion. **[2]**

Q8) a) How emission inventory helps to control air pollution. **[4]**

b) Sketechs in detail behaviour of plume. **[4]**

c) What is national air quality standards. **[2]**

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Total No. of Questions : 8] **SEAT No. :**

P2745 **[Total No. of Pages : 2**

[4833]-204
M.Sc.
ENVIRONMENTAL SCIENCE
EVSC-204 : Remote Sensing and GIS
(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Maximum Marks : 50***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than five questions.***

Q1) a) Explain the EMR spectrum with concern to Remote Sensing. **[4]**

b) Explain the different types of resolution. **[4]**

c) Explain the principle of Remote Sensing **[2]**

Q2) a) Describe the different types of platforms in Remote sensing. **[4]**

b) Explain the principle of Multi spectral scanning **[4]**

c) Explain briefly the concept of microwave remote sensing **[2]**

Q3) a) Write briefly on IRS series of satellite system **[4]**

b) Explain briefly of thermal sensors and its application **[4]**

c) What are meteorological satellites. **[2]**

Q4) a) Explain the characteristics of aerial photographs **[5]**

b) What are radiometric corrections and how they are removed. **[5]**

P.T.O.

Q5) a) Explain briefly the different types of map projections. **[4]**

b) Describe briefly the types of datum. **[4]**

c) What is GIS. **[2]**

Q6) a) Explain briefly the raster data model **[4]**

b) Describe the different types of data relationships in GIS **[4]**

c) What are spatial and non-spatial attributes in GIS **[2]**

Q7) a) Explain the sources of error in GIS database **[4]**

b) Describe briefly the vector topological overlays **[4]**

c) Explain the point in polygon operation **[2]**

Q8) a) Describe the applications of Remote sensing and GIS in Land use Land cover change. **[5]**

b) How Remote Sensing and GIS technology could be utilised for mineral exploration. **[5]**

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Total No. of Questions : 8]

P2746

SEAT No. :

[Total No. of Pages : 2

[4833] - 301
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSc - 301 : Environmental Impact Analysis & Environmental Audit
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions carry equal marks.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) Answer the following

a) Explain the procedure of prior environmental clearance with the different stages involved.

b) Describe the role of meteorological data in ElAstudies.

Q2) Explain the following with suitable example.

a) EMP on air aspects for iron and steel industry.

b) Benefits and limitations of public hearing procedure.

Q3) Explain the significance of the following.

a) Risk assessment plan in EIA process

b) Cost benefit analysis in EIA process

Q4) Justify the statements

a) Housing projects do cause environmental impacts.

b) Baseline data is very important in assessment of impacts.

Q5) Explain in detail with significance

a) Adhoc and checklist method of impact assessment.

b) Socio-economic environment in dam projects.

P.T.O.

Q6) Answer the following.

a) Explain the methodology and basic structure of an environmental audit.

b) Write about pre and post audit activities.

Q7) Attempt the following

a) Give the positive and negative impacts of petrochemical Industry.

b) Describe the elements of environmental audit statement.

Q8) Write short notes on

a) Hazardous and solid waste audit

b) Concept of ISO 14000

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Total No. of Questions : 8]

P2747

SEAT No. :

[Total No. of Pages : 2

[4833] - 302
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSC - 302 : Environmental Pollution - II : Air, Noise and Radiation
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions carry equal marks.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) Write different types of health effects related with sulphur-di-oxide.

b) What are the different consequences of climate change in a developing country like India.

Q2) a) Give the details of environmental problems related with mining industry.

b) Explain various effects of air pollutants on plants.

Q3) a) Write different reactions involved in the formation of photochemical smog.

b) Explain the mechanism of dry or wet acid deposition.

Q4) a) What are the different methods used to control noise at source level.

b) Explain various methods used in alleviating the problem of acid deposition.

Q5) a) Explain the principle and working of G.M. counter.

b) Explain auditory and non-auditory effects of noise.

P.T.O.

Q6) a) What are the somatic and genetic effects of radiation.

b) With a suitable diagram explain principle and working of electrostatic precipitators.

Q7) a) Enlist any five important points related to ICRP regulations.

b) Explain the mechanism of hearing with suitable diagram.

Q8) a) Write a note on criteria pollutants.

b) Write a note on effects of H_2S on health of the human beings.

Total No. of Questions : 8]

P2748

SEAT No. :

[Total No. of Pages : 2

[4833] - 303
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSC - 303 : Water and Wastewater Technology
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions carry equal marks.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) Explain the geometric progression method of population forecasting.

b) What are BIS standards for drinking water?

Q2) a) What are principle and application of defused aeration?

b) Discuss in detail advantages of chlorination.

Q3) a) What is Reverse osmosis? Explain in detail.

b) Sketch neat labeled diagram of grit chamber.

Q4) a) What are the application of RBC.

b) Sketch and label FBR.

Q5) a) What are the merits of UASB.

b) Draw flowsheet of dairy industry with source of w/w generation.

P.T.O.

Q6) a) What are the characteristics of secondary sludge.

b) Explain the phenol removal method in w/w.

Q7) a) Explain the principle and designing aspect of clarifire.

b) What are merits and demerits of FBR.

Q8) Write notes on -

a) Micro filtration

b) Wet air oxidation

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Total No. of Questions : 8]

P2749

SEAT No. :

[Total No. of Pages : 2

[4833] - 304
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSC - 304 : Environmental Law, Ethics and Policy
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than five questions.***

Q1) a) What is the need for environmental governance in India?

b) Discuss the functions of state pollution control boards to protect environment.

[10]

Q2) a) Why environment (Protection) Act, 1986 is referred as umbrell act?

b) Discuss the role of Indian constitution in protection of environment.

[10]

Q3) a) Which are the provisions to protect intellectual property rights under Biological Diversity Act, 2002?

b) What are the salient features of National Environmental Tribunal Act, 1995?

[10]

Q4) a) What are hazardous wastes? How hazardous waste management rules are guiding us to protect environment?

b) Which are the provisions under water Act, 1974 to keep watch on industrial effiuents?

[10]

Q5) a) Which are the strategies adopted by India to harness non-renewable energy resources?

b) What are environmental ethics? Describe any two ethical theories that are applied to environment.

[10]

P.T.O.

Q6) a) How convention on Biodiversity is helpful to protect biodiversity of globe?

b) What are various issues involved in sustainable development?

[10]

Q7) a) What are the challanges of world environmental ethics?

b) Which are the pillers of sustainable development? How are they important to achieve goals of sustainable development?

[10]

Q8) Write a short note on : **[10]**

a) Rio + 10

b) National water policy

Total No. of Questions : 8]

P2750

SEAT No. :

[Total No. of Pages : 2

[4833] - 305
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSC - 307 : Man and Environment
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat Diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) What is sustainable development? Discuss the need for sustainable development with a suitable example.

b) How human ecology is important for understanding conservation issues.

Q2) a) How environmental constraints affect population growth?

b) Enumerate briefly the causes and consequences of human impact on ecosystems.

Q3) a) Discuss briefly the various factors that regulate the population growth.

b) Enumerate the human settlement hierarchy according to the size and distribution.

Q4) a) Discuss briefly causes, consequences and mitigetion for environmental degradation.

b) What are the physiochemical factors and thier role in environment.

Q5) a) What is food chain? What are its different types?

b) Give a brief account on structure and function of ecosystem.

Q6) a) Explain the combined concept of limiting factors.

b) Discuss the concept of Earth's carrying capacity.

P.T.O.

Q7) a) Write a brief account on national and regional parameters for urban areas.

b) Discuss briefly the evolution and growth of human settlement.

Q8) write short note on:

a) Exploitation pattern of natural resources.

b) Rehabilitation and resettlement issues in rural development.

Total No. of Questions : 8]

SEAT No. :

P2751

[Total No. of Pages : 2

[4833]-306

M.Sc. (Semester - III)

ENVIRONMENTAL SCIENCE

EVSC- 308 : Environmental Education

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *Your are advised to attempt not more than 5 questions.*
2) *All questions carry equal marks.*
3) *Neat diagrams must be drawn wherever necessary.*

Q1) a) Explain the guiding principles of sustainable development.

b) What are the objectives and principles of Environment education.

Q2) a) Explain in brief the role of education for sustainable development.

b) Give in detail the guiding principles of Environment education.

Q3) a) Explain the essentials of Environment Education for sustainability.

b) Give the details of resources needed for environment education.

Q4) a) Explain about various challenges for Environment Education in India.

b) What is the role of using new media in Environment education.

Q5) a) Write in detail about various policies in public awareness.

b) Elaborate on Environment education in Indian school systems.

P.T.O.

Q6) a) Write about different programmes of Teacher Education.

b) How National policy on Education promotes the importance of Environment education, explain with examples.

Q7) a) Elaborate on educational system in India.

b) Write the perspectives of Quality Education.

Q8) a) Write a note on Agenda 21.

b) Write a note on Tbilisi Declaration.

Total No. of Questions : 8]

SEAT No. :

P2752

[Total No. of Pages : 2

[4833]-307

M.Sc. (Semester - III)

ENVIRONMENTAL SCIENCE

EVSC-309: Environmental Biotechnology

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) Explain application and benefits of biopesticides.

b) Add a note on root zone technology.

Q2) a) What are the factors affecting microbial growth.

b) Add a note on phylogenic classification.

Q3) a) Explain different growth media for microbes.

b) Describe any two adaptations of microbes to environmental conditions.

Q4) a) Explain role of microbes as bioindicators of water pollution with suitable example.

b) What is meant by GMO? What are the environmental concerns and biosafety associated with GMO'S.

Q5) a) Discuss various applications of biosensors in environmental monitoring.

b) Explain role of micro organisms in degradation of organic pollutants.

P.T.O.

Q6) a) Explain role of biotechnology in biodiversity conservation.

b) Write a note on microbial leaching in mining.

Q7) a) Define biofertilizers? Explain different microbial biofertilizers with suitable examples.

b) Add a note on Air borne microbes and allergic disorders.

Q8) a) Explain role of biotechnology in treatment of waste water.

b) Explain process of biomethanation with suitable examples of microbes.

Total No. of Questions : 8]

SEAT No. :

P2753

[Total No. of Pages : 2

[4833]-308
M.Sc. (Semester - III)
ENVIRONMENTAL SCIENCE
EVSC 310: Environmental Resource Monitoring
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***You are advised to attempt not more than 5 questions.***

Q1) a) Explain methods for measurement of felled tree volume.

b) What are the objectives of sampling and testing of soil.

Q2) a) Explain any five soil quality indicators.

b) Give detail account of weather monitoring parameters.

Q3) a) Give the handling and storage guidelines for soil samples.

b) Explain the field methods for birds and mammal census.

Q4) a) Enumerate different techniques of water sample collection.

b) What is particylate matter? Explain it's monitoring in detail.

Q5) a) Explain different techniques used for wetland monitoring.

b) Give an account of odour monitoring technique.

Q6) a) Explain the noise monitoring methods.

b) Explain sample preservation techniques for different water samples.

P.T.O.

Q7) a) What is the role of Aerial photographs in wildlife monitoring.

b) Explain on - field test parameters for water quality.

Q8) Write a note on:

a) Soil sampling methodology

b) Water standards.

Total No. of Questions : 8]

SEAT No. :

P2754

[Total No. of Pages : 2

[4833]-401
M.Sc. (Semester - IV)
ENVIRONMENTAL SCIENCE
EVSC-401: Environmental Toxicology, Health and Safety
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Your are advised to attempt not more than 5 questions.***

Q1) a) What are the sources of noise in industrial environment? Which are the methods used for noise abatement in industrial environment?

b) What are the different aspects of EHS of any developmental project? Describe the need for its interactive approach.

Q2) a) Explain various methods used for risk assessment.

b) What are the sources of lead and its compounds? explain its toxicity.

Q3) a) Explain the safety and health issues of any one developmental project.

b) Discuss the role of ISO -18000 in industrial safety.

Q4) a) Discuss various international and national stratergies adapted for maintaining industrial health and safety.

b) What are the different methods used for measurement of toxicity.

Q5) a) Explain any one bacterial waterborne disease.

b) Define the terms i) LDSo ii) Hazard iii) Xenobiotic iv) epidemics v) Toxicology

P.T.O.

Q6) a) What are the preventive and control measures for airborne diseases?

b) Write classification of toxicants based on its nature, origin and effects with suitable examples.

Q7) a) Which are the various programs run by WHO concern with public health?

b) Explain various health effects of volatile organic compounds with suitable examples.

Q8) a) Write a note on biological warfare.

b) Write a note on Hazardous waste management.

Total No. of Questions : 8]

SEAT No. :

P2755

[Total No. of Pages : 2

[4833]-402
M.Sc. (Semester - IV)
ENVIRONMENTAL SCIENCE
EVSC - 402 : Restoration Ecology & Watershed Management
(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***You are advised to attempt not more than 5 questions.***

Q1) Answer the following :

a) Define watershed management & discuss watershed morphology.

b) Define ecorestoration and explain its principles.

Q2) Explain the following with suitable examples.

a) Restoration of grassland ecosystem.

b) Methodology for groundwater investigation.

Q3) Explain the significance of the following :

a) Gabion structure and earthen dam.

b) Role of seral communities in restoration process.

Q4) Justify the statements.

a) Traditional water harvesting structures are very useful even in modern technologies.

b) Restoration of wetlands offers many services.

P.T.O.

Q5) Explain in detail with significance.

a) Restoration of solid waste dumping sites.

b) Different types of bunds in watershed management.

Q6) Answer the following :

a) Write a detailed note on restoration of coastal ecosystem.

b) How can soil conservation be achieved in watershed management?

Q7) Answer the following :

a) Restoration of freshwater ecosystems.

b) Principles of watershed management.

Q8) Write short note on :

a) Overflow wier.

b) Topographical survey.