CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations, January 2023

Programme: M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester: III **Max. Time: 3 Hours**

Course Title: Environmental Policy and Law **Max. Marks: 70**

Course Code: SIAS EVS 01 03 13 C 4004

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Article 51 A (g) of constitution of India

b) Sustainable development

c) Eco-mark scheme

d) UNEP

e) Objectives of National Forest Policy (1988)

f) CRZ

g) Motor Vehicle Act, 1988 (Environmental Aspects)

Q 2. (2X7=14)

a) Differentiate between Precautionary Principle and Polluter Pays Principle in environmental law.

b) How the article 48 A and 253 of constitution of India safeguard the environment?

c) Discuss the major international and national efforts to protect the atmospheric pollution.

Q3. (2X7=14)

a) Write an essay on first international conference which attracted the global attention towards the environment.

b) Discuss the key points under Kyoto Protocol. What is Clean Development Mechanism under it?

c) What are the Wetlands? Briefly discuss Ramsar Convention and wise use of wetlands.

Q 4. (2X7=14)

a) Write down the general powers of central government under Environmental (Protection) Act, 1986.

b) Discuss the main provisions under Noise Pollution (Regulation and Control) Rules, 2000. Write down the zone-wise noise limits.

c) What are the functions of central board and state board under the Water (Preventions and Control of Pollution) Act, 1974?

Q 5. (2X7=14)

a) What are the main objectives of the National Environment Policy?

b) What are the provisions regarding Protected Areas in Wildlife Protection Act (1972)?

c) Write a note on Biological Diversity Act (2002).

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Semester Term End Examinations December 2022

Programme: M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester: VII **Max. Time: 3 Hours**

Course Title: SUSTAINABLE DEVELOPMENT AND RESOURCE MANAGEMENT **Max. Marks: 70**

Course Code: SIAS EVS 01 03 05 GE 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer all seven. Each part carries two Marks.
2. Question no. 2 to 5 carries fourteen marks each with internal choice.

Q1. Write short note: (7X2=14)

a) Greenhouse gases
b) Desertification
c) Classification of Natural Resources
d) Characteristics of Coal
e) Renewable Energy Resources
f) Environmental Implications of Tidal Energy
g) Pros and cons of Nuclear Energy

Q2. (2X7=14)

a) Explain principles of sustainable development.
b) Write history and emergence of the concept of Sustainable Development.

OR

a) Define environmental issues and crisis.
b) Discuss international summits, conventions, agreements and action plan for implementing sustainable development.

Q3. (2X7=14)

a) Write factors influencing resource availability, distribution and uses.
b) Discuss mineral exploration and exploitation.

OR

a) What are environmental impacts of mineral extraction?

b) Write importance of soil, soil conservation strategies.

Q4. (2X7=14)

a) Discuss world food problem and green revolution.

b) What are environmental Implications of Solar Energy (Solar Collector, Photo-voltaic Modules Solar Ponds)?

OR

a) Discuss bioenergy energy use pattern in India and the world.

b) Write approaches in resource management.

Q5. (2X7=14)

a) What are integrated resource management strategies?

b) Define concept of sustainability science.

OR

a) Write different approaches towards sustainable development and its different constituents.

b) Discuss sustainability of society, resources and framework.

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Term End Examinations, January 2023

Programme : M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester : Third **Max. Time: 3 Hours**

Course Title : Water Quality Management **Max. Marks: 70**

Course Code : SIAS EVS 01 03 04 DCEC 4004

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks. 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Q 1. Write note on any four of the following: (4X3.5=14)

a) Eutrophication and its mechanism
b) Hardness of water
c) Arsenic epidemic in India
d) Nitrogen removal from wastewater
e) Adsorption technique
f) Standards of potable water
g) Surface water contamination

Q 2. (2X7=14)

a) Discuss the standards of potable water.
b) Explain various zones of purification.
c) Discuss role of humans in river pollution. Elaborate the mechanism of self-purification of streams?

Q3. (2X7=14)

a) What is the purpose of aeration in water treatment? Discuss various type of aerators.
b) Define coagulation and mixers. What are the factors affecting coagulation?
c) Discuss the following
   i. Chick's law
   ii. Arsenic and fluoride removal from water

Q4. (2X7=14)

a) What is the role of screens in wastewater treatment? Discuss types of screens and their purposes.
b) Elaborate the mechanism of nitrogen and phosphorous removal from wastewater.
c) Define activated sludge. Elaborate sludge stabilization and dewatering systems.

Q 5. (2X7=14)

a) Define water stress. Make a detailed note on measurement of water scarcity.

b) Why was requirement for GAP? Make a note on GAP achievements and failures.

c) Discuss about major water-based policies in India.

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End Semester Examinations, January 2023

Programme: M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester: III **Max. Time: 3 Hours**

Course Title: Environmental Microbiology **Max. Marks: 70**

Course Code: SIAS EVS 01 03 06 DCEC 4004

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Indicator Microorganisms

b) Mycorrhiza

c) Mineralization of soil nutrients

d) Mycotoxins

e) Microbial enzymes in food industry

f) Bio-hydrometallurgy

g) Biodegradable Plastics

Q 2. (2X7=14)

a) What is microbial mat? Explain the role of microbes in water treatment.

b) What is eutrophication? What are the major causes responsible for it? Suggest a few preventive measures for eutrophication.

c) Write a note on bioassay tests for toxicity evaluation.

Q3. (2X7=14)

a) Discuss the role of microbes in food production.

b) What is biofertilizer? Write about the various types and functions of biofertilizers.

c) What is biological nitrogen fixation? Explain.

Q 4. (2X7=14)

a) Write a note on any two food borne infections caused by bacteria.

b) What are the Genetically modified foods? Write down their safety concerns for human and environment.

c) Explain various applications of microbial enzymes in food industry.

Q 5. (2X7=14)

a) What is the Bioremediation? Discuss its various types and its environmental applications.

b) What is the microbial enhanced oil recovery (MEOR)? How the microbes and their metabolites help in the carrying out of enhanced oil recovery?

c) Explain the environmental risks of releasing genetically engineered microbes.

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Term End Examinations January 2023

Programme: M.Sc. (Environmental Sciences) **Session: 2021-22**

Semester: Third **Max. Time: 3 Hours**

Course Title: Environmental Health and Toxicology **Max. Marks: 70**

Course Code: SIAS EVS 01 03 14 C 4004

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student needs to answer any two parts of each question. Each part carries seven marks.

Q 1. Write the note on the following: (4X3.5=14)

a) Define Environmental Toxicology
b) Toxicants
c) LD50 and LC50
d) Xenobiotic
e) Mutagens
f) Induction
g) Minamata

Q 2. Discuss the following: (2X7=14)

a) Excretion of toxicants
b) Metabolism of toxicants
c) Uptake and transportation of toxicants

Q3. Explain the following: (2X7=14)

a) Occupational health hazards
b) Goiter
c) Itai-itai

Q 4. Write on the following: (2X7=14)

a) Biotransformation
b) Biotransformation of Endogenous substances
c) Genetic Polymorphisms

Q 5. Discuss on the following: (2X7=14)

a) Oncogenes and Tumor Suppressor Genes
b) Carcinogenesis
c) Chemical Carcinogenicity

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Term End Examinations January 2023

Programme: GEC(EVS) **Session: 2022-23**

Semester: ODD **Max. Time: 3 Hours**

Course Title: Agriculture and Environment **Max. Marks: 70**

Course Code: SIAS EVS 01 03 06 GE 4004

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) What is permaculture and urban agriculture? Discuss in detail?

b) Briefly describe the different nutrients used in hydroponic culture methods along with its functions?

c) Zero Tillage.

d) Briefly describe pesticide safety with respect to human health?

e) What are macro and micro-nutrients? Discuss the environmental effect of chemical fertilizers?

f) Discuss the characteristics of Bacillus Thuringienses.

g) Discuss the socio-economic and food security impact of green revolution?

Q 2. (2X7=14)

a) Describe benefits of sustainable farming and reframe different techniques for the adoption of sustainable farming using well labelled figure.

b) What is hydroponic greenhouse cultivation? Explain with figure types of solution culture hydroponic methods used for cultivation and factors affecting it?

c) What is dry land farming? Discuss different problems in India related to dry land farming and the technology adopted and methods used to enhance agricultural production?

Q 3. (2X7=14)

a) Explain plant based pesticides and plant incorporated protectants? Give the detailed classification of biopesticides used to control pests?

b) Discuss how the integrated pest management program aids in environment protection? Explain in detail the working of integrated pest management program?

c) What is the difference between pesticides and persistent pesticides? Explain in detail main classes of synthetic pesticides?

Q 4. (2X7=14)

a) Classify allelopathy on the basis of fate of chemicals and target/recipient. Giving examples of different types of allelopathy chemicals describe the pathway of release of allelochemicals in nature?

b) What is integrated nutrient management system? Explain different components of integrated nutrient management systems along with its advantages and disadvantages?

c) What are the different species of earthworm used in vermicomposting? Describe the methodology and production process of vermicomposting?

Q 5. (2X7=14)

a) What are transgenic plants? Explain the benefits of development of genetically modified crops and its effect on environment?

b) Write short notes on agriculture and food security and green revolution? Discuss the environmental impacts of green revolution in detail?

c) Discuss in detail the role played by the microorganims in agriculture and environment protection?

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Term End Examinations January 2023

Programme: M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester: Third **Max. Time: 3 Hours**

Course Title: Sustainable Development and Resource Management **Max. Marks: 70**

Course Code: SIAS EVS 01 03 05 GE 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students are required to answer any two parts of each question. Each part carries seven marks.

Q 1. Write the note on the following: (4X3.5=14)

a) Greenhouse gases

b) Solar Ponds

c) Principles of Sustainable Development

d) Importance of soil

e) Green revolution

f) Fossil Fuels classification

g) Sustainability of society

Q 2. Discuss the following: (2X7=14)

a) History and emergence of the concept of Sustainable Development.

b) International Summits and Conventions for implementing sustainable development.

c) Desertification.

Q3. Explain the following: (2X7=14)

a) Forest management strategies.

b) Strategies of water conservation.

c) World food problem.

Q 4. Write notes on the following: (2X7=14)

a) Bioenergy use pattern in India and the World.

a) Environmental Implications of Hydropower and Tidal Energy.

b) Pros and cons of Nuclear Energy (Fusion & Fission).

Q 5. Discuss the following: (2X7=14)

a) Discuss various approaches for sustainable development and its different constituents.

b) Approaches in resource management.

c) Concept of sustainability science.

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Term End Examinations, January 2023

Programme : M.Sc. (Environmental Sciences) **Session: 2022-23**

Semester : Third **Max. Time: 3 Hours**

Course Title : Physical Environment **Max. Marks: 70**

Course Code : SIAS EVS 01 03 12 C 4004

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks. 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Q 1. Write note on any four of the following: (4X3.5=14)

a) Vertical profile of the Atmosphere
b) Difference between Specific humidity and Relative humidity
c) Glaciers
d) Environmental lapse rate
e) Types of Sensor used in Remote sensing
f) Estuaries
g) Sea level change
h) Wetlands

Q 2. (2X7=14)

a) Discuss the stratification of atmosphere on the basis of both composition and temperature.
a) Define el Nino. What are the impacts of El Nino on Indian monsoon?
b) Discuss about theory and classification of cloud formations.

Q3. (2X7=14)

a) Differentiate sea and ocean. Make a detailed note on its origin and composition of sea water.
b) Make a detailed note on transportation and deposition of earth`s material through wind.
c) Discuss the following
   i. Global water balance
   ii. Hydrological cycle

Q4. (2X7=14)

b) Define remote sensing. Discuss about types and fundamental principles of remote sensing.
c) What do you understand by spectral reflectance? Discuss the spectral reflectance curve of Vegetation, Soil and Water.
d) Discuss the application of remote sensing and GIS in land use studies.

Q 5. (2X7=14)

a) Explain about the Milankovitch's theory of Climate Change.

b) Write short note on historical evidence of climate change.

c) What is climate feedback mechanism? Discuss carbon cycle feedback and Water vapour feedback in details.