CENTRAL UNIVERSITY OF HARYANA

First Semester Term End Examinations March 2023

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

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

Course Title: Regional and Global Environmental Issues **Max. Marks: 70**

Course Code: SIAS EVS 01 01 02 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) Bhopal gas disaster

b) Intergovernmental panel for climate change

c) Chernobyl disaster

d) Chipko Movement

e) Nuclear safety

f) Green building

g) Farming monoculture

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

a) National Action Plan on climate change

b) Causes and impacts of sea level change

c) Ozone Depletion.

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

a) High level Radioactive waste management

b) Impact of nuclear power on the environment

c) National Mission on Sustainable habitat

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

a) Tehri Dam.

b) Global and national environmental movements

c) Namami Gange and Yamuna Action Plan

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

a) Genetic pollution and genetically modified food controversies

b) Swachh Bharat Abhiyan

c) SDGs

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations March 2023

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

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

Course Title: Foundation Course in Ecology and Environment **Max. Marks: 70**

Course Code: SIAS EVS 01 01 01 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) Terrestrial ecosystem and its characteristics

b) What do you understand by eco-technology?

c) Effect of precipitation on the distribution of type of vegetations in India.

d) Discuss topography as an important environmental factor

e) Write short note on flagship species with suitable example.

f) Why pyramid of energy always upright?

g) Define edge effect and its characteristics.

Q 2. (2X7=14)

a) Who coined the term ecology? Briefly describe scope of ecology.

b) Discuss subdivisions of ecology. Make a note on level of organization in Ecology?

c) Autecology and Synecology.

Q3. (2X7=14)

a) Discuss Shelford's law of tolerance. Explain it with a suitable schematic diagram.

b) Define biotic factors. Discuss biotic factor integrations with suitable examples for each type of interaction.

c) Briefly describe light and temperature as a factor in relation to plant and animals' activities.

Q 4. (2X7=14)

a) Discuss ecosystem boundary and functions of an ecosystem.

b) How energy flows in an ecosystem? Discuss Y-shaped energy flow model.

c) What is a food chain? Describe grazing and detritus food chains with examples.

Q 5. (2X7=14)

a) Write brief notes on xerosere and hydrosere with clear diagrams.

b) What do you understand by ecological succession? Discuss concept of climax.

c) Make a descriptive note on life history strategies on the basis of r and k selection?

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, March 2023

Programme: EVS **Semester: I**
Course work Ph.D.
Course Title: Research Methodology **Max. Time: 3 Hour**
Course Code: SIAS EVS 02 01 01 C 4004 **Max. Marks: 60**

Instruction: Attempt any five questions out of the following. Each question carries equal marks.

Q: 1. You have to take a throat sample for identification of a bacterial pathogen. What safety precautions will you follow while taking the sample? Which laboratory facilities/ containment levels are required to identify the pathogen through microbiological and molecular tools.

2. a) What is the role of IBSC, IAEC in approving the research projects for the safety of researchers.
   b) Write a brief note on disposal of biowaste and hazardous chemical waste generated in the laboratory

Q:3 Write about the layout of a Scientific Paper, explain in detail about each component, and mistakes to avoid in each component

Q:4 Write in detail about the factors to be taken into consideration while preparing for oral presentation through PPT and poster.

Q:5 Define the mean, median, mode and standard error their merits and demerits? Find the median of the following series. The hemoglobin percentage of animals was recorded 6,7,4,5,5,3 and 4 mg/100ml?

Q:6 Write in details about the t-test and ANOVA with merits and demerits?

Q:7 What is research? How it is different from innovation? Describe one example of multi-disciplinary research problem having local, national and global perspective?

Q:8. Why to review literature? What is the major difference between forward and backward citations? What are the common sources of literatures for research?

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Term End Examinations March 2023

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

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

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

Course Code: SIAS EVS 01 01 04 C 2002

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. (4X3.5=14)

a) Define box plot.

b) Find out the mean, median and mode of following data:
3200, 3100, 3000, 2900, 2800, 2500, 2500, 1600

c) Define kurtosis.

d) Define mutually exclusive events and independent events.

e) What are the continuous random variables?

f) Briefly discuss correlation.

g) Define F-test.

Q 2. (2X7=14)

a) Discuss the importance of statistics in the Environmental Sciences.

b) How the Line chart, Bar chart and Pie chart differ from each other in graphical representation of data? Briefly discuss common application of each.

c) Discuss the scales of measurement.

Q3. (2X7=14)

a) Define median and mode. Write down their merits and limitations

b) What is standard deviation? Find out the variance and standard deviation of following data: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

c) Explain the Skewness of distribution. How it is measured?

Q 4. (2X7=14)

a) What is the Conditional Probability? Explain with example.

b) Define the Binomial and the Poisson distribution. Write down the properties of each of them.

c) Discuss the Normal Distribution. What are the important properties of normal distribution?

Q 5. (2X7=14)

a) Explain the concept of standard error. What is the confidence limit?

b) What is the hypothesis testing? Explain Type I and Type II errors.

c) Discuss the basic principles of experimental design.

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End Semester Examinations March 2023

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

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

Course Title: Fundamentals of Ecology **Max. Marks: 70**

Course Code: SIAS EVS 01 01 01 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) Discuss light as an ecological factor.

b) Define biome and landscape with suitable examples of each.

c) Differentiate between habitat and niche.

d) Write about concept of climax.

e) Concept of heterotrophic succession

f) Pyramid of energy

g) Liebig's law of minimum

Q 2. (2X7=14)

a) Define applied ecology. Discuss about the scope of ecology?

b) Discuss history of ecology and its relevance to humankind.

c) Define synecology. Discuss in details about level of Ecological organisation.

Q 3. (2X7=14)

a) What is soil? Discuss edaphic factor in details.

b) Discuss about origin and development of a community with suitable example.

c) Define edge effect. How do edge effects vary with shape and size? How edge effect can be minimized?

Q 4. (2X7=14)

a) Write a brief note on the general process of the ecological succession.

b) Write brief notes on xeroseree and hydrosere with clear diagrams.

c) What do you understand by energy flow? Discuss universal model of energy flow.

Q 5. (2X7=14)

a) Define population. Briefly describe the characteristics of a population.

b) Discuss prey-predator relationship with the help of suitable example.

c) Define growth. Discuss exponential and logistic growth models in details

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Term End Examinations, March 2023

Programme: Ph.D. (Environmental Studies) | **Semester: Course work**
Course Title: Current Environmental Issues and Remediation | **Max. Time: 3 Hour**
Course Code: SIAS EVS 02 01 03 C 2002 | **Max. Marks: 60**

Instruction: Attempt any five questions out of the following. Each question carries equal marks.

Q:1 What are the causes of ozone layer depletion, its effects & the consequences on climate change?

Q:2 Explain circular economy and fermentation technology in brief. How they can be beneficial for the environment?

Q:3 . Define biosorption, types and mechanism of biosorption?

Q:4 What is the environmental Remediation, describe phytoremediation techniques in details including types and its application?

Q:5 What are the bioprospecting and Eco-mark. Write down these role in environment?

Q:6 What is Ozone layer Depletion and its Cause, effects and solutions?

Q:7 What is Biodiversity Conservation, its methods and strategies?

Q:8. Define Green Chemistry, bioindicators, hydrogen production and biofertilizers in brief and their environmental significance?

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End Semester Examinations March 2023

Programme:	**Integrated B.Sc. M.Sc.**	**Session: 2022-23**
Semester:	**I**	**Max. Time: 3 Hours**
Course Title:	**Environmental Sciences**	**Max. Marks: 70**
Course Code:	**SBS EVS 01 07 AECC 4004 / SHSS PSY 03 01 01 AECC 3104**	

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) Write short notes biomass energy resources giving examples?

b) Discuss the different steps of mechanisms of succession of a newly formed land?

c) Discuss the biotic components of a pond ecosystem?

d) What is in-situ method of biodiversity conservation? Give examples?

e) What are the different factors responsible that lead to human-wildlife conflicts?

f) What is air pollution? Discuss different sources of air pollution?

g) Write short notes on environment protection act, wild life protection act and public awareness?

Q 2. (2X7=14)

a) What is environmental science? Discuss the principle and approaches of environmental sciences in different areas of development?

b) What are natural resources? Write down different types of natural resources present on earth and discuss in detail forest and water resources?

c) What are non-renewable energy resources? Discuss types of non-renewable energy resources and differentiate between renewable and non-renewable energy resources?

Q3. (2X7=14)

a) Describe the structural and functional components of a grassland ecosystem?

b) What is food chain, food web and ecological pyramid? Discuss the types of ecological pyramids in details with figure?

c) What is ecological succession? Discuss the different stages of hydrosere succession in detail?

Q 4. (2X7=14)

a) What is biological diversity and briefly describe genetic diversity, species diversity and ecosystem diversity?

b) Discuss in detail the different factors that lead to the loss of biological diversity?

c) Briefly describe the different practices for the conservation of biological diversity? Write short notes on project tiger and project elephant?

Q 5. (2X7=14)

a) What is water pollution? Describe in detail the different sources of water pollution along with causes and effects?

b) What is sustainable development? Discuss the different types of sustainable development goals in detail?

c) What is solid waste and discuss the different characteristics of municipal solid waste? Describe in detail the different measures to control solid wastes in urban and industrial areas?

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Term End Examinations March 2023

Programme:	**M Sc Environmental Sciences**	**Session: 2022-23**
Semester:	**First**	**Max. Time: 3 Hours**
Course Title:	**Biodiversity Conservation**	**Max. Marks: 70**
Course Code:	**SIAS EVS 01 01 02 C 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. (4X3.5=14)

a) Define biodiversity. Why biodiversity is rich in tropics?

b) What are Keystone species? Write a note on their ecological importance.

c) Biodiversity Hotspots

d) Discuss the implications of human population growth on biodiversity.

e) Sacred Groves

f) Zoological and Botanical Survey of India and their role in biodiversity conservation

g) Importance of megadiversity zones

Q 2. (2X7=14)

a) Define components of biodiversity.

b) Define Biodiversity indices.

c) Define types of diversity.

Q3. (2X7=14)

a) What is biosphere reserve? Write a short account of protected areas network of India.

b) Write an account of wildlife of India and its management.

c) DNA and Spore Bank.

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

a) National and Global red data list.

b) Ecological succession.

c) Bio piracy and Bioprospecting.

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

a) Role of NGOs in conservation.

b) UNEP

c) Wildlife Values and eco-tourism.

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End Semester Examinations March 2023

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

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

Course Title: Natural Resource Conservation and Management **Max. Marks: 70**

Course Code: SIAS EVS 01 01 03 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) Resources
b) Salinization
c) Characteristics of soil
d) Natural Gas
e) Solar Collector
f) Types of forest in India
g) Nuclear Fission

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

a) Define concept of natural resources and explain distribution and uses of oceanic minerals
b) Environmental impacts and exploration prospective of mineral resources
c) Factors affecting exploration of Oceanic minerals

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

a) Define the term Soil. Write methods of soil development.
b) Soil Erosion
c) Desertification

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

a) What is renewable energy resource? Discuss principal of renewable energy generation.
b) Solar Energy
c) Hydropower

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

a) Urban Forestry
b) Deforestation
c) Human interaction with forest