

S. S. JAIN SUBODH P.G. (AUTONOMOUS) COLLEGE, JAIPUR
Affiliated to University of Rajasthan, Jaipur

ASSIGNMENT

M. Sc. I Semester Test- 2024-25

Environmental Science

Ecology and Ecosystem

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

Q. 1 Describe in detail about Energy Flow Pattern in the Ecosystem. (15)

or

Write short notes on

- a) Nitrogen and Carbon Cycle
- b) Concept of Ecotypes and Ecospecies.

Unit-II

Q. 2 Explain with the help of diagrams the structure and composition of Atmosphere, Hydrosphere and Lithosphere. (15)

or

Write short notes on

- a) Liebig's Law of Minimum.
- b) Shelford's Law of Tolerance.

Unit-III

Q. 3 What are the various Population characteristics with Biotic Potential and Population Regulation mechanism?

Or

Explain various types of Inter and Intra Specific relations in detail.

Unit-IV

Q. 4 Describe in detail about the structure, types and characteristics of Terrestrial and Aquatic Ecosystem with examples.

Or

What is the concept of Artificial or Man Made Ecosystem.

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Environmental Science

Biodiversity and Conservation

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

Q. 1 Describe the different types of Forest and bio-geographic regions in India. 15

or

Write short notes on different Type of Forestry in India.

Unit-II

Q. 2 Explain the detail note on measurement and types of biodiversity. 15

Or

Write a short note on any two

- a) Succession
- b) the goods and services offered by forests
- c) Taiga Forest

Unit-III

Q3. Write a short note on cryopreservation. 15

or

Describe in detail about the Wildlife of India Valuation of Biodiversity.

Unit-IV

Q4. Explain in detail the concept of Bioprospecting and Biopiracy. 15

Or

Explain the concept of Intellectual Property Rights

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Environmental Science

Environmental Pollution and Health

PAPER III

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

1. What is atmosphere? Explain the vertical stratification of Earth's atmosphere, focusing on the characteristics and composition of each layer. 15

Or

Define air pollutants and explain the distinction between primary and secondary air pollutants. Explain major sources air pollution along with effects of air pollution on plants, human health, materials and ecosystems.

Unit-II

2. What is water pollution? Explain water quality parameters in detail along with types, sources and effects of water pollution. 15

Or

Write short notes on any two

- a) Bioaccumulation B) Biomagnification
C) Bioindicators D) Thermal pollution

Unit-III

3. What is soil pollution? Explain sources of soil pollution in detail. 15

Or

What is soil pollution? Explain detrimental effects of soil pollution on flora, fauna and ground water.

Unit-IV

4. What is noise pollution? How can we measure noise pollution & what are the sources & effects of noise pollution. 15

Or

What is Thermal, Radiation and Space Pollution? Explain sources & effects of Thermal, Radiation and Space Pollution in detail.

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Environmental Science

Environmental Issues: Regional and Global
PAPER IV

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit I

Q1. Write short notes on: 15

- a) What Is Carbon Capture and Storage?
- b) What does global warming have to do with rising sea levels?

or

Explain green house effects in detailed manner.

UNIT II

Q2. Give a detail note on Population Pyramids. 15

or

What is population explosion? How developmental projects responsible for population displacement?

UNIT III

Q3. Write short notes on: 15

- a) Effects of Polychlorinated Biphenyl
- b) Lead adverse impact on environment.

or

Describe the radiation hazards with suitable example.

UNIT IV

Q4. Write short notes on:

- a) Pneumonconiosis
- b) Bagasosis

or

Write a detailed note on pesticides and its types.

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Assignment

M. Sc. III Semester Test- 2024-25

Environmental Science

Instrumentation for Environmental Monitoring and Analysis

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

Q. 1 Write short notes on High Volume Sampler (HVS). 15

OR

What do you understand by RDS, Sound level meter and catchment sampling

Unit-II

Q2. Write a short note on Spectrophotometer (UV-Visible). 15

OR

Detailed account on the Atomic Absorption spectrophotometer (AAS).

Unit-III

Q3. Write a detailed note on HPLC . 15

OR

Write an essay on Size – Exclusion Chromatography.

Unit-IV

Q4. Explain in details on Liquid scintillation Counter. 15

OR

Write a detailed note on Alpha, Beta and Gamma contamination Monitors.

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ASSIGNMENT

M. Sc. III Semester Test- 2024-25

Environmental Science

Environmental Bioremediation Process and Technology

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

- Q. 1** Discuss the In-situ techniques of bioremediation with examples. 15
or

Write a note of basic concept of microorganisms and uses in bioremediation of soil and oil spills

Unit-II

- Q. 2** Explain with the help of diagrams the Polychlorinated biphenyls (PCBs). 15

or

What do you understand by contributing to industrial sustainable development with suitable example of industrial process?

Unit-III

- Q3.** Write short notes on applications of microbes in removal of contaminants sources. 15
or

Give a detail note on Pesticides AND their impacts on tropic levels.

Unit-IV

- Q4.** Write an essay on Reclamation of wasteland. 15

or

Describe the role of Microorganisms in mineral and energy recovery.

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M. Sc. III Semester Test- 2024-25
Environmental Science
Pollution Control Technology

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

UNIT I

1. What is Ambient Air Quality? What are the preliminary informations required for Air Quality Survey explain. 15

or

Write short notes on:

- a) Stack emission Monitoring.
- b) Fabric Filter for particulate matter.

UNIT II

2. Write short notes on: 15
- a) Trickling Filter
 - b) Oxidation Ponds

or

What is water pollution? Explain waste water treatment process in detail along with flow diagram.

UNIT III

3. What is sludge? Explain sludge treatment process in detail manner. 15

or

Give a detail note on membrane filtration with the special reference to Nano-filtration and Ultra-filtration.

UNIT IV

4. Write short notes on: 15
- a) Strip Farming
 - b) Contour Ploughing

or

What is Biochar? Describe the role of Biochar in soil remediation.

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Environmental Science

Statistics, Environmental Modeling and Research Methodology

Max. Marks: 30

Instructions to the candidates: Students are given eight questions which would consist of two questions from each unit. Students are required to answer any two questions from any unit.

Unit-I

Q. 1 Explain the concept of arithmetic mean, mode and median for grouped and ungrouped data in detail with examples? (15)

or

Write short notes on

- a) Measures of Dispersion
- b) Variance

Unit-II

Q. 2 What is Probability? Describe in detail Normal, Poisson and Binomial distributions. (15)

or

Write short notes on

- a) Hypothesis Testing
- b) Normal, t and chi square test.

Unit-III

Q. 3 Describe various approaches for development of models with concept of linear, simple and multiple regression models.

or

(15)

Explain Point source stream pollution model, Box model and Gaussian Plume model.

Unit-IV

Q. 4 What are the basic principles of Research Design, execution and reporting.

(15)

or

Explain in detail the concept of Research Ethics and its Basic Principles.