

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

ASSIGNMENT

M. Sc. I Semester Test- 2026-27

Environmental Science

Ecology and Ecosystem

Max. Marks: 30

Instructions to the candidates: Students will be given a total of eight questions, with two questions from each unit. Students are required to answer **one question from each unit**, making a total of **four questions** to be attempted.

Unit-I

Q. 1 Describe in detail about the Structure and Function of Ecosystem with suitable examples? (15)

or

Write short notes on Energy Flow Pattern in the Ecosystem.

Unit-II

Q. 2. Explain the concept of Ecology as an Interdisciplinary Subject? (15)

or

Write short notes on Shelford's Law of Tolerance.

Unit-III

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

Or

What are the various Factors of Population Regulation with the concept of Carrying Capacity?

Unit-IV

Q4. How Man- Made Ecosystem plays pivotal role in Impacting the equilibrium of our Natural Ecosystem? What are the pros and cons of Artificial Ecosystem?

Or

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

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Environmental Science

Biodiversity and Conservation

Max. Marks: 30

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Unit-I

Q. 1. Write short notes on different Type of Forestry in India. 15

or

Describe in detail about Commercial forestry.

Unit-II

Q. 2 Explain the detail note on Succession. 15

Or

Write a short note on the goods and services offered by forests

Unit-III

Q3. Write a short note on cryopreservation. 15

or

Explain these

- a) Role of biotechnology in biodiversity.
- b) Zoological parks and wildlife of India.

Unit-IV

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

Or

Write short notes on

- a) National biodiversity strategy and action plan.
- b) Bio safety protocols.

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Environmental Science

Environmental Pollution and Health

PAPER III

Max. Marks: 30

Instructions to the candidates: Students will be given a total of eight questions, with two questions from each unit. Students are required to answer **one question from each unit**, making a total of **four questions** to be attempted.

Unit-I

1. Describe the stratification of Earth's atmosphere, focusing on the characteristics and composition of each layer. 15

Or

Write short note on Plume behavior and Lapse Rate and Stability

Unit-II

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

Or

Write short notes on

- a) Bioaccumulation and Biomagnification
- b) Bioindicators

Unit-III

3. Explain sources of soil pollution. Explain sources of heavy metals pollutant 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

Write a sort note on Noise-spectra-octave bands and Equivalent continuous noise level

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Environmental Science

Environmental Issues: Regional and Global

PAPER IV

Instructions to the candidates: Students will be given a total of eight questions, with two questions from each unit.

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Unit I

Q1. Write short notes on global warming and What does global warming have to do with rising sea levels? 15

or

Give a detailed note on the chemical processes involved in the formation of acid rain. How do sulphur dioxide (Sox) and nitrogen oxides (Nox) contribute.

UNIT II

Q2. Describe the significance of age pyramids and demographic transition in understanding human population. Illustrate with diagram. 15

or

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

UNIT III

Q3. Write short notes on Lead adverse impact on environment. 15

or

What are the major toxicological effects of PCBs on human health and wildlife? Explain with scientific studies or case examples.

UNIT IV

Q4. Describe the clinical features, stages, and progression of Farmer's Lung Disease. 15

or

Write short notes on any two:

- Pneumonconiosis
- pesticides and its types
- Bagasosis

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Assignment

M. Sc. III Semester Test 2026-27

Environmental Science

Instrumentation for Environmental Monitoring and Analysis

Max. Marks: 30

Instructions to the candidates: Students will be given a total of eight questions, with two questions from each unit.

Students are required to answer **one question from each unit**, making a total of **four questions** to be attempted.

Unit-I

Q. 1 Write short notes on Soil sampling. 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

1. Atomic Absorption spectrophotometer (AAS).
2. Flame Photometer.

Unit-III

Q3. Write a detailed note on HPLC . 15

OR

Write an essay note on Ion chromatography.

Unit-IV

Q4. Short note on

- Liquid scintillation Counter and
- Beta-Gamma survey meters.

15

OR

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

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M. Sc. III Semester Test- 2026-27

Environmental Science

Environmental Bioremediation Process and Technology

Max. Marks: 30

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Unit-I

- Q. 1** Write a note of basic concept of microorganisms and uses in bioremediation of soil and oil spills. 15

or

Discuss the bioremediation techniques of contaminated soil with examples.

Unit-II

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

or

Elaborately explain about Role of enzymes in starch processing with suitable example of industrial process?

Unit-III

- Q3.** Discuss the environmental impacts of pesticides and detergents and how microbial process can mitigate these impacts. 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

Discuss the role of environmental biotechnology in the management of natural resources including reclamation of wasteland and biomass production.

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Environmental Science
Pollution Control Technology

Max. Marks: 30

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UNIT I

1. Compare and contrast the efficiency, cost, maintenance, and suitability of ESPs, fabric filters, cyclone separators, and scrubbers in particulate matter control. 15

or

Write short notes on Stack emission Monitoring and Fabric Filter for particulate matter.

UNIT II

2. Write short notes on Trickling Filter. 15

or

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

UNIT III

3. Give a detailed account of the biological methods of sludge treatment, with special reference to aerobic and anaerobic digestion. Explain the microbiological processes involved and their role in sludge stabilization. 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 the following:
a) Terrace Farming
b) Mulching

or

Explain the major mechanical methods of soil conservation, including contour bunding, terracing, check dams, gully plugging, and contour trenching, and discuss their role in controlling runoff and soil erosion.

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Environmental Science

Statistics, Environmental Modeling and Research Methodology

Max. Marks: 30

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Unit-I

Q. 1. Describe in detail about Quartile Deviation and Standard Deviation for Grouped and Ungrouped Data. (15)

or

Write short notes on the Statistical Sampling Method and Measures of Dispersion.

Unit-II

Q. 2 Explain the concept of Coefficient of Variability in Statistics? (15)

or

Write short notes on any two

- a) Hypothesis Testing
- b) Normal, t and chi square test.
- c) detail Normal, Poisson and Binomial distributions

Unit-III

Q. 3 What is the significance of Models of Population Growth? Explain the Lotka-Volterra Model? 15

or

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

Unit-IV

Q. 4 Describe in detail by giving examples the Concept and Principles of Research Ethics? (15)

or

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