Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: October/November - 2025
Introduction to Environment and Ecology (2328101)

Day & Date: Wednesday, 29-10-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. **08**

1) The "ozone layer" protects us from _____.
a) Visible light b) Ultraviolet (UV) radiation
c) Sound waves d) Gamma rays

2) Coral reefs are threatened by _____.
a) Ocean acidification b) Rising sea temperatures
c) Pollution d) All of the above

3) Which of the following is a greenhouse gas?
a) Neon b) Methane
c) Argon d) Helium

4) The carrying capacity of an ecosystem is _____.
a) The maximum number of species it can hold
b) The maximum population size that the environment can sustain
c) The number of predators only
d) Unlimited

5) Edge effect in ecology refers to _____.
a) Conditions near the boundary of two habitats
b) Interior forest only
c) Aquatic zones
d) Mountain peaks

6) Primary productivity in an ecosystem refers to _____.
a) Rate at which consumers produce biomass
b) Rate at which producers (plants) produce organic matter by photosynthesis
c) Rate of erosion
d) Rate of decomposition

7) Parasitism is a type of symbiotic interaction where _____.
a) Both benefit
b) One benefit, the other is harmed
c) Both are harmed
d) Neither is affected

8) Succession in ecology means _____.
a) Sudden destruction of habitat
b) Sequential change in species composition over time
c) Stagnant ecosystem
d) Decrease in biodiversity always

B) Write True or False. **04**

1) World Environment Day is observed on June 5th.
2) Wetlands act as natural filters for pollutants
3) Forests are not important for maintaining ecological balance.
4) One of the SDGs focuses on Climate Action.

Q.2 Answer the following. (Any Six) **12**

a) Discuss world environment day.
b) Describe freshwater ecosystem.
c) Write principles of environmental science.
d) What are biogeographical realms.
e) Discuss role of youth organizations in nature conservation.
f) Write causes of environmental pollution.
g) Write a note on importance of decision making in environmental science.
h) Discuss natality.

Q.3 Answer the following. (Any Three) **12**

a) Discuss concepts of habitat, niche and guild.
b) Describe concept of sustainable agriculture with example.
c) Write a note on ecological pyramid.
d) Explain concept of ecosystem with its types and example.

Q.4 Answer the following. (Any Two) **12**

a) Explain in detail Strategies for Environmental Education Development.
b) Describe in detail Bio-geo-chemical Cycles and their importance.
c) Write a detailed note on Wetlands and their examples.

Q.5 Answer the following. (Any Two) **12**

a) Write in detail concept and role of environmental movements in environmental protection.
b) Discuss in details food chain and food web with examples.
c) Write a note on Evergreen forests in detail with examples.

SLR-HI-2

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: October/November - 2025
Environmental Chemistry and Instrumentation techniques (2328102)

Day & Date: Friday, 31-10-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) The SI unit of energy is _____.
   a) Joule b) Calorie
   c) Watt d) Newton

2) The formula of ozone is _____.
   a) O b) O_2
   c) O_3 d) None of the above

3) Adsorption occurs on _____.
   a) Surface b) Bulk
   c) Both a and b d) None of the above

4) Which of these is a photochemical reaction?
   a) Rusting of iron b) Photosynthesis
   c) Dissolving salt in water d) Combustion of fuel

5) The major greenhouse gas is _____.
   a) Oxygen b) Nitrogen
   c) Carbon dioxide d) Ozone

6) BOD stands for _____.
   a) Biological Oxidation Demand
   b) Biological Oxygen Demand
   c) Biochemical Organic Demand
   d) Biological Oxide Detection

7) HPLC is used for _____.
   a) Chromatography b) Titration
   c) Gravimetric analysis d) Flame spectroscopy

8) What is the main component of air?
   a) Oxygen b) Carbon dioxide
   c) Nitrogen d) Hydrogen

B) Fill in the blanks OR Write True/False. **04**

1) The process of separating substances based on particle size is ____.
2) Acidic soil has a pH greater than 7.
3) _____ is used to measure the pH of a solution.
4) Photochemical smog is caused by sunlight reacting with pollutants.

Q.2 Answer the following. (any Six) **12**

a) Define valency with an example.
b) Name two gases responsible for photochemical smog.
c) What is DO?
d) Name two components of soil.
e) What is pH? Why is it important?
f) Name one method to monitor air pollutants.
g) What is UV-VIS spectrophotometry?
h) What are fertilizers? Name one organic fertilizer.

Q.3 Answer the following. (Any Three) **12**

a) Write a short note on Gibbs energy.
b) Explain the sources of heavy metals in water.
c) What are the major nutrients in soil?
d) Describe the process of gas chromatography in brief.

Q.4 Answer the following. (Any Two) **12**

a) Write about the composition of air.
b) Explain any two chemical reactions happening in water bodies.
c) Discuss the uses of HPLC.

Q.5 Answer the following. (Any Two) **12**

a) Explain the importance of water quality monitoring.
b) Discuss the basic principle of spectrometry.
c) What are the effects of modern agricultural practices on soil quality?

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: October/November – 2025
Current Environmental Issues and Problems of India (2328107)

Day & Date: Monday, 03-11-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) In Rajasthan 'Wasteland Development Programme' is implemented by ____.
   a) Forest Department
   b) Agriculture Department
   c) Irrigation Department
   d) Rural development and Panchayat Raj Department

2) Which of the following are the main contributors of the e-waste in the world?
   a) Tyre, tubes, plastic bottles rubber
   b) Tin, cans, brooms, bucket, bone China
   c) Personal computers, telephones, mobile phones, laptops, printers, scanners, photocopiers
   d) Gas cylinder, chimneys & home appliances

3) How are electronic items dangerous?
   a) They degrade over time, releasing cancer-causing chemicals into the air.
   b) Lead and mercury in components can cause metabolic changes in users.
   c) They leach toxic metals in landfills and into ground water.
   d) They create electromagnetic fields that interfere with animal reproduction.

4) What year did the concept of sustainability first appear?
   a) 1992 b) 1978
   c) 1980 d) 1987

5) The vast holes left behind after mining are utilize for ____.
   a) Waste disposal b) Domestic wastewater storage
   c) Wastewater storage d) Waste storage

6) What is the definition of sustainable development?
   a) The growth that satisfies current demands without jeopardizing future generations' ability to fulfil their own needs.
   b) Conserve mineral wealth and explore alternative energy sources while decreasing pollution and environmental impact.
   c) It is the process of creating land and building projects in such a way that they have a lower environmental effect by enabling them to produce fuel-efficient self-sufficiency patterns.
   d) All the preceding

7) The 21st-century notion of sustainable growth places a greater emphasis on ____.
   a) Economic progress
   b) Social progress
   c) Protection of the environment
   d) All of the preceding

8) Which of the following is not the land filling method?
   a) Bangalore method
   b) Area method
   c) Depression method
   d) Trench method

B) Fill in the blank: **04**

1) ____ and methane nitrous oxide water vapour and CFCs are examples of greenhouse gases.
2) The layer of the atmosphere where ozone is found is called ____.
3) ____ is the cutting and tearing of municipal solid waste.
4) Silent valley movement was started because ____.

Q.2 Answer the following. (any Six) **12**

a) Briefly discuss the energy crises and issues.
b) Explain the biological welfare and future.
c) Discuss the sustainable development with its goals and solutions.
d) What is carbon credit? Explain it.
e) Discuss the role of IUCN and UNEP.
f) Discuss the soil erosion impacts on production.
g) Write on Fly Ash Utilization Policy.
h) Explain the need for appropriate technologies for development.

Q.3 Answer the following. (Any Three) **12**

a) Discuss the water crises and future conflicts.
b) Discuss ground water pollution and its consequences.
c) Explain policies and laws on environmental protection.
d) Briefly discuss Adaptation and Livelihoods Security.

Q.4 Answer the following. (Any Two) **12**

a) Discuss on Eco-Terrorism, Shipping and Population Issues.

b) Explain Eutrophication Issues of major aquatic eco-systems.

c) What is Polluter Pays Principle? Discuss legal liabilities MNC's/TNC's and Corporate Social Responsibilities.

Q.5 Answer the following. (Any Two) **12**

a) Briefly discuss on Vulnerability, Agriculture Security and Carbon Foot Print.

b) Discuss Ganga Action Plan, Recent Programme and Interlinking of Rivers.

c) Discuss about Municipal Solid Wastes and Conflicts.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: October/November – 2025
Biodiversity and Conservation (2328108)

Day & Date: Monday, 03-11-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Which of the following statements is true?
   a) Diversity exists only at the species level
   b) Diversity exists only at the macromolecular level
   c) Diversity exists at all levels of biological organization
   d) Diversity exists at the genetic level only

2) Which organism's species have greater diversity in the Western Ghats than the Eastern Ghats?
   a) Reptiles b) Fishes
   c) Amphibians d) Mammals

3) What is the name of the species whose members are few and live in a small geographical area?
   a) Endangered b) Rare
   c) Indeterminate d) Vulnerable

4) Which place has the greatest biodiversity on Earth?
   a) Western Ghats b) Australian forest
   c) African forest d) Amazonian rain forest

5) Which environments are less seasonal, relatively more constant and predictable?
   a) Arctic environments b) Temperate environments
   c) Tropical environments d) Polar environments

6) Maximum productivity is found in which of the following ecosystem?
   a) Grassland b) Desert
   c) Temperate forests d) Tropical rainforests

7) Which one of the following is a man-made aquatic ecosystem?
   a) Desert b) Aquarium
   c) Pond d) River

8) What happens to species diversity as we move away from the equator towards the poles?
   a) Increase b) Decreases
   c) Unchanged d) Same

B) Write True /False: **04**

1) Dodo birds became extinct in the year 1681 as a result of hunting.
2) Any area or ecosystem rich in Biodiversity ensures a rich gene pool.
3) Rich flora and fauna ensure more oxygen in the ecosystem.
4) Wolffia is the smallest rootless aquatic plant.

Q.2 Answer the following. (Any Six) **12**

a) Define Ex-situ conservation.
b) What is Beta diversity?
c) Define Species Richness.
d) Define germplasm bank.
e) Write note on Project Elephant.
f) Write short note on deforestation.
g) Explain biotic components.
h) Define Xerophytes.

Q.3 Answer the following. (Any Three) **12**

a) Explain Latitudinal Gradient and Species-Area Relations.
b) Write Biodiversity Hotspots in India.
c) Explain Biological invasions.
d) Write note on Bioprospecting.

Q.4 Answer the following. (Any Two) **12**

a) Write a detail note on importance of biodiversity conservation.
b) Explain in detail protected area network (PAN)
c) Explain IUCN Criteria in detail.

Q.5 Answer the following. (Any Two) **12**

a) Explain in detail factors affecting biodiversity.
b) Write a detailed note on biosphere reserve and its zones.
c) Elaborate desert ecosystem.

Seat No.	

Set | P

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: October/November - 2025
Research Methodology (2328103)

Day & Date: Thursday, 06-11-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) Which of the following is NOT a characteristic of scientific research?
   a) Systematic b) Replicable
   c) Unpredictable d) Empirical

2) What is the first step in the research process?
   a) Data collection
   b) Formulation of objectives
   c) Identification of the research problem
   d) Hypothesis testing

3) What is the purpose of bibliographic preparation in research?
   a) To analyze data b) To compile references
   c) To form hypotheses d) To conduct experiments

4) Which of the following is a stage in report preparation?
   a) Data encryption
   b) Evaluation of the final draft
   c) Statistical analysis
   d) Survey distribution

5) What is a key characteristic of a good research proposal?
   a) Subjective interpretation b) Lack of structure
   c) Clear objectives d) Ambiguous methodology

6) Which of the following is a common abbreviation in scientific writing?
   a) IBID b) LOL
   c) ASAP d) FYI

7) What is plagiarism?
   a) Unauthorized reproduction of data
   b) Original writing
   c) Ethical citation of references
   d) Use of unpublished data with permission

8) Which of the following is NOT part of a scientific manuscript?
   a) Abstract
   b) Methods
   c) Bibliography
   d) Resume

B) Fill in the blanks OR write true/false: **04**

1) The formulation of ____ is an essential step in the research process to test the assumptions.
2) ____ consultation helps in selecting a research topic and compiling a working bibliography.
3) The ____ is a brief summary of the research and its findings.
4) Editing and ____ the final draft ensures the document is error-free and well-organized.

Q.2 Answer the following. (Any Six) **12**

a) Define scientific research and its purpose?
b) What are the characteristics of research in natural sciences?
c) Briefly describe the CRD research design?
d) List the different types of hypotheses?
e) What is the significance of formulating objectives in research?
f) Name two scientific databases used in environmental research?
g) What are the main difficulties faced in environmental research?
h) Mention any two methods used in testing hypotheses.

Q.3 Answer the following. (Any Three) **12**

a) What are the main components of a research plan?
b) Define plagiarism and its consequences in research?
c) What is the purpose of organizing workshops and symposia in research?
d) Mention the criteria for patentability under the Indian Patent Act?

Q.4 Answer the following. (Any Two) **12**

a) Discuss the types and purposes of hypotheses in environmental research?
b) Explain the survey and observation methods of research?
c) How are bibliographies prepared, and why are they important in research methodology?

Q.5 Answer the following. (Any Two) **12**

a) Discuss the procedure and formatting requirements for preparing research articles for scientific journals?
b) Compare and contrast different methods of research: survey, case study, experimental, historical, and comparative methods?
c) Discuss the challenges and difficulties faced in conducting environmental research and suggest solutions.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - II) (New) (NEP CBCS)
Examination: October/November - 2025
Water and Waste water Treatment Technology (2328201)

Day & Date: Tuesday, 28-10-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) The main purpose of a Sewage Treatment Plant (STP) is _____
a) Treat drinking water
b) Treat wastewater from households
c) Manufacture chemicals
d) Remove heavy metals from drinking water

2) Which forecasting method assumes that population growth rate decreases as saturation is approached?
a) Arithmetical method b) Geometrical method
c) Logistic method d) Demographic method

3) In chemical treatment, flocculation refers to _____
a) Growth of bacteria
b) Formation of large aggregates from small particles
c) Filtration
d) Dissolution of metals

4) In UASB reactor, 'UASB' stands for ____
a) Upgraded Activated Sludge Basin
b) Upflow Anaerobic Sludge Blanket
c) Underwater Aeration Sludge Basin
d) Uniform Activated Sludge Bioreactor

5) The primary purpose of UV radiation in water treatment is ____
a) To remove heavy metals b) To increase hardness
c) To reduce sludge d) To kill pathogens

6) Which filtration method has the smallest pore size?
a) Microfiltration b) Ultrafiltration
c) Nanofiltration d) Reverse Osmosis

7) Composting of sludge is an example of ____
a) Chemical treatment b) Physical treatment
c) Biological treatment d) Mechanical treatment

8) Wet Air Oxidation is mainly used for ____
   a) Pathogen removal
   b) Dissolving heavy metals
   c) Oxidizing organic matter in wastewater
   d) Reducing pH

B) Fill in the blanks OR Write True/False **04**

a) ____ treatment plant is mainly used for treating sewage or domestic wastewater.
b) Skimming tanks are primarily used to remove _____ and grease from wastewater.
c) ____ is a disinfection method that uses light energy to kill microorganisms.
d) Incineration involves the ____ of sludge at high temperatures.

Q.2 Answer the following. (Any Six) **12**

a) What is the significance of BIS standards in drinking water quality?
b) State the main purpose of a Common Effluent Treatment Plant (CETP).
c) Define coagulation in water treatment.
d) What is a skimming tank used for?
e) Define oxidation ponds.
f) Mention any two methods of tertiary water treatment.
g) Name any two green technologies used for sludge treatment.
h) What is alkaline stabilization of sludge?

Q.3 Answer the following. (Any Three) **12**

a) Describe the arithmetical and geometrical progression methods for population forecasting.
b) Write a short note on the components and functions of a Water Treatment Plant (WTP).
c) Write a short note on bar screen and its importance in wastewater treatment.
d) Explain the process and applications of Wet Air Oxidation.

Q.4 Answer the following. (Any Two) **12**

a) Describe the physical unit operations in wastewater treatment with special reference to bar screens, grit chambers, and skimming tanks.
b) Discuss the process of sedimentation and clarifier design in detail.
c) Write detailed notes on septic tank, Imhoff tank, and Root Zone Bed Technology for wastewater treatment.

Q.5 Answer the following. (Any Two) **12**

a) Explain the various advanced or tertiary water treatment processes like Activated Carbon Filtration, PACT, and UV radiation.
b) Discuss the methods of wastewater discharge on land, river, and ocean with environmental considerations.
c) What is bioremediation? Explain its role in sludge management with examples of green technologies.

SLR-HI-8

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - II) (New) (NEP CBCS)
Examination: October/November - 2025
Remote Sensing, GIS, GPS in Environmental Science (2328202)

Day & Date: Thursday, 30-10-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Which is the first satellite of ISRO?
   a) Bhaskara I b) Oceansat
   c) Kalpana-1 d) Aryabhata

2) Which of the following is the primary source of energy for remote sensing?
   a) Infrared rays b) Moonlight
   c) Sunlight d) Microwave

3) Spectral resolution refers to _____.
   a) Time between data captures
   b) Number of spectral bands
   c) Size of pixels
   d) Image clarity

4) Geostationary satellites revolve around Earth _____.
   a) Every 12 hours b) Every 24 hours
   c) Once a week d) Twice a day

5) Which of the following is an open-source GIS software?
   a) ArcGIS b) ERDAS
   c) QGIS d) IDRISI

6) Aerial photographs are taken from _____.
   a) Satellites b) Drones only
   c) Aircraft d) Balloons only

7) Which of the following is not a GIS component?
   a) Hardware b) Software
   c) People d) Wind Sensor

8) Which of the following is nominal data?
   a) Temperature b) River names
   c) Population rank d) Distance

B) Write True/False: **04**

1) GPS requires signals from at least four satellites for positioning.
2) Drones (UAS) are only used in the defence sector.
3) Topology defines spatial relationships in vector data.
4) Visual interpretation involves human analysis of satellite images.

Q.2 Answer the following. (Any Six) **12**

a) Name two types of satellites used in remote sensing.
b) Write short notes on spatial and temporal resolution.
c) What is nominal data.
d) Ratio and Interval data
e) What is topology in GIS.
f) What is GPS.
g) What is Platforms? Write any two types of Platforms.
h) What is a raster data model.

Q.3 Answer the following. (Any Three) **12**

a) Write a short note on NavIC (IRNSS).
b) Write application of GPS.
c) Describe image rectification and enhancement.
d) List the steps in image interpretation.

Q.4 Answer the following. (Any Two) **12**

a) Discuss the principles of photogrammetry with an example.
b) Explain the working and components of GPS.
c) Describe the major components and objectives of GIS.

Q.5 Answer the following. (Any Two) **12**

a) What is spectral reflectance? Describe spectral signatures of vegetation, water, and soil.
b) Compare GPS and IRNSS in terms of coverage, structure, and uses.
c) Describe the stages of acquisition of data in remote sensing.

SLR-HI-10

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - II) (New) (NEP CBCS)
Examination: October/November – 2025
Environmental Pollution and Management (2328208)

Day & Date: Saturday, 01-11-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) Noise can be measured in ____unit.
   a) Centimeter b) Millimeter
   c) Dobson d) Decibel

2) Which of the following equipment has the most widespread use in the industry to remove particulate matter?
   a) Gravity settlers b) Electrostatic precipitators
   c) Cyclone separators d) Filtration

3) Which of the following is the greatest volume of waste discharge for water pollution?
   a) Spillage from oil pipelines
   b) Sewage
   c) Nuclear waste
   d) Spillage from tankers

4) Which of the following rivers is called the world's most polluted river?
   a) Ganga River b) Chenab River
   c) Cauvery River d) Yamuna River

5) Which of the following statements are true about CNG -Compressed natural gas?
   a) It is a clean fuel b) It is a harmful fuel
   c) It is a polluting fuel d) All of the above

6) Which of the following causes mutations at a very high rate?
   a) Automobiles b) Compost
   c) Fertilizers d) Radiation

7) Bhopal Gas Tragedy was due to _____.
   a) Air Pollution b) Water Pollution
   c) Noise Pollution d) Soil Pollution

8) Biochemical oxygen Demand indicates _____.
   a) Chemical Pollution b) Physical pollution
   c) Organic Pollution d) All of the above

B) Write true/false: **04**

1) Ammonia is Greenhouse gas.
2) E waste can be easily degraded by microorganisms.
3) Soils are one of the source of CO2 emission.
4) Thermal pollution causes decrease in temperature.

Q.2 Answer the following. (Any Six) **12**

a) What is Hazardous waste?
b) What is Bioremediation?
c) Describe the sources of soil pollution.
d) What is Soil salinity?
e) What is photochemical smog?
f) What is carbon sequestration?
g) What are the sources of oil pollution in water?
h) Explain the Sources of E-waste.

Q.3 Answer the following. (Any Three) **12**

a) Narrate in detail about the consequences of radiation pollution on living organisms.
b) How energy can be generated through solid waste treatment? Explain.
c) Explain the fate of oil in water after spillage.
d) Explain the methods of Ground water recharging.

Q.4 Answer the following. (Any Two) **12**

a) Describe in detail about the types of aeroallergens and allergies.
b) What are the effects of water pollution on aquatic flora and fauna? Explain.
c) What are the methods to reduce the problem of E waste?

Q.5 Answer the following. (Any Two) **12**

a) Explain in detail about the types of Noise pollution with the related standards.
b) Explain the importance of rain water harvesting. Also, explain the different methods of rain water Harvesting.
c) Explain in detail about the different air pollution control.

SLR-HI-11

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - II) (New) (NEP CBCS)
Examination: October/November - 2025
Environmental Law, Acts Ethics Policies (2328209)

Day & Date: Saturday, 01-11-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) When did The Environment (Protection) Act, 1986, come into force?
   a) 01 April 1986 b) 01 March 1986
   c) 01 May 1986 d) 19 November 1986

2) When did the Air (Prevention and Control of Pollution) Act, 1981, come into force?
   a) 01 April 1981 b) 01 March 1981
   c) 01 May 1981 d) 29 March 1981

3) When was the Central Pollution Control Board established?
   a) 1972 b) 1978
   c) 1974 d) 1982

4) The EP act is under which of the categories of legislations?
   a) Welfare legislation b) Penal Legislation
   c) Remedial legislation d) None of the above

5) Section 7 of the EP Act directs that persons carrying on any industry shall not discharge any environmental pollutants in excess of standards prescribed by ____.
   a) SPCB b) CPCB
   c) State Government d) Central Government

6) Silence area comprises an area of not less than ____ meters around hospitals, educational institutions and courts as per the noise pollution (Regulation and Control) Rules, 2000.
   a) 50 b) 100
   c) 200 d) 250

7) Which of the following is the first major Environmental Protection Act to be promulgated in India?
   a) Environment Act b) Air Act
   c) Water d) None of the Above

8) The term "environment pollutant" has been defined in the Act includes: ____.
   a) Solid, liquid or gaseous substance present in concentration that is injurious to the environment
   b) Hazardous substances that are responsible for pollution
   c) Takes into account air, water & noise pollution.
   d) All of the above

B) Write true/false: **04**

1) National Environmental Policy, 2006 provides a comprehensive framework for sustainable development and environmental governance in India.
2) Basel Convention is an international agreement that controls the movement of hazardous waste across borders.
3) Wildlife Protection Act, 1972 aims to conserve and manage forests sustainably.
4) Water (Prevention and Control of Pollution) Act, 1974: The Act was amended in 1988.

Q.2 Answer the following. (Any Six) **12**

a) Write note on Importance of law.
b) Explain Article 48A.
c) Write note on Rio Conference.
d) Explain MSW applications.
e) Explain Paris Agreement.
f) What are the Noise Pollution Rules.
g) Explain Convention on Climate Change.
h) What is meant by the ethical dilemma.

Q.3 Answer the following. (Any Three) **12**

a) Write note on Indian Forests Act (Revised), 1982.
b) Write note on Fundamental Rights and Duties.
c) Describe Challenges of World Environmental ethics.
d) Write the Biomedical waste regulations.

Q.4 Answer the following. (Any Two) **12**

a) Explain Environmental ethics and pollution.
b) What are the Policies on Renewable and Non-renewable energy resources.
c) Write note on The Indian Wildlife (Protection) Act, 1972.

Q.5 Answer the following. (Any Two) **12**

a) Write note on Indian Constitution and Environment.
b) Write note on Process for new application and amendments.
c) Explain the Public liability Insurance Act, 1991.

SLR-HI-12

Seat No.		Set	P

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: October/November - 2025
Environmental Microbiology, Biotechnology & Nanotechnology (2328301)

Day & Date: Wednesday, 29-10-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Which type of bacteria is responsible for nitrogen fixation in soil?
   a) Rhizobium b) Bacillus
   c) Clostridium d) Escherichia coli

2) Which of the following types of anaerobic bacteria can grow in low oxygen concentrations, but do not require a complete absence of oxygen?
   a) Obligate anaerobes b) Aerotolerant anaerobes
   c) Facultative anaerobes d) Microaerophiles

3) Which of the following substances is commonly used by anaerobic bacteria in their metabolic processes?
   a) Oxygen b) Sulfate
   c) Glucose d) Nitrogen

4) Which of the following is NOT a typical step in the PCR cycle?
   a) Denaturation b) Annealing
   c) Extension d) Cleavage

5) What is the role of denitrifying bacteria in the nitrogen cycle?
   a) Convert ammonia to nitrates
   b) Convert nitrates to nitrogen gas
   c) Fix atmospheric nitrogen into organic forms
   d) Break down organic matter to release ammonia

6) Which of the following is a typical use of PCR?
   a) Genetic fingerprinting b) Protein synthesis
   c) RNA synthesis d) Bacterial growth

7) Which plant species is commonly used for phytoremediation of heavy metals like lead and cadmium?
   a) Sunflower (Helianthus annuus)
   b) Mustard (Brassica juncea)
   c) Indian mustard (Brassica nigra)
   d) Poplar tree (Populus spp.)

8) Which soil microorganism is most commonly used in the production of antibiotics?
   a) Rhizobium
   b) Bacillus
   c) Streptomyces
   d) Clostridium

B) Fill in the blanks: **04**

a) The process in which microorganisms use alternative electron acceptors, such as nitrates or sulfates, instead of oxygen, for respiration is called ____.
b) ____ is a biotechnological process used to reduce greenhouse gas emissions by utilizing organisms to convert carbon dioxide into organic compounds.
c) The primary method used in bioremediation for breaking down toxic organic compounds in soil is called ____.
d) In the environmental field, nanotechnology is applied in the removal of pollutants from water through the use of ____ nanoparticles, which act as adsorbents.

Q.2 Answer the following. (Any Six) **12**

a) What is the role of microbes in bioremediation?
b) What is nitrogen fixation, and which microorganisms are involved in this process?
c) What is the role of microbes in composting?
d) What is the role of microbes in biogas production?
e) What is herd immunity?
f) What is antimicrobial resistance (AMR)?
g) What are vector-borne diseases?
h) Define RADP

Q.3 Answer the following. (Any Three) **12**

a) What are benefits and limitations of Pasteurization?
b) What are the different types of disease in public health? Write the six major diseases?
c) What are hydrocarbon degrading bacteria? How they decompose it.
d) Give different stages of bacterial growth curve and explain about each stage.

Q.4 Answer the following. (Any Two) **12**

a) What Key Aspects of GMO Safety Guidelines?
b) Briefly explain Waste-to-Energy (WTE) Technologies.
c) Enlist & briefly explain various types of media used in microbiology.
d) Describe the scope of microbiology in the field of Environmental Engineering.

Q.5 Answer the following. (Any Two) **12**

a) Differentiate between biodegradation and bio magnification.
b) In-situ bioremediation techniques.
c) Guidelines for nanoparticles.
d) Steps Involved in RFLP Analysis.

SLR-HI-13

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: October/November - 2025
Statistical Methods in Environmental Science (2328302)

Day & Date: Friday, 31-10-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) Which of the following is affected the most by extreme values (outliers)?
   a) Mean b) Median
   c) Mode d) None of these

2) What type of data do you need for a chi-square test?
   a) Ordinal b) Categorical
   c) Level d) Scale

3) If all values in a dataset are the same, what is true about the mean, median, and mode?
   a) Mean is greater b) Mode is greater
   c) All are equal d) None of the above

4) When the alternate hypothesis is true, and we reject it?
   a) Type I error b) Type II error
   c) Standard error d) Sampling error

5) A hypothesis may be classified as _____.
   a) Simple b) Composite
   c) Null d) All of these

6) For the data set 2, 4, 6, 8, and 10, the mean, median, and mode are _____.
   a) All equal b) Mean > Median > Mode
   c) Mean < Median < Mode d) None of the above

7) What is the expected number of 6 appearing when a fair die is rolled 12 times?
   a) 2 b) 4
   c) 3 d) 6

8) By which other name is the Chi-Square goodness of fit test known?
   a) Two Sample Chi-Square b) Wilcoxon
   c) One Sample Chi-Square d) Directional Chi-Square

B) Write True/False: **04**

1) The Chi-Square test is applied to test the relationship between two categorical variables in a single sample.
2) In hypothesis testing, the null hypothesis is assumed to be true until there is sufficient evidence to reject it.
3) A z-test should be used when the population variance is unknown.
4) Analysis of Variance (ANOVA) is used to compare the means of two or more independent groups.

Q.2 Answer the following. (Any Six) **12**

a) What is skewness and explain its types?
b) Short note on Kurtosis.
c) The median value of following data: 1, 2, 6, 8, 9, 150
d) Write merits of harmonic mean.
e) What is regression and correlation?
f) Find the mean of data

Class-intervals	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	2	40	6	12	9	23	8

g) Short note on variance.
h) What is cluster and its types?

Q.3 Answer the following. (Any Three) **12**

a) Write a note on primary data and secondary data with their characteristics & examples.
b) Explain parametric and non-parametric test with their examples and their characteristics.
c) What is the probability and explain the additional & multiplication theorem of probability?
d) What are various measures of central tendency? Discuss their merits and demerits.

Q.4 Answer the following. (Any Two) **12**

a) What is the importance of various statistical techniques in environment science?
b) What are characteristics of T test? Solve the t-test problem.

The mark of student in a certain course averaged 75 over a period of years, a class of 50 students has a mean marks 70 with a standard deviation of 10. To test whether this lower mean can be attributed to ordinary sampling variation, t-test is required, the value of t is your test.

c) Explain type of samplings with their merits & demerits.

Q.5 Answer the following. (Any Two) **12**

a) What is hypothesis? Discuss null hypothesis and alternate hypothesis with Type I and Type II error.

b) Explain the outliers in data and its effects explain with Box plot with their whiskers.

c) Explain standard deviation & standard error with characteristics.
Solve the numerical
$\sum x = 140, \sum x2 = 2300$ and the no. of observation N=10, the value of standard deviation.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: October/November – 2025
Hydrology and Watershed Management (2328306)

Day & Date: Monday, 03-11-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) Which of the following processes plays a critical role in transferring water from the Earth's surface into the atmosphere?
   a) Precipitation b) Evapotranspiration
   c) Infiltration d) Runoff

2) In the context of the hydrological cycle, what is the main function of the infiltration process?
   a) To return water to the atmosphere
   b) To move water from the surface into groundwater storage
   c) To facilitate soil erosion
   d) To promote cloud formation

3) Which of the following best describes the concept of a watershed?
   a) A geographical area defined by the high points of land that drain into a single river or stream
   b) A natural boundary of a forest ecosystem
   c) A collection of all lakes and ponds within a region
   d) A man-made system for controlling water flow

4) Which factor is most likely to contribute to an increased risk of flooding in a watershed?
   a) Increased vegetation cover
   b) Deforestation and urbanization
   c) Improved water management infrastructure
   d) Higher rates of precipitation during dry seasons

5) Which of the following methods is commonly used to measure soil erosion in agricultural fields?
   a) Universal Soil Loss Equation (USLE)
   b) Remote sensing of vegetation health
   c) Soil texture analysis
   d) Groundwater flow modeling

6) What is one effective method for controlling soil erosion on steep slopes?
   a) Planting grass strips across the slope
   b) Removing vegetation to reduce water absorption
   c) Installing large dams to block runoff
   d) Applying heavy fertilizers to improve soil quality

7) Which of the following is a key objective of ecosystem-based management in watershed conservation?
   a) Maximizing economic gain from timber harvesting
   b) Maintaining biodiversity and ecological functions of the watershed
   c) Prioritizing agricultural output over environmental concerns
   d) Focusing only on the management of water quality

8) In the context of watershed management, which of the following practices would most effectively enhance water quality?
   a) Overgrazing by livestock
   b) Reducing forest cover
   c) Constructing riparian buffer zones with native plants
   d) Increasing the use of chemical fertilizers

B) Fill in the blanks. **04**

1) The continuous movement of water on, above, and below the surface of the Earth is called the ____.
2) A ____ is an area of land where all water drains to a common point.
3) The removal of topsoil by water, wind, or other natural forces is called ____.
4) ____ management aims to integrate land, water, and biological resources for sustainable development.

Q.2 Answer the following. (any Six) **12**

a) Name any two types of Rainfall.
b) Concept of Cyclone.
c) Write any two types of watershed development objective.
d) Concept of watershed development.
e) Name any two types of erosion.
f) State names of any two-soil erosion assessment model.
g) Concept of Horticulture.
h) Concept of afforestation.

Q.3 Answer the following. (Any Three) **12**

a) Types of fronts.
b) Characteristics of watershed- Shape and Size.
c) Measures to control erosion.
d) Concept of Social forestry.

Q.4 Answer the following. (Any Two) **12**

a) Types of wind.
b) Explain any one dam's erosion problem with giving suitable examples.
c) Role of people's participation in watershed development.

Q.5 Answer the following. (Any Two) **12**

a) Explain the Role of Ecosystem in watershed development.
b) Write a brief note on Universal Soil loss equation.
c) Explain water budget by taking an example of your local watershed.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: October/November – 2025
Energy and Environment (2328308)

Day & Date: Monday, 03-11-2025 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) The primary principle of energy conservation is to: ____.
   a) Increase energy production
   b) Reduce energy waste
   c) Generate electricity from fossil fuels
   d) Improve power grid infrastructure

2) India's renewable energy program primarily focuses on: ____.
   a) Nuclear energy
   b) Fossil fuel exploration
   c) Development of wind, solar, and biomass energy
   d) Increasing coal-based power production

3) Which of the following is considered an alternate energy generation system?
   a) Thermal power plant
   b) Hydropower plant
   c) Nuclear reactor
   d) Ocean thermal energy conversion

4) India's renewable energy potential is highest in which sector?
   a) Biomass energy b) Wind energy
   c) Geothermal energy d) Hydropower

5) Developed countries have higher emissions of which greenhouse gas compared to developing countries?
   a) Methane b) Nitrous oxide
   c) Carbon dioxide d) Ozone

6) Which of the following is NOT a green energy source?
   a) Solar power b) Nuclear power
   c) Wind power d) Hydropower

7) Energy overconsumption primarily impacts the environment by: ____.
   a) Reducing global temperatures
   b) Increasing biodiversity
   c) Causing greenhouse gas emissions
   d) Promoting sustainable agriculture

8) Which sector has the highest energy demand globally?
   a) Agriculture b) Transportation
   c) Industrial d) Domestic

B) Fill in the blanks OR write true/false. **04**

1) Energy derived from plant and animal matter is called ____.
2) Fossil fuels include coal, oil, and ____.
3) Energy production can drive environmental change by altering natural ecosystems and increasing ____.
4) India has significant renewable energy potential in ____ energy due to its long coastline.

Q.2 Answer the following. (Any Six) **12**

a) Define the global energy flow pattern.
b) Oil shale as an energy resource.
c) Impacts of energy use on the environment?
d) Formation and exploration of oil.
e) Define coal reserves?
f) Challenges and future options for non-renewable energy resources.
g) Define hydropower?
h) Ocean thermal energy.

Q.3 Answer the following. (Any Three) **12**

a) Discuss the potential of biodiesel as a renewable energy source?
b) Explain the process and significance of geothermal energy extraction?
c) Compare Ocean thermal energy with tidal energy?
d) Describe the concept of green energy and alternative sources of green energy.

Q.4 Answer the following. (Any Two) **12**

a) Write about the Geothermal energy potential and applications?
b) What are the advantages and limitations of wind energy?
c) Discuss the environmental implications of energy production and utilization.

Q.5 Answer the following. (Any Two) **12**

a) Evaluate the role of energy production and transformation in driving environmental changes.
b) Compare and contrast renewable and non-renewable energy resources in terms of availability, efficiency, and environmental impacts.
c) Explain the working principles of solar collectors, photovoltaics, and solar heating systems with their environmental advantages?

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - IV) (New) (NEP CBCS)
Examination: October/November - 2025
Environmental Virology, Toxicology and Bio-safety (2328401)

Day & Date: Tuesday, 28-10-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Viruses outside their host cells survive as ____.
a) Virions b) Algae
c) Protozoa d) Bacteria

2) A toxic substance produced by biological system is specially referred to as a ____.
a) toxicant b) toxin
c) xenobiotic d) poison

3) The use of antitoxin in the treatment of snakebite is an example of ____.
a) dispositional antagonism b) chemical antagonism
c) receptor antagonism d) functional antagonism

4) What does BSL stand for in laboratory safety?
a) Biosecurity Level b) Biosafety Laboratory Standard
c) Biological Safety Level d) Biotechnology Safety Level

5) Which of the following is the most common capsid shape of the virus?
a) Cone b) Icosahedron
c) Cube d) Rod

6) Which type of filter is commonly used in BSCs to capture and remove airborne particles?
a) Carbon filter b) Electrostatic filter
c) Glass fiber filter d) HEPA filter

7) Which of the following is an example of a heavy metal often found in industrial settings and can be toxic to humans?
a) Calcium b) Iron
c) Lead d) Oxygen

8) Which of the following is an example of a biological monitoring method used in industrial toxicology?

a) Air Sampling b) Urine Analysis
c) Noise level Measurement d) Temperature Monitoring

B) Fill in the blanks. **04**

a) Virology is the scientific study of ____.
b) ____ is a field of science that helps us understand the harmful effects that chemicals, substances, or situations, can have on people, animals, and the environment.
c) ____ describes how the body handles a chemical, as a function of dose and time.
d) ____ can be accomplished by heat, hydrogen peroxide gas, chlorine dioxide gas, plasma, ozone, and radiation.

Q.2 Answer the following. (Any Six) **12**

a) Define Virology.
b) Write note on Helical Symmetry in viruses.
c) Write short note on PPE.
d) Write note on Bioaccumulation.
e) Write note on Intrinsic toxicity.
f) Explain LC 50.
g) Define Carcinogens.
h) What is Biosafety?

Q.3 Answer the following. (Any Three) **12**

a) Explain general structure of viruses.
b) Write note on Environmental degradation.
c) Explain toxicity of heavy metals.
d) Write Routes of Transmission.

Q.4 Answer the following. (Any Two) **12**

a) Explain xenobiotics with examples.
b) Write Parameters of toxicity testing.
c) Write all Biosafety Levels (BSLs).

Q.5 Answer the following. (Any Two) **12**

a) Write classification of virus.
b) Write Toxicity testing methods.
c) What is In silico method explain in detail.

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Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - IV) (New) (NEP CBCS)
Examination: October/November - 2025
Environmental Impact Assessment, Audit and ESG (2328402)

Day & Date: Thursday, 30-10-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) 08

1) Which act in India primarily governs environmental protection and paved the way for EIA?
   a) Water Act, 1974
   b) Air Act, 1981
   c) Environmental Protection Act, 1986
   d) Wildlife Protection Act, 1972

2) The first formal system of EIA was established under: _____.
   a) United Nations Environment Programme (UNEP)
   b) National Environmental Policy Act (NEPA), USA
   c) EIA Notification, India
   d) Kyoto Protocol

3) What is the full form of EIS in the context of EIA?
   a) Environmental Impact Solution
   b) Environmental Information System
   c) Environmental Impact Statement
   d) Environmental Internal Study

4) EIA Notification in India was first issued in: _____.
   a) 1986 b) 1994
   c) 2006 d) 2016

5) NABET accreditation is related to: _____.
   a) Certification of industries
   b) Accreditation of EIA consultants
   c) Granting environmental clearance
   d) Public participation

6) Which of the following is a primary impact?
   a) Increase in air pollution due to vehicle emissions
   b) Employment generated by a new factory
   c) Rise in local business after highway construction
   d) Public awareness raised through protests

7) Which is NOT a natural resource assessed in EIA?
   a) Surface water
   b) Historic sites
   c) Groundwater
   d) Air quality

8) Public participation in EIA primarily aims to: _____.
   a) Speed up the clearance process
   b) Ensure transparency and inclusiveness
   c) Avoid governmental obligations
   d) Increase project costs

B) Fill in the blanks OR Write True/False **04**

a) The full form of NEPA is _____.
b) The linkage between _____ and environment is critical for sustainable development.
c) A _____ analysis compares the economic benefits and environmental costs of a project.
d) An audit that assesses resource utilization and waste management in industries is known as an _____ audit.

Q.2 Answer the following. (Any Six) **12**

a) Define Environmental Impact Assessment (EIA).
b) What is Rapid EIA and EIS?
c) What does NEPA stand for and why is it important?
d) What is the purpose of an Environmental Impact Statement (EIS)?
e) Mention two important features of the Environmental Protection Act, 1986.
f) What is the significance of EIA Notification 1994?
g) What is NABET accreditation?
h) Define Environmental Audit.

Q.3 Answer the following. (Any Three) **12**

a) Explain the importance of Environmental Impact Assessment (EIA).
b) Describe the objectives and goals of EIA.
c) What are the mandatory data requirements in the approach to EIA studies?
d) Discuss the linkage between EIA and Sustainable Development.

Q.4 Answer the following. (Any Two) **12**

a) Discuss the different types of impacts that are considered during the EIA process. Provide examples of both negative and positive impacts.
b) Explain the components of an Environmental Impact Assessment, focusing on baseline data, environmental management plans, and impact prediction.
c) Define Environmental Audit and explain its scope, applicability, and objectives in industries.

Q.5 Answer the following. (Any Two) **12**

a) Explain the role of ISO 14000 standards and certification in environmental auditing. How does it help industries comply with environmental regulations?

b) Discuss the concept and procedures of Green, Energy, and Environment audits in industries. How do these audits help in promoting sustainability?

c) Explain the concept of Cost-Benefit Analysis (CBA) in EIA and its significance in decision-making for development projects.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - IV) (New) (NEP CBCS)
Examination: October/November - 2025
Natural Resources Management (2328406)

Day & Date: Saturday, 01-11-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. **08**

1) What are the three R's that are used to save the environment.
   a) Reduce, Reuse, Recycle
   b) Reserve, Reduce, Recycle
   c) Reuse, Reserve, Reduce
   d) Reserve, Reuse, Reduce

2) Which one of the following Movement was carried out for the conservation of forests and the environment?
   a) Forest movement b) Ganaga Action Plan
   c) Tehri Andolan d) Chipko Andolan

3) The species which are in danger of extinction are called ____.
   a) Endangered species b) Normal species
   c) Vulnerable species d) Rare species

4) Which one of the following type of resource is iron ore.
   a) Renewable b) Biotic
   c) Flow d) Non-renewable

5) Afforestation is necessary for ____.
   a) Soil conservation b) Soil erosion
   c) Well control d) Low humidity

6) Which of the following is an anti-forest conservation activity?
   a) preservation of wild animals
   b) preservation of fires
   c) clear felling
   d) economy in lumbering

7) Which of the following is considered as an anti- forest conservation activity?
   a) Clear felling b) Economy in lumbering
   c) Preservation of fires d) Preservation of wild animals

8) How hydel- power plants produce energy?
   a) Polluting and non- renewable
   b) Non-polluting and non-renewable
   c) Polluting and renewable
   d) Non-polluting and renewable

B) True/False. **04**

1) Energy is not classified as natural resource.
2) Overgrazing by livestock is a method used to conserve soil.
3) Contour ploughing is used to help reduce water runoff on sloped land.
4) Open-pit mining causes less environmental degradation than underground mining.

Q.2 Answer the following. (Any Six) **12**

a) Define natural resources with an example.
b) What is significance of food resources in human life?
c) Define renewable energy.
d) What is sustainable development?
e) What is the effect of shifting cultivation?
f) Define solar energy.
g) What is exhaustible resource with an example?
h) What is biodiversity hotspot?

Q.3 Answer the following. (Any Three) **12**

a) Explain briefly the classification of natural resources.
b) Describe the traditional knowledge of natural resource management.
c) Briefly describe the evolution of resource management paradigms.
d) Describe soil & land resources & discuss their importance.

Q.4 Answer the following. (Any Two) **12**

a) Discuss the use & exploitation of mineral resources & their environmental impacts?
b) Describe the effectiveness of integrating resource management strategies (IRMS) in resolving resource conflicts?
c) Explain uneven distribution of water on the earth's surface & what are the consequences of overexploitation of water resources?

Q.5 Answer the following. (Any Two) **12**

a) Discuss how food, water & land resources are interlinked?
b) Explain the consequences of over exploitation of natural resources with examples?
c) Give an overview of agricultural resources & describe the importance of agricultural resources to human beings?

SLR-HI-21

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - IV) (New) (NEP CBCS)
Examination: October/November – 2025
Ecotourism (2328407)

Day & Date: Saturday, 01-11-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Ecotourism aims to: ____.
   a) Maximize commercial profits
   b) Encourage mass tourism
   c) Promote sustainable interaction with nature
   d) Focus only on luxury travel

2) The main motivation for travel in ecotourism is ____.
   a) Shopping b) Business
   c) Nature and environment d) Adventure sport

3) Which form of tourism is related to healing and wellness ____.
   a) Adventure tourism b) Health tourism
   c) Agrotourism d) Pilgrimage tourism

4) Backwater tourism is most common in: ____.
   a) Rajasthan b) Kerala
   c) Himachal Pradesh d) Sikkim

5) What is the purpose of carrying capacity in tourism.
   a) Measure tourist satisfaction
   b) Limit tourist numbers
   c) Increase profits
   d) Expand facilities

6) Ecotourism certification programs help: _____.
   a) Promote luxury resorts
   b) Ensure environmental standards
   c) Increase foreign investment
   d) Build airports

7) Visitor Impact Management (VIM) is used to: ____.
   a) Increase ticket prices
   b) Analyze the environmental effects of tourists
   c) Promote tour packages
   d) Design advertisements

8) The World Ecotourism Summit took place in ____.
   a) 1987 b) 1992
   c) 2002 d) 2015

B) Fill in the blanks OR write true/false **04**

1) Ecotourism evolved as a response to the negative impacts of mass tourism.
   a) True
   b) False
2) Farm tourism is a form of urban tourism.
   a) True
   b) False
3) Festivals and fairs affect tourism seasonality.
   a) True
   b) False
4) VAM focuses only on revenue generation.
   a) True
   b) False

Q.2 Answer the following. (any Six) **12**

a) Define ecotourism.
b) What is meant by 'Intangibility' in tourism?
c) What is backwater tourism?
d) Mention any two types of health tourism.
e) Define sustainable development in the context of tourism.
f) What is the carrying capacity.
g) What is ECOS (Ecotourism Opportunity Spectrum)?
h) Define ecological footprint analysis.

Q.3 Answer the following. (Any Three) **12**

a) Describe the elements of tourism.
b) Explain the concept of wildlife tourism.
c) Write a note on eco-labels and ecotourism certifications.
d) Write a note on visitor activity and impact management (VAM & VIM).

Q.4 Answer the following. (Any Two) **12**

a) Discuss the concept, characteristics, and future trends of ecotourism.
b) Describe different types of rural and farm tourism with examples.
c) Describe the sustainable management of ecosystems concerning ecotourism.

Q.5 Answer the following. (Any Two) **12**

a) Analyze the development and challenges of ecotourism in Maharashtra.
b) Explain the interrelationship between tourism and ecosystem goods & services.
c) Elaborate on mountain and wetland tourism in India with examples.