Seat No.	

Set P

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

Day & Date: Thursday, 15-May-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) _____ and water in the air react together to form carbonic acid.
a) Carbon monoxide b) Carbon dioxide
c) Carbon d) All of the above

2) Which of following types of forest (same sized) holds the most amount of carbon?
a) Boreal forest b) Mangrove
c) Temperate forest d) Tropical forest

3) Indian Prime minister who played significant role in conservation of wild life _____.
a) Rajiv Gandhi b) Indira Gandhi
c) Manmohan Singh d) Vajpayee

4) The most harmful of ultraviolet radiations which rapidly damage biota of all type _____.
a) UV-C, b) UV-B,
c) UV-A, d) All the above

5) Wild Life Institute of India is located in _____.
a) Andaman b) Hyderabad
c) Dehradun d) Bangalore

6) E. O. Wilson's book which won the award for 'Best Book on Environmental issues' _____.
a) Biodiversity b) Diversity of Life
c) Nature d) Man and Life

7) UNFCCC stands for _____.
a) United Nations Framework Convention on Climate Change
b) United Nations Federation Convention on Climate Change
c) United Nations Framework Council on Climate Change
d) United Nations Federation Council on Climate Change

8) Green revolution is associated with _____.

a) Sericulture b) Silviculture
c) fish culture d) Agriculture

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

1) _____ is the interdisciplinary subject that examines the interactions between humans and the Environment.
2) Organisms which feed on secondary consumers are call _____.
3) _____ is defined as an ecological state of a species being unique to a specific geographic location.
4) _____ refers to the process by which certain chemicals become more concentrated in the tissues of organisms as they move up the food chai, posing risk to higher level predators.

Q.2 Answer the following question (Any six) **12**

a) Define Detritivores.
b) What is Natality?
c) Types of Ecological Model
d) What is Hydrosere?
e) What is Population Ecology?
f) Define primary producers?
g) What is terrestrial ecosystem?
h) What is Ecological Niche?

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

a) Explain the objectives of Environmental Education.
b) Explain the role of women in Environmental Moments.
c) Explain in brief impact on cultural change on Environment.
d) Role of Media in Environmental Education.

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

a) Whal is bio-geochemical Cycle? Explain the Nitrogen cycle with its suitable diagram.
b) What is Biomes? Explain in brief the Desert Ecosystem.
c) Explain the types of Ecological pyramid and its characteristics.

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

a) Explain in brief people's participation and role of NGOs in Environmental Protection.
b) Explain the concept of RAMSAR convention with suitable example.
c) Explain the concept of productivity and describe the food chain and food web suitable example.

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - I) (New) (NEP CBCS)
Examination: March/April - 2025
Environmental Chemistry & Instrumentation techniques (2328102)

Day & Date: Saturday, 17-May-2025 Max. Marks: 60
Time: 03:00 AM 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 process of titration involves _____.
a) Measuring weight b) Neutralization reaction
c) Chromatography d) Gravimetry

2) The law used to describe the distribution of a solute between two immiscible solvents is _____.
a) Boyle's law b) Nernst distribution law
c) Charles's law d) Dalton’s law

3) Which of these is a natural source of air pollution?
a) Combustion of fuel b) Forest fires
c) Industrial emissions d) Vehicle exhaust

4) The primary cause of water hardness is _____.
a) Sodium chloride
b) Calcium and magnesium salts
c) Potassium hydroxide
d) Ammonia

5) Which of the following is a pollutant measured by BOD?
a) Organic matter b) Metals
c) pH d) Colloids

6) CFC stands for _____.
a) Carbon Fluoride Compounds
b) Chlorofluorocarbons
c) Chemical Fluorine Compounds
d) None of the above

7) In soil chemistry, adsorption refers to the process where _____.
a) Gases are absorbed in bulk
b) Molecules stick to the surface
c) Nutrients evaporate
d) None of the above

8) Chromatography is used to _____.
a) Separate components in a mixture
b) Measure pH
c) Determine molecular weight
d) Analyze gas composition

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

1) Unsaturated hydrocarbons have only single bonds.
2) _____ is a toxic metal found in water pollution.
3) Spectrophotometry measures the amount of light absorbed by a sample.
4) _____ Gases are collected using High-Volume Samplers.

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

a) What is molality?
b) Write a short note on soil salinity.
c) Name two photochemical reactions in the atmosphere.
d) What are persistent organic pollutants?
e) Define chemical potential.
f) What is redox reaction?
g) What is spectrophotometry?
h) Explain the significance of nitrogen in the soil.

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

a) Discuss any two properties of water.
b) Explain the role of pH in water chemistry.
c) Write about the basic principle of chromatography.
d) Discuss the sources of particulate matter in the air

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

a) What are agrochemicals? Explain their effects.
b) Describe the principles of gravimetric analysis.
c) Write a short note on chemical speciation in air.

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

a) Explain how to monitor CO and SO_2 in the air.
b) What are alkaline soils? How are they formed?
c) Describe any two chromatographic techniques.

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Set P

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

Day & Date: Monday, 19-May-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) 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) India’s total cyclone-prone area is _____%.
a) 15% b) 10%
c) 8% d) 20%

6) Which environmental movement refers to as Greed Game Political Populism by the environmentalists?
a) Narmada Bachao Andolan (NBA)
b) Silent Valley Movement
c) Appiko Movement
d) Jungle Bachao Andolan

7) the BPL families acquire food grains, sugar and kerosene at _____ of the price than that to the APL families.
a) Twice b) One -half
c) One-third d) One-fourth

8) Farmer's tractor adds to the carbon footprint of food because _____.
a) It's green
b) it makes a lot of noise
c) It burns fossil fuel travelling back and forth over the fields
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 laser of the atmosphere where ozone is found is called _____.
3) Least polluting fuel for vehicles is _____.
4) _____ is one of the twelve megadiversity centers.

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

a) Write on ozone layer depletion.
b) Explain Eco-terrorism.
c) What is green policies and issues?
d) Write on alkaline and saline soil.
e) Discuss right to information and environment.
f) Explain Narmada Bachao Andolan.
g) Discuss the importance of conservation of biodiversity and forest for survival.
h) Explain Life cycle Assessment Studies for organizations.

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

a) Discuss the climate change and its current issues.
b) Discuss the carbon credits and carbon sequestration.
c) Discuss the water quality degradation and interlinking of rivers.
d) Discuss the legal liabilities MNCS/TNCS and Corporate Social Responsibility.

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

a) Discuss on Eco-Terrorism. Shipping and Population Issues.
b) Discuss carbon emission and its failure targets.
c) Discuss the disaster management with plan, implementation and strategies.

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

a) Discuss the water crises, E-waste and population explosion.

b) Discuss the drought, flood and issues with slums and environmental health.

c) Discuss the environment and Indian case studies to solve the Environmental issues.

Seat No.	

Set P

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

Day & Date: Monday, 19-May-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) When was the project tiger launched?
a) 2004-2005 b) 1973-1974
c) 1983-1984 d) 2013-2014

2) Among these which species are NOT in the IUCN classification of threatened species?
a) Extinct b) Harmful
c) Vulnerable d) Endangered

3) For Documenting rare and endangered species of animals and plants what is established?
a) Green data Book b) Blue data book
c) Red data book d) None of these

4) What is an important reason for the conservation of natural resources?
a) Disturb the ecological balance
b) Preserve the biological diversity
c) Disruption of quality of the environment
d) Hampering the biological species

5) For what reason is the conservation of natural resources important?
a) Maintaining the ecological processes
b) Disturbing the ecological balance
c) Extinction of biological species
d) Disruption of quality of the environment

6) What is the correct full form of IUCN?
a) International Union for Conservation of Nuts
b) International Union for Conservation of Nature
c) International Union for Conservation of Natural habitat
d) International Union for Conservation of Numbers

7) What are the species called whose number of individuals is greatly reduced to a critical level?

a) Indeterminate b) Rare
c) Vulnerable d) Endangered

8) What is exploring molecular, genetic, and species-level diversity for products of economic importance called?

a) Biopiracy b) Biofuel
c) Bioprospecting d) Biodiversity

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

1) If plants were absent, animal life would not survive.
2) The term “Xerophytes” refers to these plants can survive in saline water or soil.
3) Culm stems are strong, erect, and hollow from the inside.
4) Species richness increases with increasing explored area.

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

a) Write note on importance of studying biodiversity.
b) Write note on Microbial Diversity.
c) What is species evenness?
d) Define in-situ conservation.
e) What is Alpha diversity?
f) Write note on Project Tiger.
g) Explain abiotic components.
h) Write short note on RAMSAR sites.

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

a) What is Red Data Book? Explain in detail.
b) Explain Dispersal and its types?
c) Describe structure and importance of wildlife sanctuary.
d) Explain National Action Plan on Climate Change (NAPCC).

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

a) What is keystone species? Explain with examples.
b) Write components of forest ecosystem.
c) Explain Plant Diversity in detail.

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

a) Explain what are the threats to biodiversity.
b) What is the role of forest department in conservation?
c) Explain biodiversity legislation in India.

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Set | P

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

Day & Date: Saturday, 24-May-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) Which of the following is NOT a type of hypothesis?
a) Null hypothesis b) Alternate hypothesis
c) Predictive hypothesis d) Systematic hypothesis

2) Which method involves studying a single subject in depth?
a) Case study method b) Survey method
c) Experimental method d) Historical method

3) What is the main limitation of the case study method?
a) It lacks depth
b) It is time-consuming
c) It requires a large sample size
d) It is difficult to replicate

4) Which database is specifically designed for life sciences and biomedical research?
a) PubMed b) ScienceDirect
c) JSTOR d) SpringerLink

5) What is the purpose of footnotes in scientific writing?
a) To provide additional explanations
b) To list all references
c) To summarize the document
d) To proofread the content

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

7) Which of the following is NOT a difficulty in environmental research?
a) Complexity of ecosystems b) Ethical concerns
c) Abundance of resources d) Lack of accurate data

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

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

1) The primary goal of research is to find answers to _____.
2) In research ethics, _____ refers to the act of using someone else's work without giving proper credit.
3) The _____ method of research involves asking questions to a large group of people.
4) A _____ is a systematic plan for conducting research.

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

a) Define scientific research?
b) What is a null hypothesis?
c) What is the significance of formulating objectives in research?
d) Mention any two difficulties faced in environmental research?
e) What is meant by hypothesis testing?
f) What is bibliographic compilation?
g) Mention two characteristics of a good research report?
h) Define the term "case study" in research methodology?

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

a) Define plagiarism and write in brief research ethics.?
b) What are the primary objectives of environmental research?
c) What is meant by a "research problem"?
d) What are the basic elements of research methodology?

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

a) Explain the characteristics of scientific research?
b) Differentiate between observational and experimental research methods?
c) What is the importance of research design in environmental studies?

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

a) Describe in detail the principles of scientific research and its application in environmental science?
b) Elaborate on the different types of research methods (survey, observation, case study, historical, experimental, and comparative) used in environmental science?
c) Discuss the ethical considerations, including plagiarism and intellectual property rights, in environmental research?

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Set **P**

M.Sc. (Environmental Science) (Semester - II) (New) (NEP CBCS)
Examination: March/April - 2025
Water and Wastewater Treatment Technology (2328201)

Day & Date: Wednesday, 14-May-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 the correct alternatives. **08**

1) Aerobic bacteria _____.
a) Flourish in the presence of free oxygen
b) consume organic matter as their food
c) oxidize organic matter m sewage
d) All of the above

2) The rate of accumulation of sludge in septic tanks is recommended as _____.
a) 30 liters/person/year b) 25 liters/person/year
c) 30 liters/person/month d) 25 liters/person/month

3) How is COD calculated?
a) Waste water is oxidized chemically using sodium in acid solutions
b) Waste water is oxidized chemically using dichromate in acid solutions
c) Waste water is oxidized chemically using bromine in acid solutions
d) Waste water is oxidized chemically using strontium in acid solutions

4) For a continuous flow type of sedimentation tanks _____.
a) Width of the tank is normally kept about 6 m
b) Length of the tank is normally kept 4 to 5 times the width
c) Maximum horizontal flow velocity is limited to 0.3 m/minute
d) All of the above

5) _____ is simply detaining water for a sufficient time.
a) Coagulation b) Flocculation
c) Sedimentation d) Filtration

6) Identify the correct relation between the following?
a) Dissolved solid = Total solid + Suspended solid
b) Dissolved solid = Total solid - Suspended solid
c) Total solid = Dissolved solid / Suspended solid
d) Dissolved solid = Suspended solid - Total solid

7) What are the factors affecting per capita demand?
a) Size of city
b) Size of city, habit of people
c) Cost of water, quality of water, size of city
d) all of the above

8) Which of the following is a better test to identify Coliforms?
a) Coliform index
b) Multiple tube fermentation
c) MPN test
d) Membrane filter technique

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

1) The quality of the fish habitat begins to increase when the dissolved oxygen concentration drops below 4 or 5 mg L^{-1}.
2) In surface filtration, the size of particles retained is higher than the mean pore size of the medium.
3) Oil and grease is the presence of inorganics in wastewater.
4) Fine screen are made up of fine wire or perforated metal with openings less than 1cm wide.

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

a) What are the main objectives of treating water?
b) What are the various unit operations and unit processes used in the treatment of water?
c) What are the common coagulants used in water treatment?
d) What is coagulation?
e) Define Flocculation.
f) List out disadvantages of slow rapid sand filter.
g) Describe about the term water softening.
h) What are the advantages of Zeolite process?

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

a) What is screening and types of screening?
b) Define activated sludge process with their operation including advantages and disadvantages.
c) Mention any four methods of desalination process.
d) What do you understand m oxidation pond and explain the process of oxidation and stabilization?

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

a) Explain, with the help of a flow chart, various processes involved in sludge treatment and disposal.
b) What do you understand by sludge thickening? Sketch the gravity-sludge thickener.
c) Why dewatering of sludge is necessary? Explain the methods of dewatering the sludge on sludge drying beds.

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

a) Sludge thickening

b) Mechanical flocculator

c) Working principle of rotating biological contactor (RBC) with the help of neat sketch.

d) Write note on UASB Digesters.

Seat No.	

Set P

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

Day & Date: Friday, 16-May-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. **08**

1) _____ is the example of 'geographic fields'.
   a) Air temperature b) Barometric pressure
   c) Elevation d) All of the above

2) Reflectance is known as the ratio of _____.
   a) radiant energy reflected by a substance to the energy it receives
   b) atmospheric absorption to total sun energy
   c) energy received to energy lost
   d) emitted energy to atmospheric absorption

3) What is the full form of NRSC?
   a) National Remote Sensing Centre
   b) National River Studies Centre
   c) National Rangeland Studies Centre
   d) National Reservoir Centre

4) Which of the following formats can be used for GIS output?
   a) JPEG b) PDF
   c) GIF d) All above

5) _____ is the full form of GPS.
   a) Global Positioning System
   b) Global Point System
   c) Grid level Positioning System
   d) None of the above

6) Which of the following is Indian Remote Sensing Satellite?
   a) LANDSAT b) Resourcesat
   c) QUICKBIRD d) EYESAT

7) What is metadata?
   a) It is 'data about data' b) It is 'Oceanic' data
   c) It is 'metrological' data d) It is 'Contour' data

8) Mapmakers use GIS to _____.
   a) Store geographic information
   b) View geographic information
   c) Use geographic information
   d) Store, use, View geographic information

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

1) Spatial and Spectral are types of resolution.
2) An aerial photograph in broad terms taken from any satellite based platforms.
3) Texture is an element of image interpretation.
4) Ratio and Interval are not ty pes of scales.

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

a) What is Platforms? Write any two types of Platforms.
b) Spatial data query
c) Nominal and Ordinal data
d) Ratio and Interval data
e) Concept of topology
f) Raster data query
g) Importance of Topology
h) Spatial and Non-spatial data

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

a) What is resolution? Write types of resolution.
b) Examine the Utility of Geographic information system.
c) Differentiate between Raster and Vector data.
d) Write application of GPS.

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

a) Write History of Remote Sensing.
b) Describe components of GIS.
c) Concept of Connectivity, containment and contiguity.

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

a) Describe the stages of acquisition of data in remote sensing.
b) Differentiate between push broom and whiskbroom scanners.
c) What do you mean by Electromagnetic spectrum? Describe its different regions with the help of diagram.

Seat No.	

Set P

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

Day & Date: Tuesday, 20-May-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 the correct alternatives. **08**

1) For which of the following operations is the electrostatic precipitator most widely used?
a) Removing dust
b) Removing combustion particulates
c) Removing fumes
d) Removing water vapour

2) Which kind of process is electrostatic precipitation?
a) Physiochemical process b) Biological process
c) Chemical process d) Physical process

3) Chlorofluorocarbon are non-flammable chemicals mainly used in _____.
a) Perfumes b) Refrigerators
c) Air conditioners d) All of the above

4) Which of the following serves as an indicator of atmospheric pollution?
a) Fem b) Liverworts
c) Hornworts d) epiphytic lichens

5) The quantity of DDT at each trophic level in the food chain _____.
a) Decreases b) Remains the same
c) Increases d) Changes

6) In a coal-fired power plant electrostatic precipitators are installed to control the emission of _____.
a) SO_2 b) NO_2
c) SPM d) CO

7) Which one of the following chemicals has been banned in India?
a) Acephate b) Deet
c) Metaldehyde d) DDT

8) Which of the following is an extremely potent pollutant?

a) Wastewater b) Pesticide
c) Electronic waste d) Nuclear waste

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

1) Pesticides and herbicides are the major components of chemical pollution.
2) Ozone layer is present in Troposphere.
3) Detergents contain Phosphates.
4) Cyclone collector is used to control radiation pollution.

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

a) What is Bio stimulation?
b) How Thermal pollution occurs?
c) What are the sources of air pollution?
d) Give examples of E waste.
e) Write the sources of greenhouse gas emission in soil.
f) Describe the working principle of cyclone collectors.

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

a) Write in detail about the waste minimization technologies.
b) Describe impacts of Thermal pollution on aquatic biota.
c) How agricultural waste can be treated? Explain.
d) Write a note on control of inorganic emissions through air by industries.

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

a) How wastewater can be recycled? Explain.
b) What is carbon sequestration? How trees are playing important role in this process?
c) Explain types and sources of air pollutants.

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

a) Explain in detail about Ozone layer depletion: Causes and consequences.
b) Enlighten in detail the impacts of oil pollution on marine biota.
c) Describe in detail about the physicochemical and biological properties of fresh water.

Seat No.	

Set P

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

Day & Date: Tuesday, 20-May-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 the correct alternatives. **08**

1) Which international authority is primarily responsible for the protection of the global environment?
a) G20 b) C40 cities
c) United Nations (UN) d) Basal convention

2) Which legislation in India aims to conserve biodiversity, sustain the use of its components, and provide fair and equitable sharing of benefits arising from the utilization of genetic resources?
a) The Biological Diversity Act, 2002
b) The Indian Wildlife (Protection) Act,1972
c) The National Green Tribunal Act, 2010
d) The Public Interest Litigation (PIL)

3) What is the purpose of consent applications in environmental regulations?
a) To regulate noise pollution
b) To manage hazardous waste
c) To monitor water quality
d) To ensure compliance with environmental norms

4) What does the "art of ethics" refer to in the context of human life and its environment?
a) Balancing individual interests with collective welfare
b) Promoting environmental conservation through artistic expression
c) Using ethical principles to navigate complex environmental issues
d) Preserving traditional cultural practices

5) Which ethical theory emphasizes the intrinsic value of the environment and its components?
a) Utilitarianism b) Deontology
c) Virtue ethics d) Eco-centrism

6) Which form is typically used for submitting an environment statement?
   a) Water cess form
   b) MSW application
   c) Environment statement form
   d) Hazardous waste application

7) Which act in India primarily focuses on the conservation and protection of forests?
   a) The Indian Forests Act (Revised), 1982
   b) The Indian Wildlife (Protection) Act, 1972
   c) The National Environmental Tribunal Act,1995
   d) The Public Interest Litigation (PIL)

8) Which summit is also known as Rio+10?
   a) Rio Conference
   b) Kyoto Protocol
   c) World Summit on Sustainable Development
   d) Paris Agreement Strict liability principle

B) Fill in the Blanks or Write True/ False. **04**

1) The Kyoto Protocol aims to reduce greenhouse gas emissions to mitigate climate change.
2) The Indian Forests Act (Revised), 1982, primarily deals with preventing and controlling air pollution.
3) MSW applications are used to obtain consent to manage solid waste.
4) The National Water Policy does not address water conservation and management issues.

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

a) Discuss the objectives of the Ramsar Convention.
b) Highlight Key provisions of the Indian Forest Act (Revised), 1982.
c) What do you mean by C40 Cities?
d) What is the role of the National Environmental Tribunal?
e) What are the key requirements of Bio-medical Waste Applications?
f) What is the purpose of an Environmental Status Report?
g) What type of body is the NGT?
h) What is the significance of Article 58A?

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

a) Explain the Precautionary Principle and the Polluter Pays Principle in environmental law and policy.
b) Explain the effectiveness, goals and challenges faced in the implementation of the Air Act.
c) Describe the main goals and strategies outlined in the National Forest Policy.
d) Explain in detail key Pre-Independence milestones of Indian Environmental Laws.

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

a) Analyze the role of UNDP in the protection of the global environment.
b) Evaluate the application and significance of environmental principles.
c) Elucidate the role played by the Supreme Court of India in the protection of the environment with the help of suitable case law.

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

a) Examine the regulatory requirements and procedures for obtaining consent to establish and operate.
b) Discuss the role of ethical considerations and principles in addressing global environmental challenges.
c) Explain the provisions of the Biological Diversity Act for environmental protection.

Seat No.	

Set P

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

Day & Date: Thursday, 15-May-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 the correct alternatives. **08**

1) Which of the following best describes anaerobic bacteria?
a) Bacteria that require oxygen for growth.
b) Bacteria that de not require oxygen for growth.
c) Bacteria that thrive in high-oxygen environments.
d) Bacteria that can survive in both aerobic and anaerobic conditions

2) What is the typical size range of nanoparticles?
a) 1 to 100 millimeters b) 1 to 100 micrometers
c) 1 to 100 nanometers d) 1 to 100 picometers

3) Which of the following is a characteristic of obligate anaerobic bacteria?
a) They can survive in the presence of oxygen but do not require it.
b) They require oxygen for survival
c) They are killed by exposure to oxygen
d) They can thrive in environments with low oxygen levels

4) Vaccination is based on the principle of _____.
a) Agglutination b) Phagocytosis
c) Immunological memory d) Clonal deletion

5) _____ Methods used to get immobilized enzymes.
a) Adsorption b) Encapsulation
c) Covalent bonding d) All of these

6) What is the primary by product of anaerobic respiration in bacteria?
a) Oxygen
b) Water
c) Carbon dioxide
d) Lactic acid or alcohol (depending on the organism)

7) What is the primary purpose of the Polymerase Chain Reaction (PCR)?
a) To sequence DNA
b) To amplify a specific segment of DNA
c) To transcribe DNA into RNA
d) To translate RNA into proteins

8) Direct microscopic count can be done with the aid of _____.

a) Neuberg chamber b) Anaerobic chamber
c) Mineral oil d) Olive oil

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

1) _____ is the use of living organisms, cells, or enzymes to clean up and restore the environment, typically by regarding pollutants.
2) _____ is the process of using plants to remove, degrade, or neutralize pollutants from the soil, air, or water.
3) In a bioreactor, the _____ is the microbial community responsible for breaking down organic waste in waste water treatment processes.
4) _____ is the type of bioremediation in which oxygen is added to contaminated groundwater to stimulate the growth of aerobic bacteria that degrade pollutants.

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

a) What are the examples of bio fertilizers?
b) What is the principle of PCR technique?
c) What is Bioremediation?
d) What is Phytoremediation?
e) What is the function of bioreactors in environmental biotechnology?
f) What is the difference between aerobic and anaerobic biodegradation?
g) What is the meaning of microbial genomics?
h) What is a "biosensor”?

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

a) How can nanotechnology be used water treatment?
b) How do microorganisms contribute to nutrient cycling in ecosystems?
c) What is the role of microbes in composting?
d) What are the steps of the Gram staining procedure?

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

a) What are some challenges associated with the use of nanotechnology in environmental applications?
b) What is principle and application of PCR?
c) What is the significance of sanitation in public health?
d) What is process of nitrification in soil and factors influencing it.

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

a) Herd immunity
b) RAPD (Random Amplified Polymorphic DNA)
c) GMO Safety Guidelines
d) Advance Solid waste management treatments

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: March/April - 2025
Statistical methods in Environmental Science (2328302)

Day & Date: Saturday, 17-May-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. **08**

1) The standard deviation of the following data: 4, 8, 12, 16, and 20 is _____.
a) 4 b) 5
c) 6 d) 8

2) Which software is best known for handling large datasets and complex statistical analyses?
a) Excel b) SAS
c) Canva d) MATLAB

3) Which of the following are methods under measures of dispersion?
a) Standard deviation b) Mean deviation
c) Range d) All of the above

4) Which of the following values is used as a summary measure for a sample, such as a sample mean?
a) Population parameter b) Sample parameter
c) Sample statistic d) Population mean

5) The square of standard deviation is _____.
a) Square deviation b) Mean square deviation
c) Variance d) None of the above

6) The following sampling methods, which is a probability method?
a) Judgment b) Quota
c) Simple random d) Convenience

7) The difference between a statistic and the parameter is called _____.
a) Non-random b) Probability
c) Sampling error d) Random

8) To calculate the median, all the items of a series have to be arranged in a/an?
   a) Descending order
   b) Ascending order
   c) Ascending or descending order
   d) None of the above

B) Write a true & false of following questions. **04**

1) Positive skewness indicates that the majority of data points are concentrated on the right hand side of the mean.
2) A correlation coefficient of 0 indicates a perfect positive linear relationship between two variables.
3) A relationship between Arithmetic Mean, Geometric Mean, Harmonic Mean for any given set of observation, when observations are not equal, is shown as Arithmetic Mean = Geometric Mean = Harmonic Mean.
4) Relationship between mean, median and mode is Mode = 3 Median - 2 Mean.

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

a) The mean and median of a moderately skewed distribution are 41 and 50 respectively the mode of distribution is?
b) The median value of the following data: 10, 28, 99, 66, 45, 102?
c) Write a note on secondary data with examples?
d) What is standard deviation and write its merits?
e) In random samples of 80 boats out of a total out of a total 3000 boats, the mean number of defective boats is 4.5 with a sample standard deviation 0.6 The standard error of the mean is?
f) What is standard error and write its merits?
g) Chocolates of 250 grams produced in a factory were observed to have standard deviation of 2 g. A random sample of 20 chocolates showed standard deviation 1.5 g. what is the chi- square value for the sample?
h) In one way ANOVA, explained variance was found to be 6, unexplained variance was 4.67, the F-ratio is?

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

a) Write significance of mean?
b) What is the difference between correlation and regression with their purpose?
c) Explain the Construction and Interpretation of a Histogram with an Example and Graph of given data:
The marks scored by 50 students in a test are grouped as follows.

Mark range	0-10	10-20	20-30	30-40	40-50
Frequency	5	8	12	15	10

d) Write a note on Probability and Non-probability sampling?

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

a) A class has equal number of boys and girls. The mean & standard deviation of there are Xg = 35kg, Sg = 2 kg for girls & Xb = 70 kg, Sb = 2 Kg for boys. What is the combined variance of the weights of the whole class?

b) Write a note on F- test with their characteristics? Solve the problem

Consider two normal population with variance sample drawn from the population are of 10 & 20 respectively. If two independent random samples drawn from the population are of the size 30 & 24 their variances 10 & 15 respectively the value of static F(29, 23) is?

c) Write a note on T-test with their characteristics? Solve the problem

A sample of 10 measurement of diameter of trees in a survey gives a mean of 53.8 cm and a standard deviation of 0.6 cm, given t = 2.26, the 95% confidence limit for the actual diameter is?

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

a) What are characteristics of Chi-Square test? The ratio of the male and female births is expected to be 1:1. It was found in 1 village that the male children born were 62 and female were 38. Calculate the x2 and interpret your test?

b) Write a note on hypothesis? Discuss null hypothesis and alternate hypothesis with Type I and Type II error?

c) Write a note on standard error and standard deviation? Solve problem

In city, the daily per capita inhalation values of contamination of over a period of 5 days 5.3, 5.4, 5.2, 5.4, 5.8, respectively the sample with standard deviation of the data is?

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - III) (New) (NEP CBCS)
Examination: March/April - 2025
Hydrology & Watershed Management (2328306)

Day & Date: Monday, 19-May-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. **08**

1) Which of the following is the primary factor that drives the process of the water cycle?
a) Earth's magnetic field b) The sun's energy
c) Atmospheric pressure d) Ocean currents

2) How does the process of condensation in the hydrological cycle contribute to precipitation?
a) It creates cloud formations that release water as rain or snow
b) It causes the evaporation of water from oceans
c) It reduces humidity in the atmosphere
d) It increases the rate of groundwater infiltration

3) Which of the following factors plays the most significant role in determining the water quality of a watershed?
a) Vegetation cover
b) Agricultural practices within the watershed
c) Altitude of the watershed
d) Proximity to urban areas

4) Which of the following statements about a watershed's "outlet" is correct?
a) It is the highest point in the watershed where water starts
b) It is the area where water accumulates to form lakes
c) It is the point where the watershed's water flows into a larger body of water like a river, lake, or ocean
d) It is a natural dam that regulates water flow

5) Which of the following is the most effective way to reduce erosion caused by heavy rainfall in agricultural fields?
a) Plowing the fields in straight lines
b) Installing silt fences along field borders
c) Planting cover crops like legumes or grasses
d) Burning the field after harvest

6) Which of the following is NOT a major factor influencing soil erosion?
a) Slope of the land b) Soil texture
c) Soil moisture content d) Rate of deforestation

7) The term "adaptive management" in watershed ecosystem management refers to _____.
a) Developing fixed management strategies that cannot be changed over time
b) Incorporating the latest scientific data to modify management strategies based on monitoring outcomes
c) Limiting human intervention in natural ecosystems
d) Managing watershed ecosystems without considering environmental changes

8) Which of the following is a key characteristic of a "sustainable" watershed management approach?
a) Prioritizing short-term economic gains over environmental preservation
b) Focusing only on improving water quality and ignoring habitat restoration
c) Balancing ecological health, water quality, and social needs in the long term
d) Reducing human population densities in watershed areas

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

1) _____ is the process by which water from plants is released into the atmosphere.
2) The divide separating one watershed from another is known as a _____.
3) _____ is the most effective structure for controlling gully erosion.
4) Riparian zones in watersheds are critical for maintaining _____ quality.

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

a) Name any two types of wind.
b) Concept of Front.
c) Write any two types of watershed development objective.
d) Concept of watershed budget.
e) Name any two types of erosion.
f) State names of any two soil erosion assessment model.
g) Concept of Silvi pasture.
h) Concept of afforestation.

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

a) Types of Rainfall.
b) Characteristics of watershed- geology and soil.
c) Measures to control erosion- Trenching and bunding.
d) Concept of watershed management.

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

a) Explain the factors affecting on distribution of rainfall.
b) Explain factors affecting on soil erosion.
c) Write a brief note on Small scale irrigation system.

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

a) Elaborate the components of hydrological cycle.
b) Write a brief note on Universal Soil loss equation.
c) Describe the role of NGO's in watershed development with suitable examples.

Seat No.	

Set P

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

Day & Date: Monday, 19-May-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. **08**

1) What is the primary driver of the Earth's heat budget?
a) Ocean currents b) Solar radiation
c) Geothermal heat d) Atmospheric pressure

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

3) Global energy flow patterns are influenced primarily by _____.
a) Population density
b) Renewable energy adoption
c) Availability of fossil fuels
d) Earth's latitude and weather patterns

4) The term for the analysis of how energy use impacts the environment is called _____.
a) Environmental dynamics
b) Energy auditing
c) Environmental impact assessment
d) Sustainable energy analysis

5) What is the primary component of natural gas?
a) Propane b) Methane
c) Butane d) Ethane

6) Which non-renewable resource is formed from the remains of marine organisms?
a) Coal b) Oil
c) Natural gas d) Oil shale

7) Which renewable energy source utilizes heat from beneath the Earth’s surface?
a) Solar energy b) Wind energy
c) Biomass energy d) Geothermal energy

8) Which of the following is an example of a solar energy system?
a) Hydroelectric dam
b) Compressed natural gas station
c) Photovoltaic panel
d) Coal gasification plant

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

1) The _____ of the earth refers to the balance between incoming solar radiation and outgoing terrestrial radiation.
2) The flow of energy in ecosystems begins with _____ energy.
3) Global energy demand is influenced by factors such as population growth, industrialization, and _____.
4) Energy demand in the _____ sector is primarily for lighting, heating, and appliances.

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

a) Define global energy' flow pattern?
b) Energy demand and usage in agriculture sector?
c) Local and global impacts of energy use?
d) Define exploration of Natural gas?
e) Define Biomass energy?
f) Define tidal energy and ocean currents?
g) Give in short energy conservation and management scales?
h) Renewable energy potential in India?

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

a) Write a short note on CO_2 emissions in developed vs. developing countries?
b) Explain the Hydrogen as a future energy source?
c) Write brief on Environmental impacts of fossil fuel consumption?
d) Describe the Energy demand in the transportation sector?

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

a) Describe the heat budget of the Earth and its components?
b) How does energy demand differ across the domestic, industrial, agricultural, and transportation sectors?
c) How is hydroelectric power generated, and what are its environmental implications?

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

a) Compare and contrast renewable and non-renewable energy resources in terms of availability, efficiency and environmental impacts?
b) Illustrate the interrelationship between. energy use and environmental degradation?
c) What are the various forms of energy, and why are they significant in the context of the Earth's ecosystem?

Seat No.	

Set P

M.Sc. (Environmental Science) (Semester - III) (Old) (CBCS) Examination: March/April - 2025
Environmental Pollution, Monitoring and Control (MSC020301)

Day & Date: Thursday, 15-May-2025 Max. Marks: 80
Time: 11:00 AM To 02:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figure to right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **10**

1) Air pollution increases the risk of and heart disease in the population.
a) Respiratory b) Tumor
c) Skin disease d) None of above

2) Which of the following is responsible for turning yellow Taj Mahal?
a) Nitrogen dioxide b) Sulphur
c) Chlorine d) Sulphur dioxide

3) At what temperature the bottles for the BOD test are incubated?
a) 25 degrees Celsius b) 20 degrees Celsius
c) 35 degrees Celsius d) 30 degrees Celsius

4) Identify the correct relation between the following?
a) Dissolved solid = Total solid + Suspended solid
b) Dissolved solid = Total solid - Suspended solid
c) Total solid = Dissolved solid / Suspended solid
d) Dissolved solid = Suspended solid - Total solid

5) What is the size range of atmospheric particulate matter?
a) 0.1 - 10 microns b) 0.1 - 1 micron
c) 1 - 10 microns d) 10-100 microns

6) Formation of London smog takes place in _____.
a) winter during day time
b) summer during day time
c) summer during morning time
d) winter during morning time

7) Brewery and sugar factory waste alter the quality of a water body by increasing _____.
a) temperature b) turbidity
c) pH d) COD and BOD

8) In a coal-fired power plant electrostatic precipitators are installed to control the emission of _____.

a) SO_2 b) NO_2
c) SPM d) CO

9) DDT is a major contributor to Pollution because of _____.

a) It kills useful microorganisms
b) It destroys valuable species of worms
c) It is nonbiodegradable
d) It interferes with pesticides

10) How are PAHs related to Soil Pollution?

a) They are carcinogenic organic compounds
b) They are fertilizer wastes
c) They are inorganic wastes from industries
d) They are harmful metals that pollute the soil

B) Write true/false. **06**

1) Biological life present in troposphere.
2) Oil and grease trap is preliminary waste water treatment.
3) Landfilling is common practice in solid waste disposal.
4) Phyto filtration is effective ecological restoration process.
5) Mangroves are protective habitat for coastal biodiversity.
6) National Environmental policy established in 2010.

Q.2 Answer the following. **16**

a) Explain the Gaussian model of air pollutant dispersion.
b) What is working principle of wet Scrubber?
c) What are the advance methods used in solid waste management?
d) What are the sources and effect of indoor air pollution?

Q.3 Answer the following.

a) What is ground water restoration? Explain the strategies used for groundwater bioremediation? **08**
b) What is radio activity? Describe Half-life period. **08**

Q.4 Answer the following.

a) What is hazardous waste? How organic toxic substances are disposed with advanced scientific methods. **08**
b) Define oil spills. Explain the role of surfactant in remediation of oil spill site. **08**

Q.5 Answer the following.

a) Explain the importance of metrological parameters in dispersion of air pollutants in atmosphere. **08**
b) Write working principle, advantages & disadvantages with labeled diagram of RBC in waste water. **08**

Q.6 Answer the following.

a) Explain the thermal pollution effect on aquatic ecosystem. **08**

b) What are the methods used for municipal solid waste? Add note on biomethanation. **08**

Q.7 Answer the following.

a) Explain in detail the bioleaching, bioaccumulation and bioaugmentation process. **08**

b) What are chemical dispersant? How they are applied in remediation of Marine pollution? **08**

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - III) (Old) (CBCS) Examination: March/April - 2025
Environmental Microbiology, Biotechnology & Nanotechnology (MSC020302)

Day & Date: Saturday, 17-May-2025 Max. Marks: 80
Time: 11:00 AM To 02:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figure to right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **10**

1) The conversion of N_2 to NH_3 is _____.
a) Nitrogen fixation b) Nitrogen fixation
c) Denitrification d) Nitrogen reduction

2) A process using microbes to convert toxic waste into non-toxic or less toxic compound is called as _____.
a) Precipitation b) Bioremediation
c) complement fixation d) agglutination

3) Bioaugmentation involves _____.
a) addition of microbes to cleanup site
b) removal of microbes to clean site
c) plant usage for bioremediation
d) none of these

4) On which basis the bacteria are classified?
a) Cell well b) Pigments
c) Nucleus d) methods of reproduction

5) Golden rice is a transgenic crop of the future with the following improved trait _____.
a) High vitamin A content b) High lysine content
c) High protein content d) Insect resistance

6) Which organisms are used as components of biofertilizers?
a) Blue green algae only
b) Coliform bacteria & mushrooms
c) N-fixing bacteria only
d) Blue green algae & N-fixing bacteria

7) In relation to the bacterium's optimal growth requirements which group would you except to be most likely involved in decomposition of compost piles?

a) Acidophilic b) Halophilic
c) Thermophilic d) Psychrophilic

8) A dense bacterial population caught in a tangled web of fibers sticking to a surface describes _____.

a) a biofilm
b) Coagulation
c) the membrane filter technique
d) bio-disc

9) Drinking water testing relies on the detection on of certain indicator organisms known as _____.

a) Coliforms b) acid -fast bacteria
c) Dinoflagellates d) Bacteroids

10) Activated sludge treatment process involves microbes in the growth phase of _____.

a) Lag phase b) Stationary phase
c) Death phase d) Log phase

B) Write True / False. **06**

1) Biofilm is the filtering medium of trickling filters is located with microbial flora. True / False
2) Lichens are useful biological indicator of Sulphur dioxide pollution. True / False
3) Pasteurization is the concept of putting microbes to help clean up the environment. True / False
4) *E. Coli and Agrobacterium* found to be useful in genetic engineering experiments. True / False
5) Bioleaching is a competitive and sustainable alternative for environment. True / False
6) *Escherichia Coli* bacterium is used in the production of insulin by genetic engineering. True / False

Q.2 Answer the following. **16**

a) Explain in short morphological and ultrastructure of microbial cell?
b) Write a note on microbial growth characters?
c) Explain blotting techniques?
d) Explain in short culture media?

Q.3 Answer the following.

a) What is microbe? Explain factors affecting microbial growth and microbial adaptations to extreme environments? **08**
b) What is mean by media? Explain component of media and distinguish between natural and synthetic media? **08**

Q.4 Answer the following.

a) What is microbial disease ecology? Explain transmission pathways of microbial dieses in the environment? **08**

b) What is Nano-technology? Explain green nano - technology and its applications? **08**

Q.5 Answer the following.

a) Elaborate the concepts GMO and GEM and how they use in modem food production? **08**

b) Define Environmental Biotechnology? Discuss in detail hydrocarbon degradation and biofuel production? **08**

Q.6 Answer the following.

a) What do you mean phytoremediation? Explain process and uses of phytoremediation in water and wastewater treatment? **08**

b) What is nano-remediation? Explain use of nano particles for environmental remediation? **08**

Q.7 Answer the following.

a) What is PCR? Give its types, principle, neat labeled diagram, working and applications? **08**

b) Detail notes on Prokaryotes and Eukaryotes with neat and labelled diagram? **08**

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - III) (Old) (CBCS) Examination: March/April - 2025
Statistical Methods in Earth & Environmental Science (MSC020306)

Day & Date: Monday, 19-May-2025 Max. Marks: 80
Time: 11:00 AM To 02:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figures to the right indicate full marks.
4) Scientific calculator is allowed for calculations.

Q.1 A) Choose correct alternative. **10**

1) Any hypothesis which is tested for the purpose of rejection under the assumption that it is true is called _____.
a) Null hypothesis b) Statistical hypothesis
c) Alternative hypothesis d) Composite hypothesis

2) Median height can be easily identified from _____.
a) Bar diagram b) Pie diagram
c) Ogive d) line diagram

3) Which method of analysis does not classify variables as dependent or independent?
a) Regression analysis b) Analysis of variance
c) Discriminant analysis d) Cluster analysis

4) Which of the following values could not represent a correlation coefficient?
a) r = 0.99 b) r = - 0.73
c) r = 1.09 d) r = - 1.0

5) The mean of five numbers is 30. If one number is excluded, their mean become 28. What is the excluded number?
a) 35 b) 33
c) 38 d) 36

6) Which of the following diagram can not be drawn from quantitative data?
a) Flow chart b) Scatter diagram
c) Pie chart d) Histogram

7) Mode is the _____.
- a) Middle most frequent value
- b) Maximum frequent value
- c) Least frequent value
- d) None of these

8) If the variance of 15 observations is 4. If each observation is increased by 9, the variance of resulting observation is _____.
- a) 4
- b) 5
- c) 2
- d) 3

9) Variance of a constant 'X' is _____.
- a) 0
- b) x/2
- c) x
- d) 1

10) Find the median of the given set of numbers 2, 6, 6, 8, 4, 2, 7, 9.
- a) 6
- b) 8
- c) 5
- d) 4

B) Fill in the blanks OR Write True / False. **06**

1) Hypothesis is an idea or assumption or concept that can be tested by experimentation.
2) Correlation coefficient tends to lie between -1 to +1.
3) Probability is measure of the relative chance of occurrence of an event from among a set of alternatives.
4) Median is measure of central tendency representing the average of a data set.
5) The analysis of variance is mainly carried in two ways.
6) Paired 't' test is applied to paired data of independent observation from one sample only when each individual gives a pair of observation.

Q.2 Answer the following. **16**

a) What is cluster analysis?
b) Write merits and demerits of mode.
c) Explain methods of sampling.
d) Explain scatter diagram methodology.

Q.3 Answer the following.

a) Explain sampling and non-sampling errors. **08**
b) Explain types of mean and write its advantages and disadvantages. **08**

Q.4 Answer the following.

a) Write down difference between arithmetic mean and geometric mean. **08**
And calculate harmonic mean of following data.

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	6	12	14	16	8	8	4

b) Write note on probability and discuss terms related to probability. **08**

Q.5 Answer the following.

a) Write detailed note on tabular presentation. **08**

b) Define and explain central tendency. Find the mean of given grouped data. **08**

Class Interval	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	13	05	15	06	20	09	04

Q.6 Answer the following.

a) Explain in detail t-test, f-test, and z- test of hypothesis. **08**

b) Discuss various data collection methods. **08**

Q.7 Answer the following.

a) What is hypothesis? Discuss its types of testing. **08**

b) Write detailed note on pie chart. Draw a pie chart using following data. **08**

Subject	Marathi	Hindi	English	Math	Science	Social Sci.
Marks	99	98	70	60	77	58

Seat No.	

Set **P**

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

Day & Date: Wednesday, 14-May-2025 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

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

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

1) What is Virology?
   a) Virology is the study of bacteria
   b) Virology is the study of viruses
   c) Virology is the study of fungi
   d) Virology is the study of algae

2) The phrase that best defines "toxicodynamic" is the _____
   a) linkage between exposure and dose
   b) linkage between dose and response
   c) dynamic nature of toxic effects among various species
   d) loss of dynamic hearing range due to a toxic exposure

3) The most rapid exposure to a chemical would occur through which of the following routes ____.
   a) oral b) subcutaneous
   c) inhalation d) intramuscular

4) What is the primary purpose of a biological safety cabinet (BSC)?
   a) To provide lighting for the laboratory
   b) To maintain a sterile environment
   c) To regulate temperature and humidity
   d) To store chemicals safely

5) Which of the following organelle prevents the entry of viruses in plant cells?
   a) Cell wall b) Golgi bodies
   c) Plasma membrane d) Mitochondria

6) Which BSL level is used for work with microorganisms that are not known to consistently cause disease in healthy adults?
   a) BSL-1 b) BSL-2
   c) BSL-3 d) BSL-4

7) What is the term for the concentration of a substance that is lethal to 50% of the exposed population with a specified time?
a) Lethal dose (LD50)
b) Toxic threshold
c) PEL (permissible exposure limit)
d) TLV (Threshold Limit Value)

8) Which of the following is an example of a carcinogenic substance often encountered in industrial settings?
a) Water
b) Asbestos
c) Vitamin C
d) Table salt (Sodium Chloride)

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

a) ____ is a lipid containing membrane that surrounds some virus particles.
b) A ____ is something that can cause birth defects or abnormalities in a developing embryo or fetus upon exposure.
c) A ____ is a chemical substance found within an organism that is not naturally produced or expected to be present within the organism.
d) ____ was commonly used for disinfection in pass boxes, BSCs and PCR stations.

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

a) Write note on Containment.
b) Define viruses.
c) What is meant by toxicokinetics.
d) Write note on Icosahedral symmetry in viruses.
e) Define Biomagnification.
f) Define Toxicology.
g) Write note on Chronic toxicity.
h) Explain how does someone get heaty metal poisoning.

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

a) Explain In vitro toxicity testing.
b) Write symmetry in viruses.
c) Write minimum requirement for the virology laboratory.
d) What is synergistic effect.

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

a) Explain steps of viral replication.
b) Write classification of toxic materials.
c) Write Toxicants Effects on cellular, organism and ecosystem level.

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

a) Write Good Microbiological Practices.
b) Write general principles Care and Management of Laboratory Animals.
c) Explain Industrial toxicants and hazardous material with examples.

SLR-ZI-22

Seat No.	

Set P

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

Day & Date: Friday, 16-May-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 the correct alternative. **08**

1) 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

2) 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

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

4) BEES in EIA stands for:
a) Best Environmental Evaluation System
b) Basic Environmental Examination System
c) Batelle's Environmental Evaluation System
d) Biodiversity Evaluation and Ecosystem Study

5) A reversible impact is one that:
a) Can be completely undone after project closure
b) Cannot be restored
c) Has positive economic benefits
d) Happens during public consultation

6) 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

7) Which of the following is a major case study example used for EIA?
   a) Land clearing projects
   b) Software development projects
   c) Book publishing projects
   d) Classroom renovation

8) A Green Audit primarily focuses on:
   a) Financial transactions
   b) Biodiversity and green practices on campus/industry
   c) Political campaigns
   d) Marketing practices

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

1) The EIA Notification in India was first issued in the year _____.
2) The _____ portal provides online access to project clearance status at the national level.
3) An impact that can be reversed after project operations stop is known as an _____ impact.
4) _____data refers to information collected before a project is implemented to assess impacts.

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

a) What is EIS?
b) Define Environmental Audit.
c) What is Life Cycle Assessment (LCA)?
d) What is Eco-labelling?
e) State any two major limitations of EIA.
f) What is meant by 'impact' in EIA?
g) Differentiate between Primary' and Secondary impacts?
h) What is the purpose of Cost-Benefit Analysis in EIA?

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

a) Define EIA and describe the objectives, goals of EIA.
b) What are Green and Energy Audits?
c) Explain the role and importance of Public Participation in EIA.
d) Write a short note on ISO 14000 Standards.

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

a) What is Environmental Audit and explain its objectives?
b) Discuss the evolution of EIA and its importance in environmental governance.
c) Describe the procedure for environmental clearance and the role of NABET in project accreditation.

Q.5 Answer the following question (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) Elaborate on the prediction and assessment of impacts on natural resources such as biota, air, water, and noise in the EIA process.

c) Describe the process and importance of pre- and post-environmental audits. How do these audits contribute to the continuous improvement of environmental practices?

Seat No.	

Set **P**

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

Day & Date: Tuesday, 20-05-2025 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All Questions are compulsory.
3) Figures to the right indicates full marks.

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

1) The major source of fresh water in India is.
   a) rainfall b) ground water
   c) atmospheric water d) ocean water

2) Which of the following is not a fossil fuel?
   a) Coal b) Natural gas
   c) Petroleum d) Uranium

3) This is an example of non-polluting renewable type of energy.
   a) tidal b) wind
   c) solar d) all of these

4) Which one represents the regulative function of forests?
   a) Storage and release of gases
   b) Production of essential oils
   c) Production of wood
   d) Conservation of water and soil

5) Which natural resource is needed for electrical equipment?
   a) Gold b) Bauxite ore
   c) Copper d) None of these

6) The study of soil is called _____.
   a) geomorphology b) pedology
   c) hydrology d) biogeography

7) What is the full form of CAZRI?
   a) Central Agricultural Zone Research Institute
   b) Central Arid Zone Research Institute
   c) Centre for Arid Zone Resource Investigation
   d) Central Authority for Zonal Resource Integration

8) What was the primary objective of the Gandhamardan movement?
   a) To promote urban development in the region
   b) To save nature, religious places, and local livelihoods dependent on natural resource
   c) To extract minerals for industrial use
   d) To build tourist resorts in the Gandhamardan hills

B) Write True/False **04**

1) Case studies help in understanding the effect of using natural resources.
2) Mulching helps to retain soil moisture & prevent erosion.
3) Terracing increases soil erosion in mountain area.
4) The ecological foot print measures the amount of natural resources consumed by a person or population.

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

a) Define types of natural resources.
b) What is environmental effects of mineral extraction?
c) Define sustainability.
d) What is Resource scarcity?
e) Define biomass energy.
f) What is In-exhaustible resource with an example?
g) What is rare earth minerals with an example?
h) What is sustainable management of natural resources?

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

a) Describe shifting cultivation?
b) Define mineral & their types? Describe the importance of mineral resources.
c) What are the causes & effects of deforestation?
d) Describe In-situ & ex-situ conservation?

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

a) Describe any real world case study highlighting mineral resources exploitation & its effects?
b) Compare & contrast the ecological, economic & ethnological approaches to resource management?
c) Discuss the status & distribution of forests in India & impacts of deforestation.

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

a) Write an account of how natural resources influence the ecological balance of area?
b) Explain integrated resource management strategies.
c) Explain wasteland or problem soil. Discuss various causes of soil degradation & it's impact on the environment?

SLR-ZI-25

Seat No.

Set P

M.Sc. (Environmental Science) (Semester - IV) (New) (NEP CBCS)
Examination: March/April - 2025
Ecotourism (2328407)

Day & Date: Tuesday, 20-May-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 the correct alternatives from the options. 08

1) Which of the following is not one of the characteristics of tourism?
   a) Intangibility b) Heterogeneity
   c) Separability d) Perishability

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

3) Which of the following is an element of tourism?
   a) Ecosystem process b) Tourist destination
   c) Agriculture d) None of the above

4) Which of the following is not a type of ecotourism?
   a) Mangrove tourism b) Wildlife tourism
   c) Industrial tourism d) Wetland tourism

5) Agrotourism involves ____.
   a) Visiting factories
   b) Urban sightseeing
   c) Participating in rural farming activities
   d) Beach sport

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

7) Eco-development refers to:
   a) Industrial expansion
   b) Nature-based sustainable development
   c) Mining policies
   d) Urbanization

8) The term LAC refers to ____.
   a) Least Affected Communities b) Limits of Acceptable Change
   c) Legal Allocation Committee d) None of the above

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

1) Ecotourism management involves sustainability.
   a) True
   b) False
2) Eco-labels help identify environmentally responsible tourism services
   a) True
   b) False
3) Climate does not affect tourism destinations
   a) True
   b) False
4) Ecotourism development in Maharashtra faces both opportunities and challenges
   a) True
   b) False

Q.2 Answer the questions in brief. (Any Six) **12**

1) Mention any two motivations for travel.
2) State any two recent trends in ecotourism.
3) Write any two aims of ecotourism.
4) Define agrotourism.
5) State any two potentials for ecotourism in India.
6) State any two objectives of the World Ecotourism Summit.
7) Define ecological footprint analysis.
8) What is meant by “perishability” in tourism.

Q.3 Write Short Answers: (Any Three) **12**

1) Write a note on the evolution of ecotourism.
2) Describe the elements of tourism.
3) Explain the role of ecotourism management.
4) What are the constraints for promoting ecotourism in India.

Q.4 Attempt the following: (Any Two) **12**

1) Write a note on visitor activity and impact management (VAM & VIM).
2) Elaborate on mountain and wetland tourism in India with examples
3) Explain the interrelationship between tourism and ecosystem goods & services.

Q.5 Attempt the following: (Any Two) **12**

1) Explain destination management concerning festivals and seasonality.

2) Present a case study of ecotourism in a hill station with suggestions for improvement.

3) Explain the interaction between electromagnetic radiation and the Earth's surface features.

Seat No.	

Set **P**

M.Sc. (Environmental Science) (Semester - IV) (Old) (CBCS) Examination: March/April - 2025
Environmental Virology, Toxicology and Bio-safety (MSC020401)

Day & Date: Wednesday, 14-May-2025 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figure to right indicate full marks.

Q.1 A) Choose correct alternative. (MCQ) **10**

1) What is the term for the study of the effects of pollutants on ecosystems?
a) Environmental chemistry b) Ecotoxicology
c) Environmental physics d) Biodegradation

2) Which of the following is a characteristic of a carcinogen?
a) It can cause birth defects
b) It can irritate the skin
c) It can cause cancer
d) It can break down into simpler compounds

3) What is the purpose of a dose-response relationship in toxicology?
a) To determine the chemical structure of a toxin.
b) To understand the relationship between exposure level and toxic effects
c) To identify the source of a pollutant.
d) To develop a vaccine against a virus

4) What is the difference between acute toxicity and chronic toxicity?
a) Acute toxicity affects multiple generations, while chronic toxicity affects only the exposed organism.
b) Acute toxicity has a delayed effect, while chronic toxicity has an immediate effect.
c) Acute toxicity affects plants only, while chronic toxicity affects animals only.
d) Acute toxicity is more severe than chronic toxicity.

5) What is the difference between aseptic technique and sterilization?
a) Aseptic technique prevents contamination, while sterilization eliminates all microorganisms
b) Sterilization uses chemicals, while aseptic technique uses heat.
c) Aseptic technique is for liquids, while sterilization is for solids.
d) There is no difference; they are synonymous terms

6) Waterborne diseases can be caused by _____.
a) Bacteria only
b) Viruses only
c) Parasites only
d) All of the above

7) X-ray radiation is an example of which type of environmental contaminant?
a) Biological
b) Chemical
c) Physical
d) None of the above

8) When conducting environmental sampling for viruses, what is a critical factor to consider?
a) Sampling during daylight hours only
b) Using sterile collection containers
c) Prioritizing aesthetically pleasing sampling locations
d) Wearing comfortable clothing for field work

9) What is the role of epidemiological studies in understanding environmental health issues?
a) To develop new drugs for treating diseases
b) To identify patterns of disease occurrence in a population
c) To test the safety and efficacy of vaccines
d) To conduct environmental clean-up projects

10) What is the primary route of transmission for the Human Immunodeficiency Virus (HIV)?
a) Airborne transmission
b) Contaminated food or water
c) Sexual contact and bloodborne transmission
d) Insect bite

B) Write true/false. **06**

1) Bioremediation is a technique that uses living organisms to break down pollutants.
2) A zoonotic disease can only be transmitted between humans.
3) Biodegradation refers to the breakdown of organic matter by living organisms, while bioremediation targets specific contaminants.
4) Aseptic technique involves using sterile equipment and materials to prevent Contamination.
5) BSL-4 (Bio-safety Level 4) laboratories provide the lowest level of biocontainment.
6) Disinfectants can be used on living tissue, while antiseptics are used on inanimate objects.

Q.2 Answer the following. **16**

a) Explain the Principles of virology.
b) What is Classification of toxic material?
c) Write note on Acute toxicity.
d) Explain Classification of pathogens based on risk.

Q.3 Answer the following.

a) Biotransformation - Describe in detail **08**

b) What is the principle of toxicity testing? **08**

Q.4 Answer the following.

a) Write detail note on GCP. **08**

b) Write about Infrastructure Principles of biosafety. **08**

Q.5 Answer the following.

a) Describe Physiological and metabolic effects of toxicants. **08**

b) Describe Toxicant Effects with reference to population effects. **08**

Q.6 Answer the following.

a) Explain about tissue-based toxicity testing method. **08**

b) What is code of safe laboratory practices? Explain. **08**

Q.7 Answer the following.

a) Explain viruses of veterinary importance. **08**

b) Write note on NOEC. **08**

Seat No.	

Set | P

M.Sc. (Environmental Science) (Semester - IV) (Old) (CBCS) Examination: March/April - 2025
Environmental policy, Acts, and Environmental Management System (MSC020402)

Day & Date: Friday, 16-May-2025 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figure to right indicate full marks.

Q.1 A) Choose correct alternative among the following. **10**

1) Which environmental movement in India is associated with the practice of tree-hugging to prevent deforestation?
   a) Sacred groves b) Bishnoi tradition
   c) Chipko movement d) Tehri dam protest

2) Which international agreement aims to regulate the international trade of hazardous chemicals and pesticides?
   a) Montreal Protocol b) Ramsar Convention
   c) Kyoto Protocol d) Rotterdam Convention

3) Which policy document outlines the objectives and future directions for environmental protection in India?
   a) National Water Policy b) National Forest Policy
   c) Environment action plan d) Policy statement

4) Which organization is primarily responsible for coordinating global environmental initiatives and treaties?
   a) International Union for Conservation of Nature and Natural Resources (IUCN)
   b) UN Environmental Programmers (UNEP)
   c) World Wide Fund for Nature (WWF)
   d) National Green Tribunal

5) What is the primary role of the National Green Tribunal in India?
   a) Enforcing international environmental treaties
   b) Resolving disputes related to environmental issues
   c) Advising the government on wildlife conservation
   d) Implementing population control measures

6) Which governmental body is responsible for enforcing the Wildlife Protection Act in India?
   a) Ministry of Environment, Forest and Climate Change
   b) Ministry of Wildlife Protection
   c) Ministry of Agriculture and Farmers' Welfare
   d) Ministry of Home affairs

7) Which tool is used to systematically collect and analyse data related to environmental parameters?
   a) Environmental Modelling and GIS
   b) Ethics, Surveys and Environment
   c) Environmental Monitoring
   d) Principles of Environmental Management

8) Which principle suggests that those responsible for pollution should bear the costs to reduce or eliminate?
   a) Intergenerational Equity
   b) Precautionary Principle
   c) Polluter Pays Principle
   d) Public Trust Doctrine

9) Which tool is utilized for mapping and analysing environmental data, for spatial analysis and decision-making?
   a) Principles of Environmental Management
   b) Application of Remote Sensing and GIS
   c) Environmental Monitoring
   d) Ethics and Environment

10) Which of the following is NOT a provision of The Environment (Protection) Act, 1986?
   a) Setting environmental standards
   b) Regulating hazardous substances
   c) Protecting wildlife habitats
   d) Promoting sustainable development

B) Fill in the blanks. **06**

1) _____ Act, regulates diversion of forest land for non-forest purposes.
2) The Environment (Protection) Act, 1986, provides the framework for environmental _____.
3) _____ Act, provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accidents.
4) The Wildlife (Protection) Act, 1972, aims to protect _____.
5) Biodiversity Act, 2002, aims to conserve biological diversity, sustainable use of its components, and _____ arising from the use.
6) Environmental Management involves monitoring and modelling environmental parameters to assess and mitigate _____.

Q.2 Answer the following. **16**

a) Evaluate effectiveness of the Factories Act in regulating industrial activities to prevent pollution and ensure worker safety.

b) Discuss provisions of the Water (Prevention and Control of Pollution) Act, 1974, and its role in addressing water pollution in India.

c) Explain the objectives and provisions of the Environment (Protection) Act, 1986.

d) Discuss the principles of environmental management.

Q.3 Answer the following.

a) Explain the power of Indian Parliament to legislate environmental laws, for addressing emerging environmental challenges and promoting sustainable development. **08**

b) Evaluate the selected international environmental treaties & conventions and their contribution in global environmental governance. **08**

Q.4 Answer the following.

a) Evaluate the contributions of the IUCN, UNEP and WWF in biodiversity conservation and environmental protection. **08**

b) Discuss the significance of the Rio Conference (Earth Summit) held in 1992. How did this conference contribute to shape global environmental policies? **08**

Q.5 Answer the following.

a) Discuss the objectives and key provision of Air Prevention and Control of Pollution) Act, 1981. **08**

b) Elaborate on the salient features of Wildlife (Protection) Act, 1972 and Biological Diversity Act, 2002. **08**

Q.6 Answer the following.

a) Critically discuss the scope of environmental management, outlining its multidisciplinary nature and range of assessments involved. **08**

b) Discuss the applications of remote sensing and GIS in environmental management. **08**

Q.7 Answer the following.

a) Evaluate the significance of various international environmental treaties and conventions in shaping global environmental governance. **08**

b) Elaborate on Chipko movement and the Save Silent Valley Movement in relation with objectives, strategies and outcomes. **08**

Seat No.	

Set | P

M.Sc. (Environmental Science) (Semester - IV) (New/Old) (CBCS)
Examination: March/April - 2025
Environmental Impact Assessment and Environmental Audit
(MSC020403)

Day & Date: Tuesday, 20-May-2025 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) Q. Nos. 1 and 2 are compulsory.
2) Attempt any three questions from Q. No. 3 to Q. No. 7.
3) Figure to right indicate full marks.

Q.1 A) Choose correct alternative. **10**

1) Draft EIA report prepared for the purpose of _____.
a) Public Consultation or in accordance with the directions of the Regulatory Authority
b) Environmental Understanding
c) Public Awareness
d) Study of Ecosystem

2) Following is one of the type of impacts _____.
a) Reversible b) Good
c) Bad d) Excellent

3) CEZs means _____.
a) Central Ecological Zones b) Coastal Economic Zones
c) Coastal Ecological Zones d) Central Economic Zones

4) ISO 14001 is the international standard that specifies requirements for an effective _____.
a) Economics Management System
b) Environmental Management System
c) Environmental Management Study
d) Environmental Pollution

5) Which among the following is correct as to Environmental Audit _____.
a) Environmental audit is different from the audit approach practiced
b) The criteria is based on local, national standards but not on global standards
c) It is a systematic process of obtaining and evaluating information about environmental aspects
d) It is very complicated process

6) Scrutiny of the application in prescribed form(s) and all documents including final EIA report, outcome of the public consultations by the Appraisal Committee for grant of Prior Environment Clearance is known as _____.

a) Appraisal
b) Baseline Data
c) Scoping
d) Screening

7) Screening in EIA is _____.

a) The project plan is screened for scale of investment, location and type of development and if the project needs statutory clearance.
b) It is not required in EIA
c) It is separation of Industries
d) Screening is necessary in selecting audit team

8) BLD stands for _____.

a) Baseline Date
b) Base Listing Data
c) Baseline Data
d) Baseline Danger

9) The agency that has laid down the standards for the control of pollution of air, water and noise is _____.

a) Central Pollution Control Tribunal
b) Central pollution Control Agency
c) Ministry of Home Affairs
d) Central Pollution Control Board

10) EIA is necessary because?

a) Development is bad for the environment
b) There is growing interest in sustainability
c) Environmental impacts of developments are of public interest
d) None of the above

B) Write true/false. **06**

1) EIA is an important management tool for ensuring optimal use of natural resources for sustainable development. (TRUE / FALSE)
2) Full form of EIA is Environmental Important Assessment. (TRUE / FALSE)
3) Prediction include determination of nature and magnitude of impact. (TRUE / FALSE)
4) EIA is study of probable change in socio-economic and biophysical characteristics of environment due to proposed action. (TRUE FALSE)
5) Prediction of impact is economic. (TRUE / FALSE)
6) EIA is a tool which helps to evaluate environmental impact of proposed developmental projects and programs. (TRUE / FALSE)

Q.2 Answer the following. **16**

a) What is NABET?
b) What is EIS and EIA?
c) Write importance of developmental projects for EIA?
d) What is public participation?

Q.3 Answer the following.

a) What is environmental audit? Write its scope, applicability and objectives? **08**
b) Explain in detail environmental setting and components of EIA? **08**

Q.4 Answer the following.

a) Explain EMP and environmental monitoring? Write key features of EMP? **08**
b) What is baseline data? Explain procedures of collection of baseline data? **08**

Q.5 Answer the following.

a) Explain NEPA 1969? Give its important outcomes of NEPA? **08**
b) Explain how to prepare and write EIA report for irrigation projects? **08**

Q.6 Answer the following.

a) What do you mean by impacts? Explain types of impacts in the EIA process? **08**
b) Explain is ISO and IS014001? Give its importance? **08**

Q.7 Answer the following.

a) How matrices method is useful in the EIA process'? Give any one example of impact identification? **08**
b) Explain procedure to review report of Environmental Impact assessment? **08**