

CUET 2024 Environmental Studies Question Paper (Set-B) with Solutions

Question 1. Match List-I with List-II:

List-I (Author)	List-II (Book/Poem)
(A) Gary Snyder	(I) Mountains and Rivers Without End
(B) Wendell Berry	(II) The Closing Circle
(C) Rachel Carson	(III) Silent Spring
(D) Barry Commoner	(IV) A Place on Earth

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
(2) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)
(3) (A) - (II), (B) - (IV), (C) - (III), (D) - (I)
(4) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

Correct Answer: (2) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)

Solution:

The correct matches are as follows:

- (A) Gary Snyder - (I) Mountains and Rivers Without End
(B) Wendell Berry - (IV) A Place on Earth
(C) Rachel Carson - (III) Silent Spring
(D) Barry Commoner - (II) The Closing Circle

Quick Tip

Rachel Carson's book "Silent Spring" was pivotal in launching the environmental movement.

Question 2. Match List-I with List-II:

List-I (Concept)	List-II (Proposed by)
(A) Ecology	(I) Norman Myers
(B) Ecosystem	(II) Ernst Haeckel
(C) Human population growth	(III) Sir Arthur Tansley
(D) Hot spots	(IV) T R Malthus

Choose the correct answer from the options given below:

- (1) (A) - (I), (B) - (IV), (C) - (II), (D) - (III)
(2) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

(3) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

(4) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)

Correct Answer: (3) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Solution:

The correct matches are as follows:

(A) Ecology - (II) Ernst Haeckel

(B) Ecosystem - (III) Sir Arthur Tansley

(C) Human population growth - (IV) T R Malthus

(D) Hot spots - (I) Norman Myers

Quick Tip

The concept of "Hot Spots" was introduced by Norman Myers to identify regions with a high level of endemic species under threat.

Question 3. The ecological thought, which believes in saving the forests as trees give oxygen, better rainfall and air quality and not saving the environment for its true innate values, dominantly belongs to:

(1) Deep ecology

(2) Social ecology

(3) Eco-feminism

(4) Shallow ecology

Correct Answer: (1) Deep ecology

Solution:

Deep ecology advocates for valuing nature for its intrinsic worth rather than its utility to humans.

Quick Tip

Deep ecology is a philosophy that emphasizes the interconnectedness of all life forms and the intrinsic value of ecosystems.

Question 4. Which of the following is *not* a major goal of WWF?

(1) To conserve world biological diversity

(2) Sustainable use of renewable natural resources

(3) Reduction of pollution and wasteful consumption

(4) Creating worldwide fund for education

Correct Answer: (4) Creating worldwide fund for education

Solution:

WWF focuses on conserving biological diversity, sustainable resource use, and reducing pollution. Education funding is not its goal.

Quick Tip

WWF (World Wide Fund for Nature) was established in 1961 and is one of the largest environmental conservation organizations.

Question 5. The first Earth Day was celebrated on:

- (1) 20 April, 1970
- (2) 22 April, 1970
- (3) 05 June, 1970
- (4) 20 April, 1972

Correct Answer: (2) 22 April, 1970

Solution:

Earth Day was first celebrated on 22 April, 1970, to promote environmental awareness and protection.

Quick Tip

Earth Day is now celebrated annually in over 190 countries, emphasizing environmental activism.

Question 6. The plants and animals that cannot maintain a constant internal environment are called:

- (1) Regulators
- (2) Migraters
- (3) Conformers
- (4) Suspenders

Correct Answer: (3) Conformers

Solution:

Conformers are organisms that cannot maintain a constant internal environment and depend on external environmental conditions.

Quick Tip

Most animals and plants are conformers, relying on behavioral or physiological mechanisms to cope with environmental changes.

Question 7. The number of individuals of the same species that have come into a habitat from elsewhere during the time period under consideration is referred to as:

- (1) Emigration
- (2) Immigration
- (3) Natality
- (4) Mortality

Correct Answer: (2) Immigration

Solution:

Immigration refers to the arrival of individuals of a species into a habitat, contributing to population growth.

Quick Tip

Immigration is a key factor in population dynamics, along with natality, emigration, and mortality.

Question 8. Which of the following statements are correct?

- (A) Species that invade a bare area are called as pioneer species.
- (B) In primary succession on rocks, the pioneers are usually lichens.
- (C) In primary succession in water, the pioneers are reed swamps.
- (D) In secondary succession, species that invade depend on condition of soil, water and environment.

Choose the correct answer from the options given below:

- (1) (A), (B) and (D) only
- (2) (A), (B) and (C) only
- (3) (A), (B), (C) and (D)
- (4) (B), (C) and (D) only

Correct Answer: (3) (A), (B), (C) and (D)

Solution:

Pioneer species initiate ecological succession in bare or primary areas, and their type varies with the habitat (e.g., lichens on rocks, reed swamps in water).

Quick Tip

Ecological succession ensures gradual habitat stabilization, starting with pioneer species and leading to climax communities.

Question 9. Match List-I with List-II:

List-I (State)	List-II (National Park)	
(A) Madhya Pradesh	(I) Namdapha National Park	
(B) Arunachal Pradesh	(II) Guindy National Park	
(C) Meghalaya	(III) Nokrek National Park	
(D) Tamil Nadu	(IV) Kuno National Park	

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
- (2) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)
- (3) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
- (4) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)

Correct Answer: (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)

Solution:

Madhya Pradesh - Kuno, Arunachal Pradesh - Namdapha, Meghalaya - Nokrek, Tamil Nadu - Guindy National Park.

Quick Tip

National parks are designated areas to conserve biodiversity and ensure sustainable ecosystems.

Question 10. Which of the following soil has high water retention capacity?

- (1) Sandy soil
- (2) Loamy soil
- (3) Sandy silt soil
- (4) Clayey soil

Correct Answer: (4) Clayey soil

Solution:

Clayey soil retains the highest amount of water due to its fine particles and low permeability.

Quick Tip

Clayey soil is suitable for water-intensive crops like rice due to its water retention capacity.

Question 11. Which of the following factors can affect the soil respiration process?

- (A) Temperature
- (B) Soil moisture
- (C) Aeration
- (D) Number of soil microbes
- (E) Quality of organic matter in the soil

Choose the correct answer from the options given below:

- (1) (A), (C) and (E) only
- (2) (A), (B), (C) and (D) only
- (3) (B), (C) and (D) only
- (4) (A), (B), (C), (D) and (E)

Correct Answer: (4) (A), (B), (C), (D) and (E)

Solution:

Soil respiration depends on temperature, moisture, aeration, microbial activity, and organic matter quality.

Quick Tip

Soil respiration is vital for carbon cycling and ecosystem functioning.

Question 12. Which of the following is *not* a criteria air pollutant under the National Ambient Air Quality Standards (NAAQS)?

- (1) CO₂
- (2) CO
- (3) O₃
- (4) Pb

Correct Answer: (1) CO₂

Solution:

CO₂ is a greenhouse gas, not a criteria air pollutant under NAAQS.

Quick Tip

Criteria air pollutants include CO, O₃, NO_x, SO₂, and PM_{2.5}.

Question 13. The disease "Itai-Itai" is caused by contamination of drinking water with which of the following?

- (1) Mercury
- (2) Cadmium
- (3) Arsenic
- (4) Chromium

Correct Answer: (2) Cadmium

Solution:

"Itai-Itai" is caused by long-term exposure to cadmium, leading to bone and kidney damage.

Quick Tip

The disease was first reported in Japan due to industrial pollution.

Question 14. Which of the following are essentially required for photochemical smog formation in ambient atmosphere?

- (1) Smoke, water vapour and low temperature (< 25 degree)
- (2) NO_x , SO_2 and high temperature (> 25 degree)
- (3) NO_x , VOCs and high temperature (> 25 degree)
- (4) Smoke, NO_x and low temperature (< 25 degree)

Correct Answer: (3) NO_x , VOCs and high temperature (> 25 degree)

Solution:

Photochemical smog forms when NO_x and VOCs react under sunlight at high temperatures.

Quick Tip

Photochemical smog leads to respiratory problems and environmental damage.

Question 15. Arrange the following stages of primary succession of plants from *last stage* to *first stage*:

- (A) Reed-swamp stage
- (B) Submerged plant stage
- (C) Marsh Meadow stage
- (D) Phytoplankton

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (C), (A), (B), (D)
- (3) (D), (B), (A), (C)
- (4) (A), (C), (B), (D)

Correct Answer: (3) (D), (B), (A), (C)

Solution:

Primary succession progresses from phytoplankton to submerged plants, reed-swamps, and finally marsh meadows.

Quick Tip

Primary succession occurs in areas devoid of soil, such as water bodies.

Question 16. Match List-I with List-II:

List-I (Forest Act/Policy)	List-II (Year)	
(A) Forest Act	(I) 1927	
(B) National Forest Policy	(II) 1988	
(C) Forest Conservation Act	(III) 1980	
(D) Wildlife Protection Act	(IV) 1972	

Choose the correct answer from the options given below:

- (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (2) (A) - (II), (B) - (III), (C) - (I), (D) - (IV)
- (3) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)
- (4) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)

Correct Answer: (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

Solution:

The Forest Act (1927), National Forest Policy (1988), Forest Conservation Act (1980), and Wildlife Protection Act (1972) were implemented in their respective years.

Quick Tip

These acts aim to conserve forests and wildlife.

Question 17. Arrange the following from lowest to highest dry weight in a biomass pyramid of a grassland ecosystem:

- (A) Primary Producer
- (B) Primary Consumer
- (C) Secondary Consumer
- (D) Tertiary Consumer

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (A), (C), (B), (D)
- (3) (D), (C), (B), (A)
- (4) (D), (C), (A), (B)

Correct Answer: (1) (A), (B), (C), (D)

Solution:

In a biomass pyramid, producers have the highest dry weight, followed by primary, secondary, and tertiary consumers.

Quick Tip

Biomass decreases as you move up the trophic levels.

Question 18. "Curitiba", a city in Brazil, is famously known for its

- (1) Organic farming practices
- (2) Water network projects implementation
- (3) Integrated transport network system
- (4) Solid waste disposal system

Correct Answer: (3) Integrated transport network system

Solution:

Curitiba is renowned for its efficient and sustainable integrated transport network system, setting a global benchmark.

Quick Tip

Curitiba's innovative public transport system reduces traffic congestion and pollution.

Question 19. Which of the following gases give the lowest percentage contribution to total global warming?

- (1) N₂O
- (2) NO₂
- (3) CFCs
- (4) CH₄

Correct Answer: (3) CFCs

Solution:

CFCs contribute less to total global warming compared to CH₄, CO₂, and N₂O, but they significantly impact ozone depletion.

Quick Tip

Reducing CFC emissions is critical for both mitigating global warming and protecting the ozone layer.

Question 20. Nomadic movements are not considered as migrations because people move from one place to another

- (1) For economic reasons
- (2) For social factors
- (3) Without any intention
- (4) For physical reasons

Correct Answer: (3) Without any intention

Solution:

Nomadic movements are temporary and lack the permanent intent characteristic of migrations.

Quick Tip

Nomadic communities adapt to environmental conditions through seasonal migration patterns.

Question 21. Which of the following does not explain the relationship between human development and economic development?

- (1) Capability expansion through economic growth
- (2) Capability expansion through poverty reduction
- (3) Capability expansion through social services
- (4) Capability expansion through environmental degradation

Correct Answer: (4) Capability expansion through environmental degradation

Solution:

Human and economic development focus on improving living standards, which is incompatible with environmental degradation.

Quick Tip

Sustainable development integrates human and economic progress with environmental protection.

Question 22. The Gandhian economy model does not contain elements of -----.

- (1) Multiplication of needs
- (2) Rejection of class-war
- (3) Protectionism
- (4) Nationalism

Correct Answer: (1) Multiplication of needs

Solution:

The Gandhian economy emphasizes simplicity, self-sufficiency, and reducing materialistic needs.

Quick Tip

Gandhian principles advocate for small-scale industries and community welfare over industrialization.

Question 23. Which of the following method is most suitable for safe disposal of hospital solid waste?

- (1) Dumping
- (2) Incineration
- (3) Pyrolysis

(4) Composting

Correct Answer: (2) Incineration

Solution:

Incineration is the most suitable method for disposing of hospital waste as it destroys pathogens and reduces waste volume.

Quick Tip

Proper hospital waste disposal is crucial to prevent the spread of diseases and ensure environmental safety.

Question 24. Arrange the following processes from *start to end* in a food distribution system:

- (A) Packaging of food
- (B) Processing of food
- (C) Storage of food
- (D) Marketing of food

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (C), (B), (A), (D)
- (3) (A), (B), (D), (C)
- (4) (C), (B), (D), (A)

Correct Answer: (4) (C), (B), (D), (A)

Solution:

The food distribution system involves storage, processing, marketing, and then packaging of food for delivery.

Quick Tip

Efficient food distribution ensures quality preservation and timely delivery.

Question 25. Which one of the following is an *incorrect* statement in the context of Gross Domestic Product (GDP)?

- (1) GDP does not measure the sustainability of growth.
- (2) GDP helps to understand whether the economy is growing or contracting.
- (3) GDP reflects annual trends of inflation and prices of commodities.
- (4) GDP helps to understand shifts in the annual changes in the country's economy.

Correct Answer: (3) GDP reflects annual trends of inflation and prices of commodities.

Solution:

GDP measures the total value of goods and services but does not directly reflect trends in inflation or prices.

Quick Tip

Inflation trends are measured by the Consumer Price Index (CPI) or Wholesale Price Index (WPI).

Question 26. Match List-I with List-II:

List-I (Protocol/Convention)	List-II (Year)
(A) Kyoto Protocol	(I) 1987
(B) Montreal Protocol	(II) 1997
(C) Bamako Convention	(III) 1989
(D) Basel Convention	(IV) 1998

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
- (2) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)
- (3) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (4) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)

Correct Answer: (4) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)

Solution:

The Kyoto Protocol (1997), Montreal Protocol (1987), Bamako Convention (1998), and Basel Convention (1989) are environmental agreements.

Quick Tip

International protocols aim to address climate change, hazardous waste, and ozone depletion.

Question 27. Petroleum present in sedimentary rocks of a region can only be used when such regions are drilled out and put into use. Such petroleum reserves fall under the category of -----.

- (1) Actual resources
- (2) Potential resources
- (3) Stock resources
- (4) Reserve resources

Correct Answer: (2) Potential resources

Solution:

Petroleum reserves in sedimentary rocks are considered potential resources until they are extracted and utilized.

Quick Tip

Potential resources become actual resources when exploited with available technology.

Question 28. Which of the following "water storage" types are commonly used in Bihar?

- (A) Bhundhis
- (B) Ahar
- (C) Kuhls
- (D) Pynes

Choose the correct answer from the options given below:

- (1) (A) and (C) only
- (2) (B) and (D) only
- (3) (A) and (B) only
- (4) (C) and (D) only

Correct Answer: (2) (B) and (D) only

Solution:

Ahar and Pynes are traditional water management systems widely used in Bihar.

Quick Tip

Traditional water systems are designed to manage irrigation and conserve water.

Question 29. The diversity of organisms that shares the same community/habitat is called as -----.

- (1) Beta diversity
- (2) Gamma diversity
- (3) Alpha diversity
- (4) Genetic diversity

Correct Answer: (3) Alpha diversity

Solution:

Alpha diversity refers to the diversity within a specific habitat or community.

Quick Tip

Biodiversity has three levels: alpha (local), beta (between habitats), and gamma (regional).

Question 30. Which of the following is *not* a basic pillar of sustainable development?

- (1) Environmental preservation
- (2) Social equity

- (3) Economic growth
- (4) Urbanisation

Correct Answer: (4) Urbanisation

Solution:

Sustainable development focuses on environmental preservation, economic growth, and social equity, but urbanisation is not a direct pillar.

Quick Tip

Sustainable development ensures a balance between ecological, economic, and social goals.

Question 31. Which of the following is a Kharif crop?

- (1) Wheat
- (2) Rice
- (3) Cucumber
- (4) Mustard

Correct Answer: (2) Rice

Solution:

Rice is a Kharif crop grown during the monsoon season, while wheat and mustard are Rabi crops.

Quick Tip

Kharif crops are typically sown in June and harvested in October.

Question 32. The concept of Joint Forest Management does *not* include:

- (1) Government works closer with local people to manage forests.
- (2) Locals use forest resources in response to protecting forest ecosystems.
- (3) The infrastructure development at the cost of forest resources.
- (4) Sustainable conservation of forests.

Correct Answer: (3) The infrastructure development at the cost of forest resources.

Solution:

Joint Forest Management emphasizes sustainable conservation and community involvement, not exploiting forests for infrastructure.

Quick Tip

JFM encourages local participation in forest protection and regeneration.

Question 33. The ability of the environment to absorb and render removal of harmless waste and pollution is referred to as:

- (1) Source function of ecosystem
- (2) Sink function of ecosystem
- (3) Carrying capacity of ecosystem
- (4) Optimal capacity of ecosystem

Correct Answer: (2) Sink function of ecosystem

Solution:

The sink function of an ecosystem refers to its ability to absorb and neutralize wastes or pollutants.

Quick Tip

A balance between the source and sink functions is crucial for sustainable development.

Question 34. Which of the following is the main characteristic of perpetual resources?

- (1) Consumption at a very fast rate
- (2) Continuous availability at limited rate
- (3) Unconditional availability
- (4) Not formed naturally

Correct Answer: (2) Continuous availability at limited rate

Solution:

Perpetual resources, such as solar energy, are inexhaustible and available continuously but at a limited rate.

Quick Tip

Perpetual resources are renewable and do not deplete with use.

Question 35. Arrange the following radiation in increasing order of their wavelength:

- (A) UV-C
- (B) UV-B
- (C) UV-A
- (D) Infra-red
- (E) Microwave

Choose the correct answer from the options given below:

- (1) (C), (B), (A), (D), (E)
- (2) (A), (B), (C), (E), (D)
- (3) (A), (B), (C), (D), (E)
- (4) (E), (D), (C), (B), (A)

Correct Answer: (3) (A), (B), (C), (D), (E)

Solution:

The order of increasing wavelength is UV-C, UV-B, UV-A, Infra-red, and Microwave.

Quick Tip

Radiations with shorter wavelengths have higher energy.

Question 36. A bee-keeper in an orchard enables pollination and fertilisation of the orchards' shrubs and trees. This is an example of

- (1) Negative production externalities
- (2) Negative consumption externalities
- (3) Positive production externalities
- (4) Positive consumption externalities

Correct Answer: (3) Positive production externalities

Solution:

Bees aid in pollination, enhancing crop yield, which is a positive externality of the production process.

Quick Tip

Positive externalities generate benefits for others without financial compensation.

Question 37. Arrange the atmospheric layers starting from the Earth's surface upwards:

- (A) Mesosphere
- (B) Stratosphere
- (C) Stratopause
- (D) Mesopause
- (E) Troposphere

Choose the correct answer from the options given below:

- (1) (E), (C), (B), (D), (A)
- (2) (E), (C), (B), (A), (D)
- (3) (E), (B), (C), (A), (D)
- (4) (E), (B), (C), (D), (A)

Correct Answer: (4) (E), (B), (C), (D), (A)

Solution:

The atmospheric layers in order are Troposphere, Stratosphere, Stratopause, Mesopause, and Mesosphere.

Quick Tip

Each atmospheric layer has distinct characteristics like temperature and pressure variations.

Question 38. Which of the following is associated with Ozone destruction in Stratosphere?

- (A) CFCs
- (B) Polar stratospheric clouds
- (C) UV-B
- (D) UV-A
- (E) Cl radicals

Choose the correct answer from the options given below:

- (1) (A) and (E) only
- (2) (A), (B) and (E) only
- (3) (A), (C) and (D) only
- (4) (A), (B), (C) and (E) only

Correct Answer: (2) (A), (B) and (E) only

Solution:

CFCs, Polar Stratospheric Clouds, and Cl radicals contribute to ozone depletion by breaking down ozone molecules.

Quick Tip

Ozone destruction increases UV radiation exposure, causing environmental and health issues.

Question 39. Which of the following are examples of resources?

- (A) Materials
- (B) Energy
- (C) Knowledge
- (D) Services

Choose the correct answer from the options given below:

- (1) (A) and (D) only
- (2) (A), (B) and (D) only
- (3) (A), (B) and (C) only
- (4) (A), (B), (C) and (D)

Correct Answer: (4) (A), (B), (C) and (D)

Solution:

Resources include materials, energy, knowledge, and services, all of which are essential for

human development.

Quick Tip

Resources are broadly categorized into natural, human, and cultural resources.

Question 40. Which of the following treaty prohibits the import of any hazardous waste (including radioactive waste) into African nations only?

- (1) The Basel Convention
- (2) The Capetown Convention
- (3) The Bamako Convention
- (4) The Madagascar Convention

Correct Answer: (3) The Bamako Convention

Solution:

The Bamako Convention is a treaty that specifically prohibits the import of hazardous and radioactive waste into African nations, strengthening environmental protection across the continent.

Quick Tip

The Bamako Convention was adopted in 1991 by the African Union to address the inadequacies of the Basel Convention in protecting African nations.

Read the following passage and answer the next five questions:

Agricultural runoff, sewage, and industrial effluents are major causes of deterioration of water quality in lakes and ponds. Productivity of lakes and ponds (e.g., algal bloom and phytoplankton bloom) increases manifold due to agricultural runoff as well as due to excess inputs of nutrients including limiting nutrients, but this continuous increased productivity leads to the death of lakes and ponds. The dissolved oxygen, BOD, temperature, turbidity, and salinity are important parameters of water quality in a lake and change naturally on a daily and seasonal basis. Anthropogenic inputs change these parameters abruptly and adversely impact water quality. As a result, water in lakes and ponds does not remain fit for human consumption or livestock. Immediate attention and affirmative actions are needed to protect lakes and ponds in our environment.

Question 41. Continuous increase of productivity of lakes eventually causes:

- (1) Biomagnification in lakes
- (2) Bioaccumulation in lakes
- (3) Eutrophication in lakes
- (4) Bioconcentration in lakes

Correct Answer: (3) Eutrophication in lakes

Solution:

Eutrophication occurs due to nutrient enrichment in water bodies, causing excessive growth of algae and depletion of dissolved oxygen.

Quick Tip

Eutrophication reduces water quality and aquatic biodiversity.

Question 42. Dissolved oxygen in water

- (1) Remains constant in winter and summer
- (2) Remains low in winter and high in summer
- (3) Remains high in winter and low in summer
- (4) Doesn't depend on temperature of water

Correct Answer: (3) Remains high in winter and low in summer

Solution:

Dissolved oxygen levels are inversely related to water temperature, with higher levels in winter and lower levels in summer.

Quick Tip

Cooler temperatures increase the solubility of oxygen in water.

Question 43. Excess suspended particles in lake water due to agricultural runoff result in:

- (1) High salinity
- (2) High turbidity
- (3) High dissolved oxygen
- (4) High BOD

Correct Answer: (2) High turbidity

Solution:

Agricultural runoff introduces suspended particles, increasing turbidity and reducing light penetration in water.

Quick Tip

High turbidity affects photosynthesis and aquatic life.

Question 44. Water in lakes having very high algal and phytoplankton growth is expected to have:

- (1) High dissolved oxygen
- (2) High dissolved oxygen and high BOD

- (3) Low dissolved oxygen and high BOD
- (4) Low dissolved oxygen and low BOD

Correct Answer: (3) Low dissolved oxygen and high BOD

Solution:

High algal growth increases biological oxygen demand (BOD) as decaying organic matter depletes dissolved oxygen.

Quick Tip

High BOD is an indicator of organic pollution in water bodies.

Question 45. Which of the following is a limiting nutrient in lakes and ponds?

- (1) Iron
- (2) Phosphorus
- (3) Magnesium
- (4) Sulphur

Correct Answer: (2) Phosphorus

Solution:

Phosphorus is a limiting nutrient in aquatic ecosystems, and its excess causes algal blooms and eutrophication.

Quick Tip

Nutrient management is essential to prevent eutrophication in water bodies.

Read the following passage and answer the next five questions:

Species interaction and productivity are two important components of any given ecosystem. In an ecosystem, interspecific interactions arise from the interaction of populations of two different species. Such interactions could be beneficial to both species, harmful to both species, beneficial to one and harmful to the other, or vice-versa. There are also cases where only one species is harmed or benefited, and the other remains unaffected. On the other hand, productivity of an ecosystem starts with photosynthesis by green plants and is measured as the amount of biomass produced over a period of time. Such biomass becomes available for consumption to heterotrophs.

Question 46. The available biomass for consumption to herbivores and decomposers is often referred to as:

- (1) Primary production
- (2) Gross primary productivity
- (3) Net primary productivity

(4) Secondary productivity

Correct Answer: (3) Net primary productivity

Solution:

Net primary productivity is the biomass available to consumers after accounting for the energy used by plants in respiration.

Quick Tip

Net primary productivity = Gross primary productivity - Respiration losses.

Question 47. Rate of production of organic matter during photosynthesis is referred to as:

- (1) Primary production
- (2) Gross primary productivity
- (3) Net primary productivity
- (4) Standing crop

Correct Answer: (2) Gross primary productivity

Solution:

Gross primary productivity represents the total energy fixed by plants through photosynthesis in an ecosystem.

Quick Tip

Gross primary productivity does not account for energy losses due to respiration.

Question 48. Which of the following are correct for the interaction between sea anemone that has stinging tentacles and clown fish?

- (1) Both species are benefitted
- (2) Both are harmed
- (3) One is harmed and the other is benefitted
- (4) One is benefitted and the other remains unaffected

Correct Answer: (1) Both species are benefitted

Solution:

The interaction between sea anemone and clown fish is an example of mutualism, where both species benefit from the relationship.

Quick Tip

In mutualism, both species gain advantages such as protection, resources, or reproduction.

Question 49. The species interaction in which both interacting species are harmed is referred to as:

- (1) Predation
- (2) Parasitism
- (3) Competition
- (4) Mutualism

Correct Answer: (3) Competition

Solution:

In competition, both species are harmed because they compete for the same limited resources, reducing their growth and survival rates.

Quick Tip

Competition can be intraspecific (within species) or interspecific (between species).

Question 50. Mycorrhizal association between fungi and the roots of higher plants is best referred to as:

- (1) Commensalism
- (2) Amensalism
- (3) Mutualism
- (4) Competition

Correct Answer: (3) Mutualism

Solution:

Mycorrhizal fungi form mutualistic associations with plant roots, where fungi enhance nutrient uptake and plants provide carbohydrates.

Mycorrhizae improve plant growth and soil fertility, playing a key role in sustainable agriculture.