

CUET UG Environmental Studies Question Paper 2024 Set A with Correct Answer

1. 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: Option (2) Cadmium

Solution: The disease Itai-Itai is caused by contamination of drinking water with **Cadmium**. It is a painful disease that affects the bones and kidneys, and it was first observed in Japan.

Quick Tip

Itai-Itai disease is linked with environmental pollution due to industrial waste, particularly cadmium contamination.

2. 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: Option (3) NO_x , VOCs and high temperature (> 25 degree)

Solution: Photochemical smog requires NO_x , VOCs and high temperature (> 25 degree).

Quick Tip

Photochemical smog forms under sunny conditions with the presence of volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which are primary pollutants.

3. 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: Option (3) (D), (B), (A), (C)

Solution: The correct order of primary succession of plants from last stage to first stage is Phytoplankton, Submerged plant stage, Reed-swamp stage, Marsh Meadow stage.

Quick Tip

Primary succession is the process of plant colonization starting from simple forms like phytoplankton and eventually leading to more complex plants such as reeds and marsh meadow.

4. 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: Option (4) (A), (B), (C), (D) and (E)

Solution: The correct answer includes all five factors:

Temperature,

Soil moisture,

Aeration,

Number of soil microbes,

Quality of organic matter in the soil.

Quick Tip

Soil respiration is affected by various factors such as temperature, moisture, aeration, and the presence of microbes and organic matter. Higher microbial activity generally enhances soil respiration.

5. 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: Option (1) CO₂

Solution: Carbon dioxide (CO₂) is not considered a criteria air pollutant under the NAAQS. The criteria pollutants are those that can cause harm to human health or the environment, such as carbon monoxide (CO), ozone (O₃), and lead (Pb), but CO₂ is not included in the list of criteria pollutants.

Quick Tip

CO₂ is a greenhouse gas but is not listed as a criteria pollutant under NAAQS, which regulates pollutants like CO, O₃, and Pb due to their direct impact on air quality and health.

6. 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: Option (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

Solution: The correct matching of the Forest Acts/Policies with their respective years is:

(A) Forest Act corresponds to (I) 1927.

(B) National Forest Policy corresponds to (II) 1988.

(C) Forest Conservation Act corresponds to (III) 1980.

(D) Wildlife Protection Act corresponds to (IV) 1972.

Thus, the correct answer is Option (1).

Quick Tip

Remembering key environmental legislation and their years can help in various exams, as they often appear in questions related to ecology and environment.

7. 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: Option (1) (A), (B), (C), (D)

Solution: In a biomass pyramid of a grassland ecosystem, the lowest dry weight is at the base (Primary Producer), and it increases as you go up the pyramid to Tertiary Consumers. Therefore, the correct order from lowest to highest is (A) Primary Producer, (B) Primary Consumer, (C) Secondary Consumer, (D) Tertiary Consumer.

Quick Tip

A biomass pyramid represents the total dry mass of organisms at each trophic level, and the primary producers generally have the greatest biomass.

8. 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: Option (3) integrated transport network system

Solution: Curitiba is internationally known for its integrated transport network system, which is considered one of the most efficient and sustainable urban transportation models in the world.

Quick Tip

Curitiba's innovative Bus Rapid Transit (BRT) system is an example of effective urban planning, focusing on reducing congestion and promoting sustainability.

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

- (1) N_2O
- (2) NO_2
- (3) CFCs
- (4) CH_4

Correct Answer: Option (2) NO_2

Solution: Among the gases listed, NO_2 has the lowest percentage contribution to global warming compared to the other gases like N_2O , CFCs, and CH_4 .

Quick Tip

NO₂ is more associated with air pollution rather than being a major greenhouse gas contributing to global warming.

10. 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: Option (3) without any intention

Solution: Nomadic movements are cyclical and often follow patterns dictated by seasons or resources, but they do not involve the intention of permanent settlement, unlike migration.

Quick Tip

Nomadism involves temporary relocation, usually following traditional paths for livestock or resource availability, without the intent to permanently settle in one place.

11. 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: Option (4) Capability expansion through environmental degradation

Solution: Environmental degradation does not contribute to the expansion of human capabilities, whereas economic growth, poverty reduction, and social services do. Degradation of the environment typically hampers human development.

Quick Tip

Human development focuses on improving well-being and expanding capabilities, whereas environmental degradation poses risks to sustainability and long-term growth.

12. The Gandhian economy model does not contain elements of _____ .

- (1) multiplication of needs**
- (2) rejection of class-war**
- (3) protectionism**
- (4) nationalism**

Correct Answer: Option (1) multiplication of needs

Solution: Gandhi's economic model emphasized simplicity and self-sufficiency, rejecting the multiplication of needs and promoting minimalism. It was against materialism and consumerism.

Quick Tip

Gandhian economics focuses on reducing dependence on material wealth and promoting sustainable, community-based development.

13. 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: Option (2) Incineration

Solution: Incineration is the most suitable method for the safe disposal of hospital waste, as it effectively destroys pathogens and reduces the volume of hazardous waste.

Quick Tip

Hospital waste often contains hazardous materials that must be incinerated to prevent environmental contamination and the spread of diseases.

14. 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: Option (2) (C), (B), (A), (D)

Solution: The correct sequence in the food distribution system should follow the logical order: (C) Storage of food, (B) Processing of food, (A) Packaging of food, and (D) Marketing of food.

Quick Tip

Understanding the stages of food distribution is crucial for ensuring food safety and quality. It starts with storage, followed by processing, packaging, and finally marketing to consumers.

15. 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 economy is growing or contracting.
- (3) GDP reflects annual trends of inflation and prices of commodities.
- (4) GDP helps to understand shift in the annual changes in the country's economy.

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

Solution: GDP does not directly reflect annual trends of inflation and prices of commodities. GDP measures the total value of goods and services produced in a country, but inflation and prices are measured separately using indices like the Consumer Price Index (CPI) or the Wholesale Price Index (WPI).

Quick Tip

GDP is a measure of economic activity, not inflation. To track inflation, other indicators like CPI or WPI are used alongside GDP.

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

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

Solution:

- (A) Kyoto Protocol was established in (II) 1997.
 (B) Montreal Protocol was signed in (I) 1987.
 (C) Bamako Convention was established in (IV) 1998.
 (D) Basel Convention was signed in (III) 1989.

Thus, the correct matching is Option (4).

Quick Tip

International environmental agreements such as the Kyoto and Montreal Protocols play critical roles in addressing global environmental challenges like climate change and ozone depletion.

17. 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: Option (2) Potential resources

Solution: Petroleum found in sedimentary rocks, which can only be utilized when technological advancements or drilling operations are initiated, falls under the category of Potential resources. These resources are known to exist but are not currently in use.

Quick Tip

Potential resources refer to those that are known to exist in a region but are not yet exploited or used due to a lack of technology or other constraints.

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

- (A) Bhundhis
- (B) Ahar
- (C) Kulhs
- (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: Option (2) (B) and (D) only

Solution: In Bihar, traditional water storage systems such as Ahar and Pynes are widely used. These are part of the region's indigenous water management practices.

Quick Tip

Ahar and Pynes are traditional water harvesting and irrigation systems in Bihar that help store and distribute water efficiently.

19. 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: Option (3) Alpha diversity

Solution: Alpha diversity refers to the diversity of species within a specific community or habitat. It measures the variety of organisms that coexist in a particular area.

Quick Tip

Alpha diversity focuses on species diversity within a specific ecosystem, while Beta and Gamma diversity assess changes across regions or ecosystems.

20. 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: Option (4) Urbanisation

Solution: The three pillars of sustainable development are Environmental preservation,

Social equity, and Economic growth. Urbanisation is not considered a fundamental pillar, although it can affect these pillars.

Quick Tip

The basic pillars of sustainable development ensure that economic growth does not come at the cost of social inequality or environmental harm.

21. Which of the following is a Kharif crop?

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

Correct Answer: Option (2) Rice

Solution: Rice is a major Kharif crop, typically sown at the beginning of the monsoon season and harvested at the end of it. Other examples include maize and cotton.

Quick Tip

Kharif crops are typically planted during the rainy season, while Rabi crops (like wheat and mustard) are grown during the winter.

22. 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 ecosystem.**
- (3) The infrastructure development at the cost of forest resources.**
- (4) Sustainable conservation of forests.**

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

Solution: Joint Forest Management (JFM) focuses on the collaborative effort between the government and local communities to conserve forests. It does not include infrastructure development at the cost of forest resources, which would go against the goal of sustainable forest management.

Quick Tip

JFM promotes sustainable use and protection of forest resources by engaging local communities and creating co-management strategies with the government.

23. 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: Option (2) sink function of ecosystem

Solution: The sink function of the ecosystem refers to the environment's ability to absorb, process, and render waste and pollutants harmless. It is a critical aspect of the ecosystem's role in maintaining environmental balance.

Quick Tip

The sink function refers to the environment's capacity to absorb pollutants. In contrast, the source function refers to the provision of resources, while carrying capacity involves the ecosystem's limit to support life.

24. Which of the following is the main characteristic of perpetual resources?

- (1) Consumption at very fast rate

- (2) Continuous availability at limited rate
- (3) Unconditional availability
- (4) Not formed naturally

Correct Answer: Option (2) Continuous availability at limited rate

Solution: Perpetual resources are natural resources that are continuously available, though at a limited rate. Examples include solar and wind energy, which are renewable but depend on environmental conditions.

Quick Tip

Perpetual resources like solar and wind energy are renewable, and their availability is continuous but limited by environmental factors.

25. 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: Option (3) (A), (B), (C), (D), (E)

Solution: The correct order of radiation in terms of increasing wavelength is: (A) UV-C,

(B) UV-B, (C) UV-A, (D) Infra-red, (E) Microwave. As we move from UV radiation to microwaves, the wavelength increases.

Quick Tip

Wavelength increases from ultraviolet (UV) to infrared (IR) to microwave radiation. UV-C has the shortest wavelength, while microwaves have the longest.

26. A bee-keeper in an orchard enables pollination and fertilisation of the orchard's 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: Option (3) positive production externalities

Solution: The bee-keeper's activity leads to pollination and fertilisation, which benefits the orchard's shrubs and trees, making this an example of positive production externalities, where the activity results in a positive external impact.

Quick Tip

Positive externalities occur when an activity produces a beneficial effect on others. In this case, the bee-keeping aids in the pollination of the orchard.

27. 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: Option (3) (E), (B), (C), (A), (D)

Solution: The correct order of atmospheric layers starting from the Earth's surface is: (E) Troposphere, (B) Stratosphere, (C) Stratopause, (A) Mesosphere, (D) Mesopause. This sequence reflects the arrangement of atmospheric layers from the surface upwards.

Quick Tip

The troposphere is the lowest atmospheric layer where weather occurs, followed by the stratosphere, which contains the ozone layer. The mesosphere is above the stratosphere, and the mesopause marks its upper boundary.

28. Which of the following is associated with Ozone destruction in the 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: Option (2) (A), (B) and (E) only

Solution: CFCs, Polar stratospheric clouds, and Cl radicals are key contributors to ozone destruction in the stratosphere. CFCs release chlorine radicals, which catalyze the breakdown of ozone molecules. Polar stratospheric clouds provide surfaces for chlorine activation.

Quick Tip

The depletion of the ozone layer in the stratosphere is primarily caused by chlorine radicals released from CFCs, which are especially active during polar conditions.

29. 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: Option (4) (A), (B), (C) and (D)

Solution: Materials, Energy, Knowledge, and Services are all considered resources. They contribute to economic development and provide utility in various forms.

Quick Tip

Resources can be tangible, like materials and energy, or intangible, like knowledge and services, all of which are crucial for sustaining development.

30. 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: Option (3) The Bamako Convention

Solution: The Bamako Convention prohibits the import of any hazardous waste, including radioactive waste, into African countries. It was established in response to concerns over waste dumping in Africa and serves as a key environmental protection treaty.

Quick Tip

The Bamako Convention is Africa's response to the Basel Convention, aiming to protect the continent from becoming a dumping ground for hazardous waste.

Read the following passage and answer the next five questions:

Agricultural runoff, sewage, and industrial effluents are major causes of the deterioration of water quality in lakes and ponds. Productivity of lakes and ponds (for example, 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 day and night basis as well as a seasonal basis. How-

ever, anthropogenic inputs change these parameters abruptly and adversely impact the water quality of the lakes. As a result, water in lakes and ponds does not remain fit for human consumption as well as for livestock. Immediate attention and affirmative actions are needed to protect lakes and ponds in our environment.

31. 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: Option (3) Eutrophication in lakes

Solution: Continuous increase in nutrient inputs leads to eutrophication, which is characterized by excessive algal and phytoplankton growth that depletes oxygen levels and harms aquatic life.

Quick Tip

Eutrophication is a result of nutrient over-enrichment, causing algal blooms that eventually reduce oxygen levels, leading to dead zones in aquatic ecosystems.

32. 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: Option (3) remains high in winter and low in summer

Solution: Dissolved oxygen is generally higher in cold water because gases are more soluble at lower temperatures. Therefore, it is higher in winter and lower in summer.

Quick Tip

Temperature has a direct impact on dissolved oxygen levels; colder water holds more oxygen, while warmer water holds less.

33. 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: Option (2) high turbidity

Solution: Suspended particles from agricultural runoff increase the turbidity of lake water, making it murky and reducing light penetration, which can disrupt photosynthesis in aquatic plants.

Quick Tip

Turbidity refers to the cloudiness of water caused by suspended particles, which can significantly affect water quality by reducing light penetration and oxygen levels.

34. 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: Option (3) low dissolved oxygen and high BOD

Solution: Lakes with high algal and phytoplankton growth have low dissolved oxygen due to the respiration of decomposing algae, leading to high BOD (Biochemical Oxygen Demand).

Quick Tip

Algal blooms deplete oxygen levels in the water as the algae die and decompose, leading to high BOD, which indicates a higher oxygen demand from decomposing organic material.

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

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

Correct Answer: Option (2) Phosphorus

Solution: Phosphorus is often the limiting nutrient in freshwater lakes and ponds. It is required for plant and algae growth, but when present in excess, it can lead to eutrophication, causing algal blooms and subsequent oxygen depletion.

Quick Tip

Phosphorus is a key limiting nutrient in freshwater ecosystems. Excessive phosphorus from agricultural runoff can cause eutrophication and disrupt the aquatic balance.

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 benefitted, while the other remains unaffected. On the other hand, the 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.

36. 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: Option (3) Net primary productivity

Solution: Net primary productivity (NPP) refers to the amount of biomass available for consumption by herbivores and decomposers after accounting for the energy used by plants during respiration.

Quick Tip

NPP is a crucial metric in understanding ecosystem productivity, as it represents the energy available to support herbivores and higher trophic levels.

37. 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: Option (2) Gross primary productivity

Solution: Gross primary productivity (GPP) refers to the total rate of organic matter production through photosynthesis before any losses due to respiration are accounted for.

Quick Tip

GPP is important for understanding the total energy captured by photosynthetic organisms in an ecosystem.

38. 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: Option (1) Both species are benefitted

Solution: The interaction between sea anemones and clownfish is an example of mutualism, where both species benefit from the relationship; clownfish receive protection from predators while sea anemones benefit from nutrients provided by clownfish.

Quick Tip

Mutualistic relationships enhance survival and growth for both species involved, showcasing the interconnectedness of ecosystems.

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

- (1) Predation**
- (2) Parasitism**
- (3) Competition**

(4) Mutualism

Correct Answer: Option (3) Competition

Solution: In competition, both species are harmed due to the struggle for the same limited resources, such as food, space, or light.

Quick Tip

Competition can occur within a species (intraspecific) or between different species (interspecific) and often leads to resource partitioning or adaptations over time.

40. 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: Option (3) Mutualism

Solution: Mycorrhizal associations represent a mutualistic relationship where fungi enhance nutrient absorption for plants, while plants provide carbohydrates for the fungi.

Quick Tip

Mutualistic relationships, like mycorrhizae, are essential for plant health, improving nutrient uptake and enhancing soil health.

41. 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: Option (2) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)

Solution: (A) Gary Snyder is associated with Mountains and Rivers Without End (I).

(B) Wendell Berry is known for A Place on Earth (IV).

(C) Rachel Carson wrote Silent Spring (III).

(D) Barry Commoner is linked to The Closing Circle (II).

Thus, the correct matching is Option (2).

Quick Tip

Matching authors with their works can enhance understanding of their contributions to environmental literature and advocacy.

41. 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: Option (2) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Solution: (A) Ecology was proposed by Ernst Haeckel (II).

(B) Ecosystem was proposed by Sir Arthur Tansley (III).

(C) Human population growth was discussed by T R Malthus (IV).

(D) Hot spots were defined by Norman Myers (I).

Thus, the correct matching is Option (2).

Quick Tip

Understanding the contributions of key figures in ecology can provide deeper insights into environmental science and conservation efforts.

43. 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: Option (4) Shallow ecology

Solution: Shallow ecology focuses on the utilitarian benefits of nature, such as oxygen

production and improved rainfall, rather than valuing nature for its intrinsic worth, which is characteristic of deep ecology.

Quick Tip

Shallow ecology emphasizes practical benefits of nature, while deep ecology advocates for the intrinsic value of all living beings and ecosystems.

44. 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: Option (4) Creating worldwide fund for education

Solution: While WWF focuses on conserving biodiversity and promoting sustainable resource use, creating a worldwide fund for education is not one of its major goals.

Quick Tip

WWF primarily aims at environmental conservation, and education is often a component of their outreach but not a standalone goal.

45. 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: Option (2) 22 April, 1970

Solution: The first Earth Day was celebrated on 22 April, 1970, marking a significant event in the environmental movement.

Quick Tip

Earth Day is now celebrated annually on April 22nd and serves as a reminder of the importance of environmental protection.

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

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

Correct Answer: Option (3) Conformers

Solution: Conformers are organisms that cannot regulate their internal environment and instead conform to the environmental conditions around them.

Quick Tip

Conformers depend on external environmental conditions for their internal state, unlike regulators that can maintain homeostasis.

47. 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: Option (2) Immigration

Solution: Immigration refers to the arrival of individuals of the same species into a habitat from other locations. This process contributes to population growth and biodiversity in the receiving ecosystem.

Quick Tip

Immigration is an essential component of population dynamics, influencing genetic diversity and stability within ecosystems.

48. Which of the following statements are correct?

- (A) Species that invade a bare area are called 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 the 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: Option (1) (A), (B) and (D) only

Solution: Statement (A) is correct: Pioneer species do invade bare areas, initiating ecological succession.

Statement (B) is correct: In primary succession on bare rocks, lichens often serve as the pioneer species.

Statement (C) is incorrect: In primary succession in water, pioneers are typically phyto-

plankton or similar species, not reed swamps, which may develop later.

Statement (D) is correct: In secondary succession, the invading species do depend on the existing conditions of soil, water, and environment.

Thus, the correct statements are (A), (B), and (D).

Quick Tip

Pioneer species play a crucial role in ecosystem development, and understanding their function can help in conservation and restoration efforts.

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

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

Solution: (A) Madhya Pradesh is associated with Kuno National Park (IV).

(B) Arunachal Pradesh is known for Namdapha National Park (I).

(C) Meghalaya is linked to Nokrek National Park (III).

(D) Tamil Nadu is home to Guindy National Park (II).

Thus, the correct matching is Option (1).

Quick Tip

Familiarizing yourself with national parks and their locations can enhance understanding of biodiversity and conservation efforts in different states.

50. 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: Option (4) Clayey soil

Solution: Clayey soil has a high water retention capacity due to its fine particles, which create small pore spaces that hold water effectively. This type of soil can retain moisture better than sandy or loamy soils.

Quick Tip

Clayey soils are excellent for retaining moisture but may drain poorly, leading to potential waterlogging if not managed properly.