

Q.1) Which of the following statements is/are correct regarding the GLOBE (Global Learning and Observation to Benefit the Environment)?

1. Centre for Science and Environment (CSE) is the implementing agency in India.
2. NASA has the primary responsibility for administering the government-to-government agreements, and for the management of the GLOBE Implementation Office (GIO).

Select from the given codes:

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) None

Q.1) Solution (b)

Global Learning and Observation to Benefit the Environment (GLOBE) is a worldwide hands-on, international environmental science and education programme that brings students, teachers and scientists together to study the global environment.

MoEFCC and US Government signed an agreement in 2000 to implement the Globe programme in India.

Indian Environmental Society, Delhi is an implementing agency for Globe in India.

Hence Statement 1 is Incorrect

GLOBE is sponsored by the U.S. National Aeronautics and Space Administration (NASA) with support from the National Science Foundation (NSF), National Oceanic and Atmospheric Administration (NOAA) and Department of State. Internationally, GLOBE is implemented through government-to-government agreements with each country partner responsible for in-country activities.

As the lead agency for GLOBE in the U.S., NASA has the primary responsibility for administering the government-to-government agreements, and for the management of the GLOBE Implementation Office (GIO) and the data and information system that support the worldwide implementation.

Hence Statement 2 is correct.

Source: India Year Book-2018 (Environment Chapter)

Q.2) Consider the following statements

1. Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis.
2. Gross primary productivity minus respiration losses, is the net primary productivity.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both
- d) None

Q.2) Solution (c)

Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis. A considerable amount of GPP is utilized by plants in respiration. Gross primary productivity minus respiration losses (R), is the net primary productivity (NPP). $GPP - R = NPP$

Hence both the Statements are correct.

Net primary productivity is the available biomass for the consumption to heterotrophs (herbivores and decomposers).

Source: NCERT Biology-class 12th

Q.3) Consider the following statements

1. Primary productivity is defined as the rate of formation of new organic matter by consumers.
2. Secondary productivity is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis.

3. Primary productivity is same in different types of ecosystems.
4. Primary productivity of Oceans is less compared to that of the Land.

Which of the above statements are INCORRECT?

- a) 1, 2 and 3
- b) 1, 2 and 4
- c) 1 and 2
- d) All of the above

Q.3) Solution (a)

Primary production is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis. The rate of biomass production is called productivity.

Secondary productivity is defined as the rate of formation of new organic matter by consumers.

In the question the definitions are interchanged. Hence statements 1 and 2 are incorrect.

Primary productivity depends on the plant species inhabiting a particular area. It also depends on a variety of environmental factors, availability of nutrients and photosynthetic capacity of plants. Therefore, it varies in different types of ecosystems.

Hence Statement 3 is also incorrect.

The annual net primary productivity of the whole biosphere is approximately 170 billion tons (dry weight) of organic matter.

Of this, despite occupying about 70 percent of the surface, the productivity of the oceans is only 55 billion tons. Rest of course, is on land.

Hence Statement 4 is correct.

Source: NCERT Biology-class 12th

Q.4) Consider the following statements

1. Detritivores (e.g., earthworm) break down detritus into smaller particles. This process is called fragmentation.
2. Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as catabolism.
3. The processes Fragmentation, Leaching and Catabolism (in the same order) operates one after the other on detritus.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 3
- c) 1 and 2
- d) 1, 2 and 3

Q.4) Solution (c)

Detritivores (e.g., earthworm) break down detritus into smaller particles. This process is called fragmentation.

Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as catabolism.

Hence Statements 1 and 2 are correct.

By the process of leaching, water soluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts.

It is important to note that all the above steps in **decomposition operate simultaneously** on the detritus.

Hence Statement 3 is incorrect.

Source: NCERT Biology-class 12th

Q.5) Which of the following statements is/are correct regarding humus

1. It is a dark coloured amorphous substance.
2. It is highly resistant to microbial action.

3. It is colloidal in nature.
4. The humus is further degraded by some microbes and release of inorganic nutrients occurs by the process known as Humification.

Which of the above statements are correct?

- a) 2 and 4
- b) 1, 2 and 3
- c) 3 and 4
- d) All of the above

Q.5) Solution (b)

Humification and mineralisation occur during decomposition in the soil.

Humification leads to accumulation of a dark coloured amorphous substance called humus that is highly resistant to microbial action and undergoes decomposition at an extremely slow rate.

Hence Statement 1 and 2 are correct.

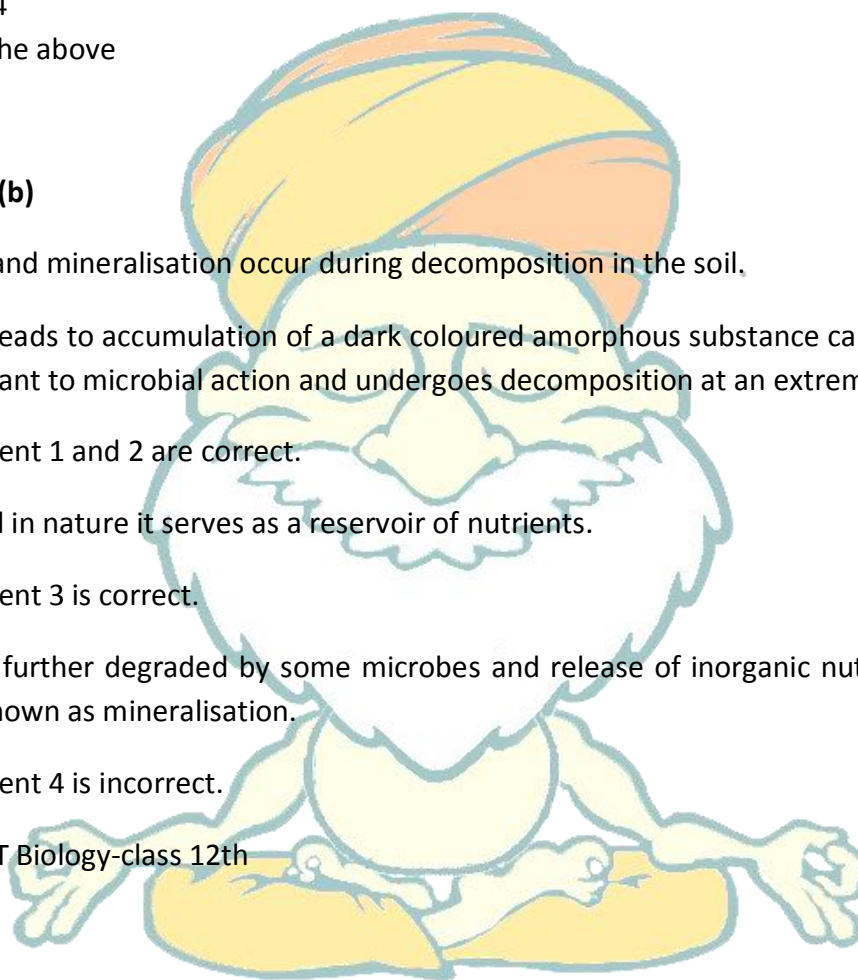
Being colloidal in nature it serves as a reservoir of nutrients.

Hence Statement 3 is correct.

The humus is further degraded by some microbes and release of inorganic nutrients occur by the process known as mineralisation.

Hence Statement 4 is incorrect.

Source: NCERT Biology-class 12th



Q.6) Consider the following statements regarding Food Chain

1. In an aquatic ecosystem, Grazing Food Chain is the major conduit for energy flow.
2. In a terrestrial ecosystem, a much larger fraction of energy flows through the Detritus Food Chain than through the Grazing Food Chain.

Which of the statements above is/are INCORRECT?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) None

Q.6) Solution (d)

In an aquatic ecosystem, Grazing Food Chain is the major conduit for energy flow.

As against this, in a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain than through the Grazing Food Chain.

Hence both the statements are correct.

Detritus food chain may be connected with the grazing food chain at some levels

The detritus food chain (DFC) begins with dead organic matter. It is made up of decomposers which are heterotrophic organisms, mainly fungi and bacteria. They meet their energy and nutrient requirements by degrading dead organic matter or detritus. These are also known as saprotrophs.

Source: Shankar IAS book

Q.7) Consider the following statements regarding the Ecological Pyramids

1. Pyramid of energy is always upright
2. Pyramid of biomass in sea is generally upright.
3. Ecological pyramids do not take into account the same species belonging to two or more trophic levels.
4. Saprophytes are not given any place in ecological pyramids.

Which of the above statements are correct?

- a) 1, 3 and 4
- b) 2,3 and 4
- c) 1 and 3

d) 1 and 4

Q.7) Solution (a)

Pyramid of energy is always upright, can never be inverted, because when energy flows from a particular trophic level to the next trophic level, some energy is always lost as heat at each step.

Hence statement 1 is correct.

The pyramid of biomass in sea is generally inverted because the biomass of fishes far exceeds that of phytoplankton.

Hence statement 2 is incorrect.

However, there are certain limitations of ecological pyramids such as it does not take into account the same species belonging to two or more trophic levels.

Saprophytes are not given any place in ecological pyramids even though they play a vital role in the ecosystem.

Hence Statements 3 and 4 are correct.

It assumes a simple food chain, something that almost never exists in nature; it does not accommodate a food web.

Source: Shankar IAS book

Q.8) Which of the following statements are correct regarding Ecological Succession?

1. Succession is a process that starts where no living organisms are there.
2. Primary Succession is faster than Secondary Succession.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.8) Solution (a)

The gradual and fairly predictable change in the species composition of a given area is called ecological succession.

Succession is hence a process that starts where no living organisms are there – these could be areas where no living organisms ever existed, say bare rock; or in areas that somehow, lost all the living organisms that existed there. The former is called primary succession, while the latter is termed secondary succession.

Hence Statement 1 is correct.

Secondary succession begins in areas where natural biotic communities have been destroyed such as in abandoned farm lands, burned or cut forests, lands that have been flooded. Since some soil or sediment is present, secondary succession is faster than primary succession.

Hence Statement 2 is wrong.

Source - NCERT

Q.9) Consider the following statements regarding Carbon

1. Carbon constitutes 49 per cent of dry weight of organisms and is next only to water.
2. The amount of Carbon dissolved in Oceans is more than that is stored in the land biosphere.

Which of the above statement is/are true?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.9) Solution (c)

When you study the composition of living organisms, carbon constitutes 49 per cent of dry weight of organisms and is next only to water.

Hence Statement 1 is correct.

If we look at the total quantity of global carbon, we find that 71 per cent carbon is found dissolved in oceans. This oceanic reservoir regulates the amount of carbon dioxide in the atmosphere.

Hence Statement 2 is correct.

A considerable amount of carbon returns to the atmosphere as CO₂ through respiratory activities of the producers and consumers. Decomposers also contribute substantially to CO₂ pool by their processing of waste materials and dead organic matter of land or oceans. Some amount of the fixed carbon is lost to sediments and removed from circulation.

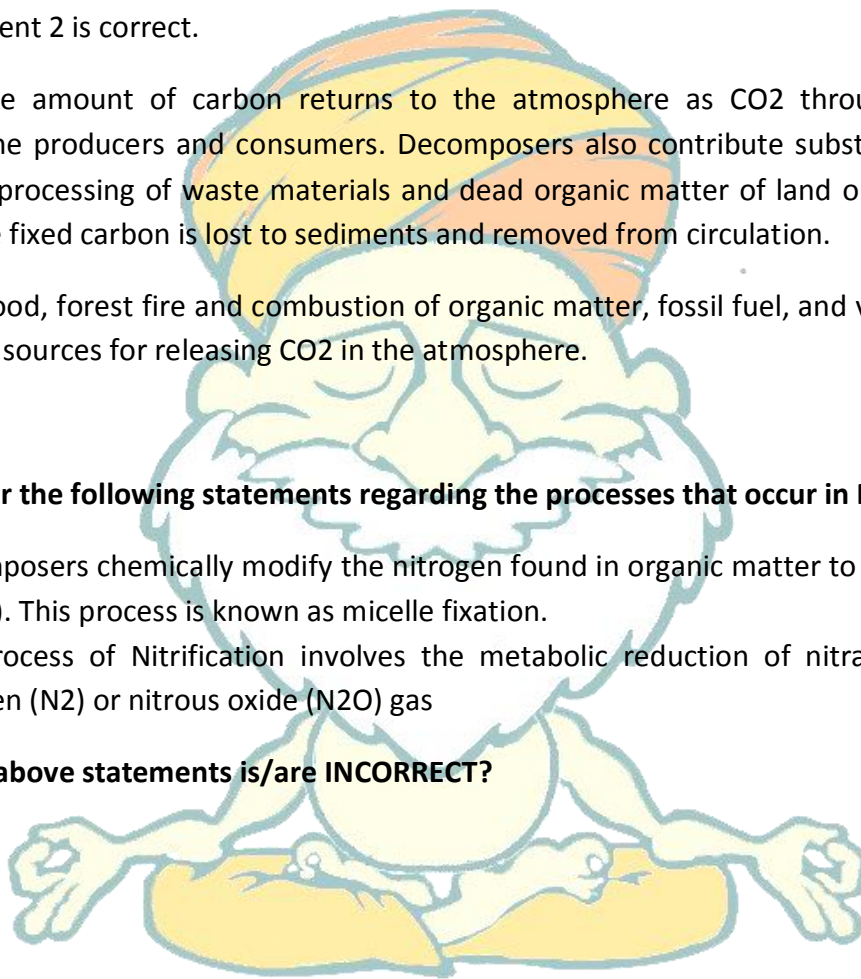
Burning of wood, forest fire and combustion of organic matter, fossil fuel, and volcanic activity are additional sources for releasing CO₂ in the atmosphere.

Q.10) Consider the following statements regarding the processes that occur in Nitrogen cycle

1. Decomposers chemically modify the nitrogen found in organic matter to ammonium ion (NH₄⁺). This process is known as micelle fixation.
2. The process of Nitrification involves the metabolic reduction of nitrate (NO₃⁻) into nitrogen (N₂) or nitrous oxide (N₂O) gas

Which of the above statements is/are INCORRECT?

- a) Only 1
- b) Only 2
- c) Both
- d) None



Q.10) Solution (c)

Decomposers chemically modify the nitrogen found in organic matter to ammonium ion (NH₄⁺). This process is known as mineralization and it is carried out by a variety of bacteria and fungi.

Hence Statement 1 is wrong.

Nitrogen in the form of ammonium can be absorbed onto the surfaces of clay particles in the soil. The ammonium ion has a positive molecular charge and is normally held by negatively charged soil colloids. This process is sometimes called micelle fixation.

Ammonium is released from the colloids by way of cation exchange. When released, most of the ammonium is often chemically altered by a specific type of autotrophic bacteria (bacteria that belong to the genus *Nitrosomonas*) into nitrite (NO_2^-). Further modification by another type of bacteria (belonging to the genus *Nitrobacter*) converts the nitrite to nitrate (NO_3^-). Both of these processes involve chemical oxidation and are known collectively as nitrification.

The process of denitrification involves the metabolic reduction of nitrate (NO_3^-) into nitrogen (N_2) or nitrous oxide (N_2O) gas. Both of these gases then diffuse into the atmosphere, thus removing nitrogen from the soil, accounting for the name, denitrification.

Hence Statement 2 is also incorrect.

Q.11) Which of the following statements in general correctly explains 'edge effect'

- a) The number of species and the population density of some of the species is very low in the zone of transition.
- b) The number of species and the population density of some of the species is greater in the zone of transition.
- c) The species in the zone of transition are completely different from that of the surrounding habitats.
- d) The species in the zone of transition are exactly the same from that exist in the surrounding habitats.

Q.11) Solution (b)

The edge effect is an ecological concept that describes how there is a greater diversity of life in the region where the edges two adjacent ecosystems overlap, such as land/water, or forest/grassland.

At the edge of two overlapping ecosystems, you can find species from both of these ecosystems, as well as unique species that aren't found in either ecosystem but are specially adapted to the conditions of the transition zone between the two edges.

The organisms which occur primarily or most abundantly in this zone are known as edge species.

Q.12) Consider the following statements regarding Ecological Niche

1. Organisms that occupy same or similar ecological niches in different geographical regions are called Ecophenes.
2. Species with broad ecological niches tend to be specialists.

Which of the above statements is/ are correct?

- a) Only 1
- b) Only 2
- c) Both
- d) None

Q.12) Solution (d)

Ecological niche of an organism not only includes the physical space occupied by an organism, but also its functional role in the community of organisms.

Organisms that occupy same or similar ecological niches in different geographical regions are called **ecological equivalents**.

Hence Statement 1 is wrong.

Species with narrow niches tend to be specialists, relying on comparatively few food sources. In contrast, species with broad niches are generalists.

Hence Statement 2 is also wrong.

Ecophene is the range of phenotypic modifications produced by one genotype within the limits of the habitat under which the genotype is found in nature.

Q.13) Consider the following:

Seral Community	Explanation
1. Lithosere	Community on rock
2. Xerosere	Community in dry area
3. Psammosere	Community in saline body
4. Hydrosere	Community in water

Which of the following are correctly matched?

- a) 1, 2 and 3
- b) 1, 2 and 4
- c) 2 and 4
- d) All of the above

Q.13) Solution (b)

Depending on the substratum and climate, a seral community can be one of the following

Seral Community	Explanation
1. Lithosere	Community on rock
2. Xerosere	Community in dry area
3. Psammosere	Community on sand
4. Hydrosere	Community in water
5. Halosere	Community in saline body

Q.14) Consider the following statements regarding the processes of ecological succession

- 1. Ecesis is the increase in population of the species which has become established in the area.
- 2. Nudation is the initial establishment of plant community.

Which of the above statements is/are INCORRECT?

- a) Only 1
- b) Only 2
- c) Both
- d) None of the above

Q.14) Solution (c)

Nudation is the development of a bare site uninhabited by any organism. The process is usually caused by disturbances. The area formed can sustain only autotrophic organisms which can utilize inorganic substrates.

Hence statement 2 is wrong.

Ecesis is the initial establishment of plant community.

Aggregation is the increase in population of the species which has become established in the area.

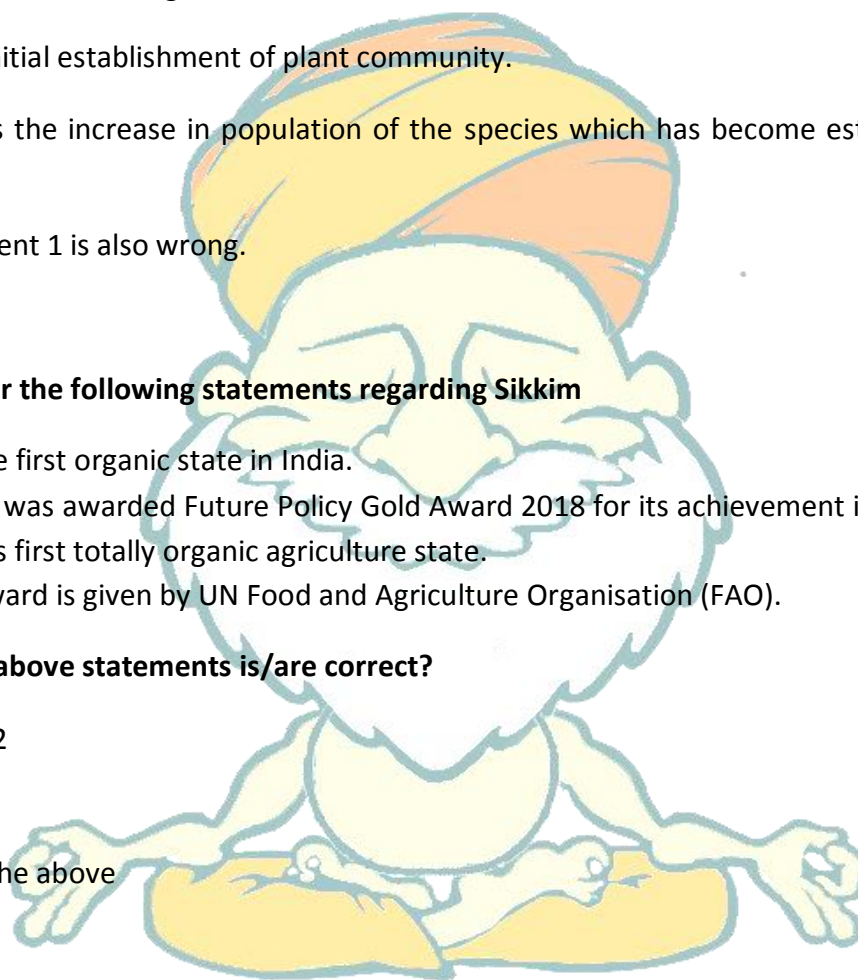
Hence statement 1 is also wrong.

Q.15) Consider the following statements regarding Sikkim

1. It is the first organic state in India.
2. Sikkim was awarded Future Policy Gold Award 2018 for its achievement in becoming the world's first totally organic agriculture state.
3. The award is given by UN Food and Agriculture Organisation (FAO).

Which of the above statements is/are correct?

- a) 1 and 2
- b) Only 1
- c) Only 2
- d) All of the above



Q.15) Solution (d)

India's "100 per cent organic state" Sikkim has won the "Oscar for best policies", conferred by the Food and Agriculture Organisation for the world's best policies promoting agroecological and sustainable food systems.

Sikkim won the Future Policy Award 2018, beating 51 nominated policies from 25 countries, according to a statement. Policies from Brazil, Denmark and Quito (Ecuador) bagged silver awards.

The award is co-organised by the Food and Agriculture Organisation of the United Nations (FAO), the World Future Council (WFC) and IFOAM – Organics International.

Sikkim became the first state in India to officially announce adoption of organic farming in the year 2003 to ensure long term sustenance of soil fertility, protection of environment and ecology, healthy living and decreasing the risk of health ailments.

Sikkim is the first organic state in the world. All of its farmland is certified organic.

Hence all the statements are correct.

Source: <https://timesofindia.indiatimes.com/india/100-per-cent-organic-state-sikkim-gets-fao-award-for-best-policies/articleshow/66219884.cms>

Q.16) Consider the following statements

1. Bio-accumulation occurs across different trophic levels in a food chain.
2. Bio-magnification occurs when an organism absorbs a toxic substance from all sources at a rate greater than that at which the substance is lost.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both
- d) None of the above

Q.16) Solution (d)

Bio-accumulation is the accumulation of contaminants by species in concentrations that are orders of magnitude higher than the surrounding environment. Bioaccumulation occurs when an organism absorbs a toxic substance from all sources at a rate greater than that at which the substance is lost.

Biomagnification stands for Biological Magnification, which means the increase of contaminated substances or toxic chemicals that take place in the food chains. It occurs across different trophic levels in a food chain.

Hence both the statements are wrong.

Q.17) Consider the following statements about Organic World Congress (OWC)

1. The International Federation of Organic Agriculture Movements (IFOAM - Organics International) organizes it.
2. It is an annually organized congress.
3. OWC-2020 is to be conducted in India.

Which of the above statements is/are INCORRECT?

- a) 1 and 2
- b) Only 1
- c) Only 2
- d) 2 and 3

Q.17) Solution (d)

Once every three years, IFOAM - Organics International organizes the Organic World Congress (OWC) in a different country to achieve its vision as the global organic movement and also to provide a platform where organic stakeholders can share their knowledge and expertise and establish valuable partnerships.

Hence statement 1 is correct and statement 2 is incorrect

OWC-2017 was organized in India.

OWC-2020 is to be held in France.

Hence statement 3 is also incorrect.

Source: <https://www.thehindubusinessline.com/business-wire/biofach-india-together-with-india-organic-2017/article22313286.ece>

Q.18) Consider the below statements and select the correct statement from the codes given below:

1. The succession brought about by external conditions and not by the existing organisms is known as allogenic succession.
2. The succession that begins in a predominantly inorganic environment where there is dominance of autotrophic organisms is called Autogenic Succession.

Choose the correct answer:

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.18) Solution (a)

Autotrophic Succession is characterized by early and continued dominance of autotrophic organisms like green plants. It begins in a predominantly inorganic environment.

Hence statement 2 is incorrect.

Allogenic Succession is caused largely by any other external condition and not by existing organisms.

Hence Statement 1 is correct

Autogenic Succession:- It is the community itself, which as a result of its reactions with environment, modifies its own environment and thus causing its own replacement by new communities.

Micro Succession involves the succession of microorganisms.

Q.19) Consider the following pair of biotic interactions.

Type of interaction	Result
1. Neutralism	No net benefit or harm to either species
2. Amensalism	One species benefits, one is not affected
3. Parasitism	One species benefits, one is harmed

Which of the above pairs is/are correct?

- a) 1 and 3
- b) 2 and 3
- c) Only 1
- d) All of the above

Q.19) Solution (a)

Mutualism: both species benefit.

Example: in pollination mutualism is seen, the pollinator gets food (pollen, nectar), and the plant has its pollen transferred to other flowers for cross-fertilization (reproduction).

Commensalism: one species benefits, the other is unaffected.

Example: Cow dung provides food and shelter to dung beetles. The beetles have no effect on the cows.

Competition: both species are harmed by the interaction.

Example: If two species eat the same food, and there isn't enough for both, both may have access to less food. They both suffer a shortage of food.

Predation and parasitism: one species benefits, the other is harmed.

Example: Parasitism: tick gains benefit by sucking blood; host is harmed by losing blood.

Amensalism: One species is harmed, the other is unaffected.

Example: A large tree shades a small plant, retarding the growth of the small plant. The small plant has no effect on the large tree.

Neutralism: There is no net benefit or harm to either species.

Q.20) Which of the following statements best describes 'Ecotype'?

- a) It is a type of marine ecosystem that provides an alternative to a species of terrestrial for growth and survival.
- b) It is a transition area between two biomes where communities interact.
- c) It is a genetically distinct variety within a species, which is adapted to specific environmental conditions.
- d) It is a type of ecosystem in which inherent balance is maintained between autotrophs and heterotrophs.

Q.20) Solution (c)

In evolutionary ecology, an ecotype, sometimes called ecospecies, describes a genetically distinct geographic variety, population or race within a species, which is genotypically adapted to specific environmental conditions.

Typically, though ecotypes exhibit phenotypic differences (such as in morphology or physiology) stemming from environmental heterogeneity, they are capable of interbreeding with other geographically adjacent ecotypes without loss of fertility or vigor.

Q.21) You will notice that Nordic countries are always on the top chart of any international index or reports. Consider the following w.r.t Nordic Countries:

- 1. Finland is the only Nordic country to have border with Russia
- 2. Sweden lies west of the Baltic Sea and Gulf of Bothnia

Which of the given statement/s is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.21) Solution (b)

The Nordic countries are generally considered to refer to Denmark, Finland, Iceland, Norway and Sweden, including their associated territories (Greenland, the Faroe Islands and the Åland Islands).

Norway also borders Russia.



Q.22) Match the following

1. Bru Tribe:: Meghalaya
2. Reang Tribe:: Tripura
3. Apatani Tribe: Arunachal Pradesh

Select the correct match:

- a) 3 only
- b) 1 and 2

- c) 2 and 3
- d) 1, 2 and 3

Q.22) Solution (c)

Bru Tribe belongs to Mizorum

Source: <https://www.thehindu.com/news/national/other-states/over-30000-brus-to-be-repatriated-by-sept-30/article24325004.ece>

Q.23) The National Board for Wildlife (NBWL) recently added four species to a Recovery Programme for Critically Endangered Species. Which is not one of them?

- a) Sparrow
- b) Clouded leopard
- c) Arabian Sea Humpback Whale
- d) Red Panda

Q.23) Solution (a)

The National Board for Wildlife (NBWL) recently added four species- ***the Northern River Terrapin, Clouded Leopard, Arabian Sea Humpback Whale, Red Panda***- to a Recovery Programme for Critically Endangered Species on the recommendation of a Standing Committee.

So far, 17 + 4, species have been identified under the recovery programme. These are the

- Snow Leopard,
- Bustard (including Floricans),
- Dolphin,
- Hangul,
- Nilgiri Tahr,
- Marine Turtles,
- Dugongs,
- Edible Nest Swiftlet,
- Asian Wild Buffalo,

- Nicobar Megapode,
- Manipur Brow-antlered Deer,
- Vultures,
- Malabar Civet,
- Indian Rhinoceros,
- Asiatic Lion,
- Swamp Deer
- Jerdon's Courser.

Source: <https://www.downtoearth.org.in/news/wildlife-biodiversity/4-species-added-to-recovery-programme-by-wildlife-board-60997>

Q.24) India's first biofortified sorghum (jowar), was formally launched recently. Consider the following statements regarding it:

1. It is developed by International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
2. It can be grown in rainy, post-rainy and summer seasons.

Select the correct statement/s:

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.24) Solution (c)

India's first biofortified sorghum (jowar), with significantly higher iron and zinc than regular sorghum, was formally released.

- Developed by ICRISAT it was released for cultivation by Vasant Rao Naik Marathwada Krishi Vidyapeeth (VNMKV), Maharashtra.
- The improved variety ICSR 14001, released as 'Parbhani Shakti' by VNMKV, offers a cost-effective and sustainable solution to address micronutrient deficiency. An MoU was

signed today between ICRISAT and VNMKV for large-scale seed production and dissemination.

- This improved sorghum variety was developed by ICRISAT under the HarvestPlus sorghum biofortification project and was tested as PVK 1009 in Maharashtra state and in All India Co-ordinated Sorghum Improvement Project (AICSIP) Trials.
- It was released as a rainy season variety (Kharif) but it can be grown in post-rainy (Rabi) and summer seasons. The yield levels are higher (>5.0 t ha⁻¹) in post-rainy and summer seasons with irrigation.
- When grown in summer season, it can tolerate higher temperatures (41°C) at flowering and seed setting but the flowering may be delayed (80 days).

Source: <https://www.icrisat.org/india-gets-its-first-biofortified-sorghum/>

Q.25) Consider the following statements regarding the 'Asia Pacific Trade Agreement (APTA)'

1. It was formerly known as Hong Kong Declaration
2. APTA is an initiative under the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)
3. India is a founding member of APTA

Select the correct statements

- a) 1 and 3
- b) 2 and 3
- c) 1 and 2
- d) 1, 2 and 3

Q.25) Solution (b)

The results of 4th Round of negotiations under the Asia Pacific Trade Agreement (APTA) (formerly Bangkok Agreement) among six countries, namely, Bangladesh, China, India, Lao PDR, Republic of Korea, and Sri Lanka, have been implemented with effect from 1st July, 2018.

- APTA is an initiative under the **United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)** for trade expansion through exchange of tariff

concessions among developing country members of the **Asia Pacific Region, in place since 1975.**

- APTA is a Preferential Trade Agreement, under which the basket of items as well as extent of tariff concessions are enlarged during the trade negotiating rounds which are launched from time to time.
- **India is a founding member**

Source: <https://economictimes.indiatimes.com/news/economy/foreign-trade/india-to-provide-tariff-concessions-on-3142-items-to-apta-members/articleshow/64825996.cms>

Q.26) 'Foreign Direct Investment Confidence (FDI) Index' is published by

- a) A.T. Kearney
- b) World Economic Forum
- c) Boston Consulting Group
- d) World Bank

Q.26) Solution (a)

The Foreign Direct Investment Confidence (FDI) Index prepared by A.T. Kearney is an annual survey which tracks the impact of likely political, economic, and regulatory changes on the foreign direct investment intentions and preferences of CEOs, CFOs, and other top executives of Global 1000 companies.

India was ranked 11th in the 2018 index.

India remains the second highest ranked emerging market on the Index. A variety of recent reforms have made its regulatory environment more business friendly and economic growth is forecast to rebound this year.

Source: <https://www.thehindu.com/business/Economy/india-drops-three-ranks-in-at-kearney-fdi-confidence-index/article24497785.ece>

Q.27) Which of the following statements is/are correct with respect to 'SRIMAN' Scheme?

1. It encourages voluntary monetary contribution from private individuals and organizations so as to improve the infrastructure facilities for primary and secondary schools
2. It enables the top foreign education institutions to open their campuses in India

Select the correct statements

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.27) Solution (d)

Scientific Research Infrastructure Management and Networks (SRIMAN)

NEWS: SRIMAN proposed to transform scientific instruments in government labs into lucrative assets generating a steady rental income

About

- To address various issues for effective utilization of its research infrastructure.
- It plans to hire out to researchers all lab equipment that cost more than ₹10 lakh.

Objective

- Simplified but smarter ways of procurement and maintenance of scientific equipment and infrastructure.
- Providing greater access to instruments funded by the Government of India and its agencies through a network all over the country.
- Providing a framework for smarter ways of disposal of dated equipments and infrastructure
- Providing a framework to improve and promote efficiency of operations of research infrastructure
- A broad template to monitor utilization of expensive research infrastructure.

Benefits

- It will promote creation of a regional ecosystem, by galvanizing relevant stakeholders of scientific research infrastructure that provides wider access to scientists, researchers and industry professionals across the country.
- It will also help in creating a pool of trained operators for operation and maintenance of the equipment.

Source: <https://www.thehindu.com/education/rent-a-lab-policy-to-bring-revenues-to-institutions/article24477344.ece>

Q.28) Consider the following statements with respect to 'International Comparison Program (ICP)'

1. It compares how climate change impacts regions across the globe in different ways
2. It is led by the Intergovernmental Panel on Climate Change (IPCC)

Select the correct statements

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.28) Solution (d)

International Comparison Program (ICP)

- The ICP is a worldwide statistical initiative led by the World Bank under the auspices of the United Nations Statistical Commission, with the main objective of providing comparable price and volume measures of gross domestic product (GDP) and its expenditure aggregates among countries within and across regions.
- Through a partnership with international, regional, sub-regional and national agencies, the ICP collects and compares price data and GDP expenditures to estimate and publish purchasing power parities (PPPs) of the world's economies.

PPPs

- PPPs measure the total amount of goods and services that a single unit of a country's currency can buy in another country.
- PPPs are widely used to convert national accounts data, like GDP, into a common currency, while also eliminating the effect of price level differences between countries.

News: 50th Anniversary of the ICP

Q.29) Consider the following statements with respect to 'White Helmets'

1. They serve under the authority of the North Atlantic Treaty Organization (NATO)
2. They are deployed to implement and monitor peacekeeping agreements concerning NATO members and allies

Select the correct statements

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.29) Solution (d)

The White Helmets officially known as Syria Civil Defence is a volunteer organisation that operates in parts of rebel-controlled Syria and in Turkey.

Source: <https://www.thehindu.com/news/international/syrian-white-helmet-members-flee-to-jordan/article24488994.ece>

Q.30) 'Lake Titicaca' is bordered by

1. Ecuador
2. Colombia
3. Peru

Select the correct code:

- a) 1 and 2
- b) 2 and 3
- c) 3 Only
- d) 1 and 3

Q.30) Solution (c)

Lake Titicaca is a large, deep lake in the Andes on the border of Bolivia and Peru, often called the "highest navigable lake" in the world. By volume of water and by surface area, it is the largest lake in South America. Lake Maracaibo has a larger surface area, but it is a tidal bay, not a lake.



Q.21) Which of the following statements about World Wetlands Day is/are correct?

1. The theme for World Wetlands Day 2018 is 'Wetlands and Climate Change'.
2. Every year, February 2 is celebrated as World Wetlands Day.
3. In 2018, the World Wetlands Day (WWD) is celebrated in India at Sundarbans, West Bengal.

Select from the given codes:

- a) Only 1
- b) Only 2
- c) 2 and 3
- d) All of the above

Q.21) Solution (b)

World Wetlands Day is celebrated every year on **2 February**. This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea.

Hence statement 2 is correct.

The Ministry of Environment, Forest and Climate Change (MoEF&CC) in collaboration with Department of Forests, Assam government has organised the national-level celebration of World Wetlands Day (WWD), 2018 at Deepor Beel, a Ramsar Site in Guwahati.

Hence statement 3 is incorrect.

The **2018 theme 'Wetlands for a sustainable urban future'** marks the role of healthy wetlands play in making cities and towns liveable, through their role in groundwater recharge, buffering floods, filtering wastewater, enhancing landscape aesthetics, providing income generation opportunities and ultimately supporting well-being.

The **2019 theme 'Wetlands and Climate Change'** has been chosen to initiate actions against the drainage of wetlands.

Hence Statement 1 is incorrect.

Source: PIB

Q.22) Consider the following statements

1. The National River Conservation Plan (NRCP) and the National Lake Conservation Plan (NLCP) are merged to form National Plan for Conservation of Aquatic Eco-systems (NPCA).
2. NPCA is a centrally sponsored scheme.
3. The National River Conservation Directorate (NRCD) is implementing the NPCA.

Which of the above statements is/are correct?

- a) Only 1
- b) 2 and 3
- c) Only 2
- d) All of the above

Q.22) Solution (b)

For conservation of lakes and wetlands, Ministry of Environment and Forests has been implementing two separate Centrally Sponsored Schemes (CSS), namely the National Wetlands Conservation Programme (NWCP) and the National Lake Conservation Plan (NLCP).

The Ministry with the approval of GOI in Feb, 2013, has merged the above two schemes into a new integrated scheme named 'National Plan for Conservation of Aquatic Eco-systems' (NPCA).

Hence statement 1 is wrong.

The National River Conservation Directorate (NRCD) in the Ministry of Environment, Forests and Climate Change is implementing the Centrally Sponsored Schemes of National River Conservation Plan (NRCP) and National Plan for Conservation of Aquatic Eco-systems (NPCA) for conservation of rivers, lakes and wetlands in the country.

Hence statement 2 and 3 are correct.

Source: PIB

Q.23) Which of the following statements regarding Ramsar sites is/are incorrect?

1. Sundarban wetland of India is the largest among all the Ramsar sites in the World.
2. Among the Ramsar Member States, India is home to 2nd highest number of Ramsar sites.
3. The Sundarbans Reserved Forest in Bangladesh is also a Ramsar site.

Select from the given codes:

- a) Only 2
- b) 2 and 3
- c) 1 and 2
- d) 1,2 and 3

Q.23) Solution (c)

Sundarbans is the 27th Ramsar Site in India, and with an area of 4,23,000 hectares is now the largest protected wetland in the country.

The largest Ramsar Sites are Ngiri-Tumba-Maindombe in the Democratic Republic of Congo and Queen Maud Gulf in Canada; these Sites each cover over 60,000 square kilometres. Others are as small as one hectare.

Hence statement 1 is incorrect.

India has only 27 Ramsar Sites, which is not even in top-10 countries with highest Ramsar Sites.

The countries with the most Sites are the United Kingdom with 170 and Mexico with 142. Bolivia has the largest area with 148,000 km² under Ramsar protection.

Hence statement 2 is also incorrect.

The Bangladesh part of the Sunderbans had received the Ramsar tag way back in 1992.

Hence statement 3 is correct.

Source: <https://www.thehindu.com/sci-tech/energy-and-environment/protecting-the-sundarban-wetlands/article26482707.ece>

Q.24) Consider the following statements regarding Montreux Record

1. A site can only be included in Montreux record with the approval of the Contracting Party concerned.
2. Recently India's Sundarbans Wetland is included in Montreux Record.

Which of the above statements is/are incorrect?

- a) Only 1
- b) Only 2

- c) Both 1 and 2
- d) None of the above

Q.24) Solution (b)

The Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference. It is maintained as part of the Ramsar List.

A site can only be included in the Record with the approval of the Contracting Party concerned.

Hence statement 1 is correct.

Keoladeo National Park, Rajasthan and Loktak Lake, Manipur are the two Ramsar Sites from India that are now a part of Montreux Record.

Hence Statement 2 is incorrect.

Chilika Lake, was removed from the Montreux Record in 2002.

Source: Ramsar Website.

Q.25) Consider the following:

Reef type	Predominantly found at
1. Oceanic atolls	Andaman and Nicobar Islands
2. Platform reefs	Gulf of Kutch
3. Barrier reefs	Lakshadweep group of islands

Which of the above are correctly matched?

- a) Only 2
- b) Only 3
- c) 1 and 2
- d) 1,2 and 3

Q.25) Solution (a)

Reef type	Predominantly found at
1. Barrier reefs	Andaman and Nicobar Islands
2. Platform reefs	Gulf of Kutch
3. Oceanic atolls	Lakshadweep group of islands

4. Fringing Reefs	Gulf of Mannar, Gulf of Kutch, Andaman and Nicobar Islands
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Q.26) Consider the following statements

1. Mesophotic coral systems can survive only in well-lit environments.
2. Mesophotic coral reefs are not detectable in satellite images.
3. Shallow water coral reef systems are found at greater depths compared to Mesophotic Coral Ecosystems.

Which of the above statements is/are incorrect?

- a) Only 1
- b) Only 2
- c) 1 and 3
- d) 2 and 3

Q.26) Solution (c)

General differences between shallow-water coral reef ecosystems and Mesophotic Coral Ecosystem's.

	Shallow-water coral reef ecosystems	Mesophotic coral ecosystems (MCEs)
Depth range	<ul style="list-style-type: none"> • 0 to approx. 30–40 m. • Lower depth corresponds to a moderate faunal transition. • Detectable in satellite images. 	<ul style="list-style-type: none"> • From approx. 30–40 m to deeper than 150 m. • Lower depth limit varies by location due to differences in light penetration and other abiotic factors. • Not detectable in satellite images.
Light levels	<ul style="list-style-type: none"> • Generally well-lit environments. • Shallow reefs can become light-limited in turbid waters (e.g. near estuaries) 	<ul style="list-style-type: none"> • Generally middle- to low-light environments.

Thermal regime	<ul style="list-style-type: none"> • Generally stable thermal regime. • Shallow, stratified waters with high residence time may be subject to extreme thermal events causing coral bleaching. 	<ul style="list-style-type: none"> • Generally temperatures are cooler and naturally more variable on MCEs than on shallower reefs, especially those located on the continental slope, which are subject to internal waves. • Deeper water column may protect MCEs from extreme (warm) thermal events.
Hydrodynamic Regime	<ul style="list-style-type: none"> • Subject to breaking waves and turbulence, except in sheltered lagoons. • Wave-induced shear stress and mobilization of seafloor sediments. • High residence times within lagoons. 	<ul style="list-style-type: none"> • Below the depth affected by breaking waves. • Seafloor generally unaffected by wave motion. Powerful storms can directly and indirectly impact MCEs (resuspend sediment or cause a debris avalanche), especially in the upper mesophotic zone (30–50 m).

Source: <https://www.theguardian.com/world/2019/mar/11/first-coral-reef-in-italy-discovered-on-adriatic-coast-monopoli-puglia-mesophotic-ecosystem>

Q.27) Which of the following statements regarding Mangroves is/are incorrect?

1. Mangroves store more carbon per equivalent area than tropical forests.
2. Mangrove species have roots which are very shallow.

Select from the given codes:

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.27) Solution (d)

Mangroves are great carbon sinks. They store more carbon per equivalent area than tropical forests.

Hence statement 1 is correct.

All mangrove species have laterally spreading roots with attached vertical anchor roots. These roots are very shallow.

Hence statement 2 is correct.

Additional Information:

There are about 80 different species of mangrove trees. All of these trees grow in areas with low-oxygen soil, where slow-moving waters allow fine sediments to accumulate. Mangrove forests only grow at tropical and subtropical latitudes near the equator because they cannot withstand freezing temperatures.

Mangrove forests stabilize the coastline, reducing erosion from storm surges, currents, waves, and tides. The intricate root system of mangroves also makes these forests attractive to fish and other organisms seeking food and shelter from predators.

Q.28) Consider the following statements

1. Many species of mangrove trees have aerial roots, called Propagules.
2. Mangrove seeds begin growing while still attached to plants, these seedlings are called Pneumatophores.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.28) Solution (d)

Many species of mangrove trees have aerial roots, called **pneumatophores**, that take up oxygen from the air for the roots. Some species also have prop roots or stilt roots extending from the trunk or other roots that help them withstand the destructive action of tides, waves, and storm surges.

Hence statement 1 is incorrect.

Many mangrove trees also have a unique method of reproduction. Instead of forming seeds that fall to the soil below and begin growing, mangrove seeds begin growing while still attached to the parent plant. These seedlings, called **propagules**, even grow roots. After a period of growth, these seedlings drop to the water below and float upright until they reach water that is shallow enough for their roots to take hold in the mud.

Hence statement 2 is incorrect.

Q.29) Consider the following:

Ramsar Site	State in which it is located
1) Chandertal wetland	Uttarakhand
2) Renuka wetland	Himachal Pradesh
3) Harike Lake	Jammu and Kashmir
4) Rudrasagar Lake	Tripura

Which of the above are not correctly matched?

- a) 1 and 2
- b) 2 and 4
- c) 1 and 3
- d) Only 3

Q.29) Solution (c)

There are 27 Ramsar sites from India.

Ramsar Site	State in which it is located
Andhra Pradesh	1. Kolleru
Assam	2. Deepor Beel
Gujarat	3. Nalsarovar Bird Sanctuary
Himachal Pradesh	4. Pong Dam Lake 5. Chandertal Wetland 6. Renuka Wetland
Jammu & Kashmir	7. Wular Lake 8. Tsomoriri 9. Hokera Wetland 10. Surinsar-Mansar Lake
Kerala	11. Vembanad Kol Wetland

	12. Ashtamudi Wetland 13. Sasthamkotta lake
Madhya Pradesh	14. Bhoj Wetland
Manipur	15. Loktak Lake
Odisha	16. Chilika Lake 17. Bhitarkanika Wetland
Punjab	18. Harike Wetland 19. Kanjli Wetland 20. Ropar Wetland
Rajasthan	21. Sambhar Lake 22. Keoladeo National Park
Tamil Nadu	23. Point Calimere Wildlife and Bird Sanctuary
Tripura	24. Rudra Sagar Lake
Uttar Pradesh	25. Upper Ganga River
West Bengal	26. East Calcutta Wetland 27. Sundarbans Wetland

Source: Shankar IAS book.

Q.30) Consider the following statements regarding Coral reefs

- 1) Fringing Reefs are platforms separated from the adjacent land by a bay or Lagoon.
- 2) Barrier Reefs project seaward directly from the shores of islands or continents.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both
- d) None

Q.30) Solution (d)

Reefs are classified in three types. Fringing Reefs, the most common type, project seaward directly from the shores of islands or continents.

Hence statement 1 is incorrect.

Barrier Reefs are platforms separated from the adjacent land by a bay or lagoon.

Barrier Reefs grow parallel to the shoreline and develop due to the subsiding of islands around which fringing reefs grow. They are separated from the mainland by a deep lagoon.

The longest barrier reefs occur off the coasts of Australia.

Hence statement 2 is incorrect.

Atolls are reefs that grow around islands, which gradually sink into the sea over centuries due to volcanic activity leaving the reef behind. Atolls can take up to 30 million years to form.

Atolls rest on the tops of submerged volcanoes. They are usually circular or oval with a central lagoon.

Q.31) Consider the following statements

1. While the annual range of temperature is very small, diurnal temperature range is high.
2. Tropical rain forests, if cleared are suitable for long term agriculture.

Which of the above statements is/are incorrect?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.31) Solution (c)

The lushness of the tropical rain forest suggests a high net productivity, but this is illusory as the high rainfall leaches soil minerals below the reach of the plant roots.

Hence statement 1 is incorrect.

There is a great uniformity of temperature throughout the year, which is around 28 degree Celsius with very little variation.

The diurnal as well as annual range of temperature is very small.

Hence statement 2 is incorrect.

Once the humus is used and the natural vegetative cover is removed, the torrential downpours soon washout most of the soil nutrients, making the soils of tropical rain forest useless for agricultural purposes.

Q.32) Which of the following statements is/are correct regarding Temperate Forest

1. It is characterized by softwood trees.
2. The diurnal range of temperature in this biome is very small.
3. The soil in the temperate forest is mostly of poor quality.

Select from the given codes:

- a) Only 2
- b) 1 and 3
- c) Only 3
- d) 1 and 2

Q.32) Solution (c)

Temperate forest is characterized by hardwood trees. Example:- Maple, Oak etc

Hence statement 1 is wrong.

The average temperature in temperate forest is around 15 degree Celsius in the daytime and can get below freezing in the night time. Hence diurnal range is not small.

Hence statement 2 is wrong.

The soil in temperate forest is generally rocky, sandy and is known to be mostly of poor quality.

Hence statement 3 is correct.

The trees in temperate forests shed their leaves in the autumn against that of trees of Tropical deciduous forests which shed their leaves in summer season.

Know about it: Why do trees shed their leaves? and why it is in different seasons for different biomes?

Q.33) Consider the following statements

1. Boreal forests represent the largest terrestrial biome.

2. The trees of boreal forest tend to have shallow roots.
3. The needle-leaves of boreal conifers have thick waxy coatings.
4. The soils of boreal forest are generally basic in nature.

Which of the above statements is/are incorrect?

- a) 1 and 3
- b) 2 and 4
- c) Only 2
- d) Only 4

Q.33) Solution (d)

Boreal forests or Taiga represent the largest terrestrial biome. Boreal forests are dominated by conifers, especially spruces and firs.

Hence statement 1 is correct.

Boreal forests correspond with regions of subarctic and cold continental climate.

There are long severe winters and short summers.

The needles of boreal conifers have thick waxy coatings (a water proof cuticle) in which stomata are sunken and protected from dry winds.

Hence statement 3 is correct.

The trees of boreal forests tend to have shallow roots, due to thin soils.

Hence statement 2 is correct.

The soils of the boreal forest are often acidic, due to falling pine needles and low on nutrients since cold temperatures do not allow much foliage to rot.

Hence statement 4 is incorrect.

Q.34) Consider the following statements

1. World's largest 3D-printed reef is installed in Mauritius.
2. In India, artificial reefs are deployed in Vaan island, which is funded by UNEP.
3. Vaan island is one of the islands in Andaman and Nicobar islands.

Which of the above statements is/are incorrect?

- a) 1 and 2
- b) Only 3
- c) Only 2
- d) 1,2 and 3

Q.34) Solution (d)

Developed using computer modeling and a 3D printer at a lab in Melbourne, Australia, the artificial reef was designed to resemble reef structures typically found in the Maldives.

The molds were shipped to the Maldives, filled with concrete, assembled on-site at Summer Island and then submerged seven metres below the surface.

Live coral was then transplanted within the artificial reef, where it's hoped that within two to three years, it will grow and colonise the structure.

The 3D-printed reef installed in Maldives is the world's largest.

Hence statement 1 is incorrect.

Tamil Nadu government in collaboration with IIT Madras have been restoring Vaan island by deploying artificial reefs.

The Vaan Island project was funded by the National Adaptation Fund for Climate Change of the Ministry of Environment, Forests and Climate Change.

Hence statement 2 is incorrect.

Vaan Island is one of 21 islands in the Gulf of Mannar between India and Sri Lanka.

Hence statement 3 is incorrect.

Q.35) Consider the following:

Grass Lands	Area it is predominantly found in
1. Pustaz	Uruguay
2. Veldts	Australia
3. Pampas	Argentina
4. Downs	South America

Which of the above are not correctly matched?

- a) Only 1
- b) Only 3
- c) 1 and 2
- d) 1,2 and 4

Q.35) Solution (d)

Some of the important grasslands are

Grass Lands	Area it is predominantly found in
1. Pustaz	Hungary
2. Veldts	South Africa
3. Pampas	Argentina
4. Downs	Australia
5. Savannas	Africa
6. Steppes	Russia/China
7. Prairies	North America

Q.36) Consider the following statements about different zones of a lake/pond

- 1. Limnetic Zone is warmest of all the zones.
- 2. Benthic Zone is devoid of any life.

Which of the above statements is/are incorrect?

- a) Only 1
- b) Only 2
- c) Both
- d) None

Q.36) Solution (c)

The topmost zone near the shore of a lake or pond is the Littoral zone. This zone is the warmest since it is shallow and can absorb more of the Sun's heat.

Hence statement 1 is incorrect.

The near-surface open water surrounded by the littoral zone is the limnetic zone. The limnetic zone is well-lighted (like the littoral zone) and is dominated by plankton, both phytoplankton and zooplankton.

Benthic Zone is at the bottom of the lake. Tiny, microscopic benthic organisms live in this zone and act as a source of food for bottom feeding animals. Benthic organisms are very important as they are good indicators of water quality.

There are a wide range of species found living within the substrate of the benthic zone, these species are referred to as benthos.

Benthos is also critical for the breakdown of organic matter. Species use organic matter as their food source making them a key player in nutrient cycling process.

Hence statement 2 is also incorrect.

Q.37) Which of the following statements is/are true Ramsar convention

1. It releases the Global Wetland Outlook.
2. International Water Management Institute (IWMI) is one of the International Organizational Partners of the convention.
3. At the time of joining the Convention, each Contracting Party must designate at least one wetland site within their territory for inclusion in the Ramsar List.
4. It is an Intergovernmental treaty.

Select from the given codes:

- a) 1,2 and 3
- b) 2,3 and 4
- c) 1,3 and 4
- d) All

Q.37) Solution (d)

The Convention on Wetlands, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.

The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

Hence statement 4 is correct.

The Convention works very closely with six global non-governmental organizations (NGOs) which have the formal status of International Organization Partners of the Convention. Birdlife International, IUCN – International Union for Conservation of Nature, Wetlands International and WWF have all been associated with the Convention since its beginnings.

Later International Water Management Institute (IWMI) and Wildfowl & Wetlands Trust (WWT) are added.

Hence statement 2 is correct.

At the time of joining the Convention, each Contracting Party must designate at least one wetland site within their territory for inclusion in the List of Wetlands of International Importance (the Ramsar List).

Hence statement 3 is correct.

Global Wetland Outlook is released by Ramsar Convention. It provides a current overview of global wetlands: their extent, trends, drivers of change and the responses needed to reverse the historical decline in wetland area and quality.

Hence statement 1 is correct.

Source: Ramsar website

Q.38) Consider the following statements

1. Plants and animals that can tolerate only slight changes in salinity are called Euryhaline.
2. Plants and animals that can tolerate wide range of salinities are called Stenohaline .

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.38) Solution (d)

Plants and animals that can tolerate only slight changes in salinity are called Stenohaline. These organisms usually live in either freshwater or saltwater environments. In general Stenohaline organisms cannot tolerate the rapid changes in salinity.

Hence statement 1 is wrong.

Plants and animals that can tolerate wide range of salinities are called Euryhaline. These are the species that are often found in the brackish water of estuaries. These organisms adapt to constantly changing salinities. For example, the smooth cordgrass has special filters on its roots to remove salt from the water it absorbs.

Hence statement 2 is incorrect.

Q.39) Which of the following correctly explains Marine Snow

- a) Marine snow is the falling debris of dead organisms in the ocean, such as plankton and algae.
- b) Marine snow is the water which is in frozen state in oceans.
- c) It is the phenomenon whereby the freezing temperature of ocean water is less than zero degree Celsius.
- d) The snowfall on open ocean is termed as Marine Snow.

Q.39) Solution (a)

Marine snow is a shower of organic material falling from upper waters to the deep ocean. Marine snow is the falling debris of dead organisms in the ocean, such as plankton and algae.

As plants and animals near the surface of the ocean die and decay, they fall toward the seafloor, just like leaves and decaying material fall onto a forest floor. In addition to dead animals and plants, marine snow also includes fecal matter, sand, soot, and other inorganic dust.

The decaying material is referred to as "marine snow" because it looks a little bit like white fluffy bits. The "snowflakes" grow as they fall, some reaching several centimeters in diameter. Some flakes fall for weeks before finally reaching the ocean floor.

This continuous rain of marine snow provides food for many deep-sea creatures. Many animals in the dark parts of the ocean filter marine snow from the water or scavenge it from the seabed. NOAA scientists and others have measured the amount of useable material in marine

snow and found that there is plenty of carbon and nitrogen to feed many of the scavengers in the deep sea.

The small percentage of material not consumed in shallower waters becomes incorporated into the muddy "ooze" blanketing the ocean floor, where it is further decomposed through biological activity. About three-quarters of the deep ocean floor is covered in this thick, smooth ooze. The ooze collects as much as six meters every million years.

Q.40) Consider the following:

Mangroves	Location
1. Godavari-Krishna Mangroves	Telangana
2. Pichavaram Mangroves	Andhra Pradesh
3. Baratang Island Mangroves	Lakshadweep

Which of the above are not correctly matched?

- a) Only 1
- b) Only 2
- c) 1 and 2
- d) 1,2 and 3

Q.40) Solution (d)

Mangroves	Location
1. Godavari-Krishna Mangroves	Andhra Pradesh
2. Pichavaram Mangroves	Tamil Nadu
3. Baratang Island Mangroves	Andaman
4. Sundarbans	West Bengal
5. Bhitarkanika	Odisha

