IASBABA

One Stop Destination for UPSC/IAS Preparation

60 Days Week-1&2 Compilation

DELHI

5B, Pusa Road, Karol Bagh, New Delhi –110005. Landmark: Just 50m from Karol Bagh Metro Station, GATE No. 8 (Next to Croma Store)

Ph:0114167500

BANGALORE

#1737/37, MRCR Layout, Vijaynagar Service Road, Vijaynagar, Bangalore 560040. PH: 09035077800 / 7353277800

support@iasbaba.com

www.iasbaba.com

Q.1) An ecosystem consists of both biotic and abiotic factors. Which of the below are abiotic factors?

1. Protists
2. Light
3. Water
4. Soil or substrates

Choose the correct option from below

a) 1 only
b) 1, 2 and 4only
c) 2 , 3 and 4 only
d) 1 ,3 and 4 only

Q.1) Solution (c)

An ecosystem depends on the interactions of the living and nonliving elements in the system.

Biotic factors	**Abiotic factors**
Decomposers Plants Herbivores Fungus Protists: Protists generally are one-celled microscopic organisms, Animal-like protists such as paramecia and amoebas eat bacteria and smaller protists, so they form part of the food chain. Fungus-like protists often serve as decomposers in the ecosystem.	Air Soil or substrate Water Light Salinity Temperature

Q.2) Ecology focuses on the larger scales in biology, from the individual organism through populations, communities, ecosystems, and the Biosphere. Match the levels with their properties given below

1. Population	Inter - breeding groups of individuals of the same species, generally living in the same contiguous habitat.
2. Communities	Interacting populations of different species.
3. Ecosystem	They contain both the broad biological community and all the physical processes
4. Biosphere	Includes all the biological and physical processes that allow for and influence life on Earth.

Which of the above is/are correctly matched?

a) 1 only
b) 1, 2 and 4only

c) 1, 2 and 3 only
d) All of the above

Q.2) Solution (d)

Levels of organization in ecology	Properties.
Populations	Are interbreeding groups of individuals of the same species, generally living in the same contiguous habitat.
Communities	Are interacting populations of different species
Ecosystems	Are comprised of both the biotic (living) and abiotic (non-living) factors in a given area; they contain both the broad biological community and all the physical processes (such as weather, soil, hydrology, nutrients, energy flow etc.) that influence that community.
Bisophere	Is global in scale, and includes all the biological and physical processes that allow for and influence life on Earth.

Q.3) Natural selection is the driving force of adaptation and evolution, Consider the following statements:

1. Natural selection occurs only on the scale of the individual organism
2. Natural selection means that those heritable traits that increase the fitness of an individual organism have a greater probability of being present in future generations within the population

Which of the above statement is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) None of the above

Q.3) Solution (b)

Statement-1: Incorrect	**Statement-2: correct**
Biologists generally agree that natural selection **occurs predominantly on the scale of the individual organism** (Williams 1966), although some argue that it can theoretically occur at other scales as well (Wilson 1980). Each individual organism acts to maximize its own survival and ability	Natural selection means that those heritable traits that increase the fitness of an individual organism have a greater probability of being present in future generations within the population. The fact that selection is nearly always strongest on the scale of the individual organism has

to produce offspring that are in turn able to survive and reproduce (called fitness by biologists), even at the expense of other organisms of the same species.	important ramifications for understanding ecology (Levin 2002)

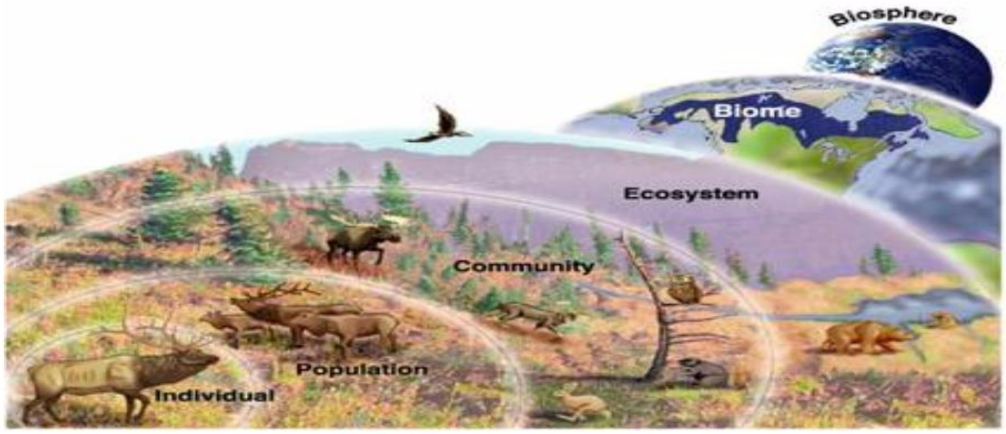
Q.4) Level of organisation is important in study of ecosystem, Arrange the following in increasing order in organisation of ecosystem

1. Individual
2. Community
3. Population
4. Biome
5. Ecosystem
6. Biosphere

Choose correct option from below:

a) 1-2-3-4-5-6
b) 1-3-2-4-5-6
c) 1-3-2-5-4-6
d) 1-2-3-4-5-6

Q.4) Solution c)



Q.5) Consider the following statement about Ecotone:

1. Ecotone is a zone of junction between two or more diverse ecosystems
2. It is non-linear as it shows progressive decrease in species of incoming community from the outgoing species
3. Some organisms in ecotone may be totally different from the adjoining communities

Which of the above statement is/are correct?

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

Q.5) Solution (c)

Statement-1 and 3: correct	Statement-2: incorrect
An Ecotone describes an area that acts as a transition or boundary between two ecosystems. This could be, for example, an area of marshland between a river and the riverbank, the transition between Arctic Tundra and Forest biomes in Northern Siberia As this area is inevitably Influenced by the two bordering ecosystems, it is therefore a consequence of this that a higher density of organisms and variety of species can be found within an Ecotone.	It is linear as shows progressive increase in species composition of one in coming community and a simultaneous decrease in species of the other outgoing adjoining community

Q.6) Natural ecosystems have been misused by the human being as a result of which the biodiversity and wild life has been threatened. Consider the methods that can be used to protect natural ecosystems

1. Humans should move towards sustainable utilisation of resources
2. Introduction of the species from the other parts of the world and the human interference should be reduced to minimum into natural ecosystems.
3. Making buffer zones or transitional zones around the protected area.

Which of the above statement is/are correct?

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

Q.6) Solution (d)

Protection of natural ecosystem demands management of human use of the biosphere resources such that they give maximum benefits to the present human generation while maintaining its potential to meet the needs of future human generations.

- Introduction of the species from the other parts of the world and the human interference should be reduced to minimum into natural ecosystems.
- Some of the areas should be earmarked as protected or reserve zones. This can be achieved by making buffer or transitional zones around the protected area. (Buffer zone and transitional zones are where only a limited humans are permitted to enter)
- Species in the detrimental habitats should be shifted to their unexploited natural habitat.

Q.7) Ecosystem services are the direct and indirect contributions of ecosystems to human well-being, Consider the following pairs:

1. Provisioning services	Benefits obtained from the ecosystem processes such as water purification and waste management, pollination or pest control.
2. Regulating services	Products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines
3. Habitat services	Highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools.
4. Cultural services	Include non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values.

Which of the above pair is/are incorrect?

a) 1 and 2only
b) 2 and 3only
c) 1 2, and 3 only
d) 1,2, 3 and 4

Q.7) Solution (a)

Provisioning services	Products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.
Regulating services	Defined as the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
Habitat services	Highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools.
Cultural services	Include non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values.

Q.8) Food chain and food web play crucial roles in functions of ecosystem, Consider the following statements about them.

1. The distinction between Grazing food chain and Detritus food chain is the source of

energy at the first level

2. Grazing and detritus food chains are not interlinked.

Which of the above statement is/are correct?

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

Q.8) Solution (a)

Statement-1: correct	**Statemwent-2: incorrect**
In grazing food chain primary source of energy is living plant Biomass. Whereas in detritus it is dead organic matter	Both chains are interlinked: the initial energy source for detritus food chain is the waste materials and dead organic matter from the grazing food chain

Q.9) Consider the following statements with respect to flows in ecosystem:

1. Energy flow in decomposition is bi-directional, where energy is recycled by decomposers
2. The number and energy of organisms gradually decrease with each trophic level in grassland ecosystem.
3. Pyramid of biomass is always upright

Which of the above statement is/are incorrect?

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

Q.9) Solution (c)

Statement-1 and 3 : incorrect	**Statement-2: correct**
Decomposers which include bacteria, fungi, molds, worms, and insects break down wastes and dead organisms, and return the nutrients to the soil, which is then taken up by the producers. Energy is not recycled during decomposition, but it is released- **nutrients are recycled** In aquatic ecosystem the producers are small organisms with least biomass and the biomass gradually increase towards the apex of the pyramid. Thus the **pyramid of biomass of aquatic ecosystems is inverted in shape.**	The number, energy gradually decreases with each step from producer level to consumer level in grassland ecosystem.

Q.10) Consider the following statements about ecological succession:

1. Ecological succession is the observed process of change in the species structure of an ecological community over time
2. Climate change may impact the ecological succession process
3. The climax community represents a stable end product of the successional sequence

Which of the above statement is/are correct?

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

Q.10) Solution (d)

Ecological succession is the process of change in the species structure of an ecological community over time. The community begins with relatively few pioneering plants and animals and develops through increasing complexity until it becomes stable or self-perpetuating as a climax community. Succession may be initiated either by formation of new, unoccupied habitat, such as from a lava flow or a severe landslide, or by some form of disturbance of a community, such as from a fire, severe windthrow, or logging. Succession that begins in new habitats, uninfluenced by pre-existing communities is called primary succession, whereas succession that follows disruption of a pre-existing community is called secondary succession.

Ecological succession may also occur when the conditions of an environment suddenly and drastically change. A forest fires, wind storms, and human activities like agriculture all greatly alter the conditions of an environment. These massive forces may also destroy species and thus alter the dynamics of the ecological community triggering a scramble for dominance among the species still present.

Q.11) Biotic interactions have marked effect on survival of organisms. Consider the following pairs:

1. Mutualism: positive interaction, both species are benefitted
2. Commensalism: positive interspecies interaction
3. Predation: negative interaction
4. Ammensalism: antagonistic interspecies interaction

Which of the above statement is/are correct?

a) 1 only
b) 1 and 2 only
c) 2 and 4 only
d) All of the above

Q.11) Solution (d)

Mutualism	Commensalism	Predation	Ammensalism
Is the name given to associations between pairs of species that bring mutual benefit	A relationship between individuals of two species in which one species obtains food or other benefits from the other without either harming or benefiting the latter.	Predation is a biological interaction where one organism, the predator, kills and eats another organism, its prey.	Is an interaction where one species suffers and the other interacting species experiences no effect

Q.12) Consider the following statements:

1. Bioaccumulation is concentration of degradable pollutant in the first organism of trophic level
2. In Biomagnification pollutants increase from one trophic level to other
3. In order to biomagnify, pollutant must be long-lived, soluble in fats and biologically active

Which of the above statement is/are correct?

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

Q.12) Solution (b)

Statement-1: incorrect	Statement-2 and 3: correct
Bioaccumulation is increase in concentration of a pollutant from the environment to the first organism in a food chain, pollutants should be non-biodegradable	Biomagnification is increase in concentration of a pollutant from one link in a food chain to another. In order for biomagnification to occur, the pollutant must be: 1.long-lived 2.mobile 3.soluble in fats 4.biologically active

Q.13) Which of the bio-geochemical cycle is majorly driven by solar energy?

a) Nitrogen cycle
b) Water cycle
c) Sulphur cycle
d) Phosphorus cycle

Q.13) Solution (b)

Hydrological cycle	Nitrogen cycle	Sulphur cycle	Phosphorus cycle

Water cycle is continuous circulation of water in the earth-atmosphere system which is driven by solar energy	This cycle is accomplished in three different ways: By microorganisms, industrial processes and atmospheric phenomenon's like thunder and lighting	It is sedimentary cycle, where sulphur is released by erosion, decomposition etc.	It is sedimentary cycle and enters the cycle from erosion and mining activities

Q.14) Nitrogen is essential constituent of protein and is basic building block of all living tissues.

1. Nitrogen has to be converted in to ammonia, nitrites and nitrates before it can be taken by plants
2. Nitrsomonas bacteria promote transformation of ammonia into nitrates
3. Upon decomposition nitrogen is returned to the soil as nitrogen gas.

Which of the above statement is/are correct?

a) 1 only
b) 1 and 2 only
c) 1 and 3 only
d) None of the above

Q.14) Solution (a)

Statement-1: correct	**Statement-2 and 3: incorrect**
Nitrogen in the elemental form cannot be directly used by living organisms. Nitrogen needs to be fixed	Nitrosomonas: ammonia to nitrite. Nitrobacter: nitrites in to nitrates. During excretion and upon the death of all the organisms nitrogen is returned to the soil in the form of ammonia

Q.15) The rate of biomass production in an ecosystem is called productivity. Which of the following statements are correct?

1. Net primary productivity (NPP) is less than Gross primary productivity (GPP).
2. Net Primary Productivity (NPP) is the available biomass for the consumption of heterotrophs
3. Ecological succession is characterised by increased productivity

Choose correct option from below:

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

Q.15) Solution (d)

- Primary production is defined as the amount of biomass or organic matter produced per

unit area over a time period by plants during photosynthesis.

- Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis.
- Net primary productivity (NPP): Gross primary productivity minus respiration losses
- Net primary productivity is the available biomass for the consumption to heterotrophs (herbiviores and decomposers)
- Ecological succession is characterised by increased productivity as with each seral stage more stable species get a foot hold over the space till climax specie is reached.

Q.16) Consider the following statements about the process of secondary succession?

1. Secondary succession is much slower than the primary succession.
2. Secondary succession begins in areas where natural vegetation has been destroyed.

Which of the above statement is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) None of the above

Q.16) Solution (b)

Statement-1: incorrect	**Statement-2: 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, succession is faster than primary succession.	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.

Q.17) Consider the following pairs:

1. Autogenic succession: succession in which green plants dominate
2. Allogenic succession: change brought by outside forces
3. Autotrophic succession: succession brought by living inhabitants of community itself
4. Heterotrophic succession: heterotrophs are greater in quantity

Which of the above is/are correctly matched?

a) 1 and 2 only
b) 2 and 4only
c) 2 and 3 only
d) None of the above

Q.17) Solution (b)

Successional change can be caused by either endogenous or exogenous factors depending upon whether the change is caused by the actions of the plants themselves or by external factors.

Autogenic:	Changes caused by endogenous factors (the

	living inhabitants themselves
Allogenic succession:	changes caused by exogenous factors are termed allogenic
Autotrophic:	A succession in which green plants or the autotrophs dominate, so that there is a continuous energy flow during the whole process, is known as Autotrophic succession.
Heterotrophic:	succession wherein heterotrophs such as bacteria, fungi, actinomycetes or even animals dominate and there is a continuous decline in the energy flow is known as Heterotrophic succession

Q.18) Consider the following statements:

1. Niche is the unique functional role of a species in ecosystem.
2. Niche plays an important role in the conservation of organisms

Which of the above statement is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) None of the above

Q.18) Solution (c)

An **ecological niche** is the role and position a species has in its environment; how it meets its needs for food and shelter, how it survives, and how it reproduces.

For a species to maintain its population, its individuals must survive and reproduce. Certain combinations of environmental conditions are necessary for individuals of each species to tolerate the physical environment, obtain energy and nutrients, and avoid predators. The total requirements of a species for all resources and physical conditions determine where it can live and how abundant it can be at any one place within its range. These requirements are termed abstractly the ecological niche.

Niche plays an important role in conservation of organisms as it tells the ideal conditions in which an organism can sustain a healthy life.

Q.19) Dispersal, colonization and recruitment, establishment, facilitation and inhibition are terms related to:

a) Primary succession
b) Secondary succession
c) Climax community
d) All of the above

Q.19) Solution (a)

The above terms are features and are related with the primary succession
Features of Primary Succession:

- Dispersal: it is arrival of seeds to the barren land -Small seeds arrive first, generally through wind, birds, migratory animals and water.
- Colonization and Recruitment -pioneer species mostly shrubs and nitrogen fixers dominate and facilitate the environment or habitable conditions. These are function of (soil moisture, temperature, competition (light/soil moisture).
- There are some different models of primary succession they are-Establishment, Facilitation and Inhibition

THE FACILITATION: Pioneers modify a site by their presence, for instance, by regenerating the soil with organic material, thus making the area more attractive for invasion by other species. Eventually, new species move in, edging out the pioneers as they do so. This process may repeat itself several times, until the ecosystem reaches the climax stage,
INHIBITION: all species have equal opportunity to establish populations after a disturbance. In the inhibition model, however, some of the early species actually make the site less suitable for the development of other species.

Q.20) Consider the following about Tundra Biome:

1. It is devoid of trees except stunted shrubs
2. It is found in near northern and southern poles

Which of the above statement is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) None of the above

Q.20) Solution (c)

Characteristics of tundra include:

- Extremely cold climate
- Low biotic diversity
- Simple vegetation structure
- Limitation of drainage
- Short season of growth and reproduction
- Energy and nutrients in the form of dead organic material
- Large population oscillations

Q.21) Deep sea – Hydrothermal vents were recently discovered by the scientist. Consider following statements about Hydrothermal ecosystems?

1. Only micro organisms can survive in this environment.
2. The organisms are not dependent on sunlight for food production.
3. Bacteria create energy using hydrogen sulphide through the process of

chemosynthesis

Which of the above statement is/are correct?

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

Q.21) Solution (c)

Deep-sea hydrothermal vents form as a result of volcanic activity on the ocean floor. Water seeps through cracks in the Earth's crust, dissolving metals and minerals as it becomes super-heated from nearby magma.

Many creatures like shrimp, crabs, giant tubeworms, clams, slugs, anemones, and fish thrive in these conditions. These animals depend on chemosynthesis rather than photosynthesis.

Q.22) The physical characteristics that effect ecological diversity are?

1. Interaction of one species with other in ecosystem
2. Temperature
3. Precipitation
4. Topography
5. Taxonomic diversity

Which of the above statement is/are correct?

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

Q.22) Solution (c)

The physical characteristics of an environment that affect ecosystem diversity are the temperature, precipitation, and topography of the ecosystem. Therefore, there is a general trend for warm tropical ecosystems to be richer in species than cold temperate ecosystems.

Diversity also depends on taxonomic diversity and interaction between species. However, these are **Biotic characteristics.**

Q.23) With respect to changes in ecosystem, Disturbances in ecosystem may lead to

1. Loss of biodiversity.
2. Increase in species richness of ecosystem.

Which of the above statement is/are correct?

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

Q.23) Solution (c)

Environmental disturbance on a variety of temporal and spatial scales can affect the species richness and, consequently, the diversity of an ecosystem. This disturbance can damage the present ecosystem thus leading to loss of biodiversity. Nevertheless, moderate levels of occasional disturbance can also increase the species richness of an ecosystem by creating spatial heterogeneity in the ecosystem, and also by preventing certain species from dominating the ecosystem (Invasive species).

Q.24) Consider the following statements:

1. Physical characteristics of an area will significantly influence the diversity of the species within a community
2. Organisms can also modify the physical characteristics of the ecosystem.

Which of the above statement is/are correct?

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

Q.24) Solution (c)

While the physical characteristics of an area will significantly influence the diversity of the species within a community, the organisms can also modify the physical characteristics of the ecosystem.

For example: Stony corals (Scleractinia) are responsible for building the extensive calcareous structures that are the basis for coral reef ecosystems.

Trees can modify the microclimate and the structure and chemical composition of the soil around them.

Q.25) The limiting factors of terrestrial ecosystem are?

1. Moisture
2. Temperature
3. Soil
4. Altitude

Choose correct option from below:

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

Q.25) Solution (d)

There are several fundamental factors that limit ecosystem growth, including temperature, precipitation, sunlight, soil configuration, and soil nutrients. Two important limiting factors are temperature and precipitation.

Q.26) Ecosystems are important to sustain life on earth, they provide?

1. Food, fibre and fuel
2. Pollination
3. Flood control
4. Security against draught

Choose correct option from below:

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

Q.26) Solution (d)

Ecosystems provide goods including food, fiber, and fuel, as well as services such as pollination, flood control and security against draughts. These above services are all necessary for human and wildlife survival.

Q.27) Consider the following pairs:

	Type of ecosystem		**Type of pyramid**
1.	Forest ecosystem	:	Inverted for numbers
2.	Aquatic ecosystem	:	Inverted for Biomass
3.	Grassland ecosystem	:	Inverted for energy

Which of the above statement is/are incorrect?

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

Q.27) Solution (c)

Forest ecosystem	**Aquatic ecosystem**	**Grassland ecosystem**
Pyramid of numbers represent the number of organisms at each trophic level. The pyramids of number in a forest ecosystem are inverted. In this, the first trophic level consists of Tress. The number of Trees is least in number.	Marine biomass pyramids show the relative level of biomass at each of the trophic levels for ocean ecosystems. Marine biomass pyramids tend to be inverted due to the dynamics of the producers and consumers. Many marine ecosystems rely on phytoplankton as their primary producer. Phytoplankton are very small, even microscopic. These tiny organisms	An energy pyramid represents the amount of energy at each trophic level and loss of energy at each transfer to another trophic level. Hence the pyramid is always upward, with a large energy base at the bottom.

	reproduce and die very quickly. So, at any given moment their biomass is relatively small, even though they supply energy for the entire ecosystem.	

Q.28) With reference to threat of Desertification across globe. Consider the following statements:

1. Desertification is permanent degradation of land that was once arable
2. The UNCCD has also promoted the Great Green Wall Initiative, to combat desertification.
3. More than 50 percent of Earth's land area is already degraded.

Which of the above statement is/are correct?

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

Q.28) Solution (d)

Desertification is the permanent degradation of land that was once arable. More than 75 percent of Earth's land area is already degraded, according to the European Commission's World Atlas of Desertification, and more than 90 percent could become degraded by 2050.
The UNCCD has promoted the Great Green Wall Initiative, an effort to restore 386,000 square miles (100 million hectares) across 20 countries in Africa by 2030.

Q.29) Consider the following pairs:

Aquatic organisms **Characteristics**

1. Neuston : These are unattached organisms, living at air-water interface
2. Periphyton : This group contains animals , which are swimmers
3. Nekton : Organisms which remain attached to stems and leaves
4. Benthos : Found living at the bottom of water masses

Which of the above is/are incorrectly matched?

a) 1 only
b) 2 and 4 only
c) 2 and 3 only
d) 1 ,3 and 4 only

Q.29) Solution (c)

Nuestons	The term neuston refers to the assemblage of organisms associated with the surface film of lakes, oceans, and slow-moving

	portions of streams.
Periphyton	Periphyton is a complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus that is attached to submerged surfaces in most aquatic ecosystems.
Nektons	Nekton are aquatic animals that can move on their own by "swimming" through the water.
Benthos	Benthos are aquatic organisms that crawl in sediments at the bottom of a body of water.

Q.30) Recently government of India changed coastal regulation zone guidelines. Which of the below statements is/are correct?

1. It was issued under the Environment Protection Act, 1986 by Ministry of Environment and Forests.
2. CRZ-1 is ecologically sensitive area, this lies between high tide line and shore line
3. CRZ-1 and CRZ-IV are approved by states and others by central environmental ministry.

Choose correct option from below:

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

Q.30) Solution (a)

Coastal Regulation Zone (CRZ) are the notification for regulation of activities in the coastal area. It was issued under the Environment Protection Act, 1986 by Ministry of Environment and Forests (MoEF).

CRZ I - Ecologically Sensitive Areas .They lie between low and high tide line.

The projects which falls under the CRZ- I and CRZ- IV areas only require the approval of the Environment Ministry. States and the Union territories shall consider all other projects.

Q.31) Bonn challenge is related with?

a) Land degradation
b) Migratory species
c) Biologically hazardous components
d) Wetland conservation

Q.31) Solution (a)

The Bonn Challenge is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.

It was launched in 2011 by the Government of Germany and IUCN, and later endorsed and extended by the New York Declaration on Forests at the 2014 UN Climate Summit.

Q.32) Eutrophication is a process that involves:

a) Increase in concentration of nutrients at each trophic level
b) Eutrophication is an enrichment of water bodies by nutrient salts
c) Decrease in ecological footprint in ecosystem
d) Decrease in biological oxygen demand

Q.32) Solution (b)

Eutrophication is an enrichment of water by nutrient salts that causes structural changes to the ecosystem such as: increased production of algae and aquatic plants, depletion of fish species, general deterioration of water quality and other effects that reduce and preclude use".
Harmful algal blooms, dead zones, and fish kills are the results of a process called eutrophication.

Q.33) Factors limiting the productivity of aquatic Habitats are?

1. Sunlight
2. Dissolved oxygen
3. Transparency of water
4. Water temperature

Choose correct option from below:

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

.

Q.33) Solution (d)

Both biotic and Abiotic factors effect productivity of aquatic ecosystems. Abiotic factors are physical or chemical parts of the environment that affect the organisms that are in that environment. For aquatic ecosystems, these factors include light levels, water flow rate, temperature, dissolved oxygen, acidity (pH), salinity and depth

Q.34) Wetland ecosystems can be regarded as?

a) Terrestrial ecosystem
b) Ecotone
c) Aquatic ecosystem
d) Both b) and c)

Q.34) Solution (d)

According to Ramsar convention on wetlands, areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt including areas of marine water, the depth of which at low tide does not exceed 6 meters
As wetlands are transitional ecosystems between terrestrial and aquatic, they act as zone of ecotone.

Q.35) In the context of falling fish stocks in oceans. The unregulated and unscientific fishing is the major cause leading to this situation. Which of the below are harmful practices?

1. Cynide fishing
2. Bottom trawling
3. By catch
4. Dynamite fishing
5. Muro-ami

Choose correct option from below:

a) 1 and 2 only
b) 2 only
c) 3, 4 and 5only
d) All of the above.

Q.35) Solution (d)

Bottom trawling	Bottom Trawling is one of the most damaging methods of fishing. It is an industrial technique that uses huge nets weighed down with weighty ballast that get dragged down the sea bed, collecting and squashing everything that is on the way, from fish to aquatic plants.
Muro- ami	This illegal fishing method is mostly used in the Southeast Asia. It involves using a huge encircling net with a number of pounding tools, normally weighty stones or cement blocks attached on the surface to pound fish out of coral reefs. Fishermen pound the coral reefs with the cement blocks scaring the fish out.
Ghost Fishing	Ghost fishing refers to the deliberate or unintentional leaving of fishing objects in a water body. The fishing nets still continue to catch fish and other creatures big and small, the fish eventually die from overtiredness or suffocation after a long struggle to get to the top to breathe.

Q.36) ISFR-2019 has reported increase in forest cover. In this context arrange type of forest given below in descending order of their geographical extent

1. Tropical evergreen forests
2. Tropical moist deciduous forests

3. Tropical dry deciduous forests
4. Subtropical dry evergreen forests

Choose correct option from below:

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

Q.36) Solution (c)

Forest Types of India the relative extents of different types of forests in India are presented in the following table:

Forest type	*Area (in million hectare)*	*Percent of total forest area*
Tropical moist evergreen	4.5	5.8
Tropical moist semievergreen	1.9	2.5
Tropical moist deciduous	23.3	30.3
Littoral and Swamp	0.7	0.9
Tropical dry evergreen	0.1	0.1
Tropical dry deciduous	29.4	38.2
Tropical Thorn	05.2	6.7
Subtropical broad leaved montane wet forest	0.3	0.4
Subtropical dry evergreen	0.2	0.2
Subtropical pine	3.7	5.0
Montane wet temperate	1.6	2.6
Himalayan moist temperate	2.6	3.4
Himalayan dry temperate	0.2	0.2
Subalpine	3.3	4.3
Moist alpine	—	—
Dry alpine	—	—

Q.37) Mangroves play important role in coastal ecology. Consider the following statements:

1. Mangroves can be found in all tropical, sub-tropical and temperate regions of the world
2. Mangroves extent increased according to ISFR-2019
3. They act as physical barriers against storm surges in coastal areas.

Which of the above statement is/are correct?

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

Q.37) Solution (c)

Statement-1: incorrect	**Statement-2: correct**	**Statement-3: correct**
A mangrove is a shrub or small tree that grows in coastal saline or brackish	Mangrove cover has been separately reported in the ISFR 2019 and the total	Mangroves protect shorelines from damaging storm and hurricane winds,

water. The term is also used for tropical coastal vegetation consisting of such species. Mangroves occur worldwide in the tropics and subtropics, mainly between latitudes 25° N and 25° S.	mangrove cover in the country is 4,975 sq km. An increase of 54 sq Km in mangrove cover has been observed as compared to the previous assessment of 2017. Top three states showing mangrove cover increase are Gujarat (37 sq km) followed by Maharashtra (16 sq km) and Odisha (8 sq km).	waves, and floods. Mangroves also help prevent erosion by stabilizing sediments with their tangled root systems.

Q.38) Which of the following statement(s) is/are correct regarding 'Biodiversity Hotspot'?

1. A region to qualify as Biodiversity hotspot must have at least 1,500 vascular plants as endemics and 30% or less of its original natural vegetation.
2. Conservation International was a pioneer in defining and promoting the concept of hotspots. In 1989.

Which of the above statement is/are correct?

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

Q.38) Solution (c)

Statement-1: correct	**Statement-2: correct**
To qualify as a biodiversity hotspot, a region must meet two strict criteria: It must have at least 1,500 vascular plants as endemics — which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable. It must have 30% or less of its original natural vegetation. In other words, it must be threatened.	Conservation International was a pioneer in defining and promoting the concept of hotspots. In 1989, just one year after scientist Norman Myers wrote the paper that introduced the hotspots concept

Q.39) Corals reefs ecosystem are known for their rich biodiversity. Consider the following statements with respect to coral ecosystem

1. Coral ecosystem is found only in tropical and sub-tropical regions
2. The coral polyps live symbiotically with algae that provides them with their food
3. Disease, temperature extremes and pollution can cause coral bleaching

Which of the above statement is/are correct?

a) 1 only
b) 2 and 3 only
c) 1 and 3 only
d) All of the above.

Q.39) Solution (b)
Corals are tiny animals that live in large communities made up of individual polyps that secrete a calcium carbonate substance that hardens and builds up to form the reef structure over time. The coral polyps live symbiotically with algae that provides them with their food. Disease, temperature extremes and pollution can cause corals to expel the algae, leaving only the white calcium carbonate skeleton behind, an event called coral bleaching. Coral bleaching is a worry with global warming heating up the oceans and carbon dioxide causing the oceans to acidify. Although corals exist both in temperate and tropical waters, shallow-water reefs form only in a zone extending from approximately 30° N to 30° S of the equator.

Q.40) The regions where corals are found in India are?
1. Gulf of kutch
2. Gulf of mannar
3. Ganges delta
4. Lakshadweep Islands
5. Andaman and Nicobar Islands

Choose correct option from below:
a) 1 and 2 only
b) 1, 2 and 3 only
c) 1, 3, 4 and 5 only
d) All of the above

Q.40) Solution (c)
Coral reefs play an important role in marine ecosystem and support the habitats of flora and fauna in the sea. Ecologically, coral reefs are important because they are the counterpart to the tropical rain forest in terms of species diversity and biological productivity in the Ocean. Coral reefs are present in the areas of Gulf of Kutch, Gulf of Mannar, Andaman & Nicobar, Lakshadweep Islands and Malvan. Corals do not survive in waters having high sediment load hence they are not found in Ganga delta.