

BT101- MID TERM (NOTES)

Q NO 1: Define ecology with examples?

Ans: the term ecology was derived by Ernst Haeckel in 1866. it is defined as the branch of science that deals with the study of interactions between living components of the Earth with the Environment. Examples include the study of earth's households i.e. animals, plants, microorganisms, people which live together.

Q NO2: Discuss some major fields of ecology?

Ans: some basic fields of ecology are organismal ecology, population

Ecology, community ecology, ecosystem ecology, landscape ecology and global ecology.

Q NO 3: What do you understand by term organismal ecology?

Ans: Organismal ecology is the study of individual organisms' behavior, physiology, morphology, etc. in response to environmental challenges

Q NO 4: What do you know about population ecology?

Ans: Population ecology is a sub-field of ecology that deals with the dynamics of species populations and how these populations interact with the environment. It is the study of how the population sizes of species change over time and space.

Q NO 5: Explain community ecology?

Ans: Community ecology is the study of the interactions between species in Communities on many spatial and temporal scales, including the distribution, Structure, abundance, demography, and interactions between coexisting Populations.

Q NO 6: What is ecosystem ecology?

Ans: Ecosystem ecology is the integrated study of living (biotic) and non-living (abiotic) components of ecosystems and their interactions within an ecosystem framework. This science examines how ecosystems work and relates this to their components such as chemicals, bedrock, soil, plants, and animals.

Q NO 7: What is landscape ecology?

Ans: Landscape ecology is the science of studying and improving relationships between ecological processes in the environment and particular ecosystem. This is done with a variety of landscape scales, development spatial patterns and organizational levels of research and policy.

Q no 8. Define global ecology?

Ans: global ecology is the study of interactions among earth's ecosystems. It understands large scale of interactions and how they influence the behavior of entire planet including earth's response to future changes.

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Q NO 9: what are the components of Ecology?

Ans: the components of ecology are species, population, community, ecosystem biome, biosphere.

Q NO 10: Define cell?

Ans: cell is the basic structural, functional and biological unit of all living organisms. It is the smallest unit of life and is often called as building blocks of life.

Q no 11: Difference between unicellular and multicellular organisms?

Ans: the organisms that consist of only single cell are called unicellular organisms, the single cell perform all functions of life i.e. prokaryotes while the multicellular organisms consist of many cells organisms have various level of organizations i.e. eukaryotes.

Q NO 12: Differentiate between prokaryotes and eukaryotes?

Ans:

prokaryotes	Eukaryotes
1.single celled organisms	1.many celled organisms
2.lacks membrane bounded organelles	2.having membrane bounded organelles
3.nucleus absent	3.nucleus present
4.consist of one chromosome	4.consist of more than one chromosomes
5.partial-unidirectional transfer of DNA	5.meiosis and fusion of gametes
6.example.bacteria and archea	6.animals and plants
7.cell size is from 1-10nm	7.cell size is from 10-100 um
8.no membrane permeability	8.having permeable membrane
9.flagella is submicroscopic in size	9.falgella is microscopic in size

Q NO 13: define species?

Ans: species is a group of organisms that can produce fertile offspring's by sexual reproduction.

Q NO 14: discuss about basic concepts of species?

Ans: There are four basic concepts of species named as biological species concept, ecological species concept, morphological species concept and polygenetic species concept.

Q NO 15: Explain about biological concept of species and also give example?

Ans: it defines species according to their interbreeding potential not on their similarities or differences. For example western meadow larks and eastern meadowlarks.

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Q NO 16: Explain ecological concept of species?

Ans: It defines those species which live in same area but in different habitats. example of such species are *viola arvensis* and *viola tricolor*.

Q NO 17: Explain morphological species concept?

Ans: it explains those species which are structurally different from each other. Monterey salamander and large blotched salamanders are the best examples of them.

Q NO 18: define polygenetic species concept?

Ans: It defines species as the smallest group of individuals on a polygenetic tree. For example Asian elephants and African forest elephants.

Q NO 19: Define population?

Ans: the term population denotes a group of individuals of one species living in a specific area.

Q NO 20: Name some characteristics of population?

Ans: Major characteristics of population are size, growth, distribution and density.

Q NO 21: which factors increases the size of population?

Ans: These factors include organism's birth, reproductive fitness, good weather, medicine, geographic isolation, no predators.

Q NO 22: Which factors decreases the population?

Ans: These factors are bad weather, more predators, natural disaster, bad places to live and migration.

Q NO 23: Which are the geographical limits of population?

Ans: geographical limits of population includes barriers like rivers, mountains or patches of water bodies that limits the size of population.

Q NO 24: What do you mean by term community?

Ans: it includes all populations of a given area. Thus community is a naturally occurring assemblage of plants and animals living in the same environment, mutually sustaining and interdepending, constantly fixing, utilizing and dissipating energy.

Q NO 25: On what basis species are determined in community assembly?

Ans: the species that assemble to make up a community are determined by dispersal constraints, environmental constraints and internal dynamics.

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Q NO 26: define ecosystem?

Ans: The word ecosystem was derived by Tensely in 1935. an ecosystem consist of all organisms in an area the community and the a biotic factors that influence that community. Ecosystem ecologists focus on flow of energy and recycling of nutrients.

Q NO 27: differentiate between biotic and a biotic components of ecosystem with examples?

Ans: all the living components of an ecosystem are called biotic components .examples are producers, consumers and decomposers and all non living components of ecosystem are called a biotic components for example water light,air,temperature,wind,soil.

Q NO 28: Name some chemical components of ecosystem?

Ans: Some chemical components of ecosystem are oxygen, carbon, nitrogen, phosphorus and sulphure.

Q NO 29: give some examples of artificial ecosystem?

Ans: Examples of artificial ecosystem include tree forms, reservoirs and crop fields.

Q NO 30: Upon which factors the structure of ecology depends?

Ans: the structure of ecology depends on species diversity as well as the energy required to maintain it. If there is an increase in species diversity it results in more complex ecosystem structure and less energy is required to maintain it.

Q NO 31: define biomes?

Ans: biomes are large ecological areas on earth with fauna and flora and often defined as a biotic factor such as climates, relief, geology, vegetation and soil. A biome is not an ecosystem but in a way it can look like a massive ecosystem.

Q NO 32:what is ecological niche?

Ans: an ecological niche is defined as the role of a specie in its environment including its behavior and influence.

Q NO 33:what factors describes a typical niche?

Ans: a typical niche actually describes the habitat,their activity pattern and their resources.

Q NO 34:which type of ecological niche a black bear have?

Ans:Black bear lives in forest,feeds on blood sucking insects and nuts,carry seeds of barriers in digestive tract and hibernate during winter season.

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Q no 35.define native species?

Ans: native species are those species that normally live and thrive in a particular ecosystem because of its soil, isolation and climatic conditions. Native species occurs naturally within a region. They either evolve in that region or arrive and become established in that region without human assistance.

Q no 36. discuss the type of native species?

Ans: Native species can be either endemic or indigenous.

1. Endemic species

These species are found within a specific part of world only. blind Indus dolphin and red kangaroo are the example of endemic species.

2. Indigenous species

These are found within the region and elsewhere in the world also. snow leopard is its main example.

Q no 37.define generalist species?

Ans: Those species that have broad range of niches are known as generalist species. They can live in many different places, eat a variety of foods, and often tolerate a wide range of environmental conditions

Q no 38. discuss briefly about cockroaches ,features and their life style?

Ans: Cockroaches are present on earth since 350 million years. One of brilliant example of evolution's great success because they are generalists. There are 3500 cockroach species. They can eat almost anything, including algae, dead insects, fingernail, glue, Paper soap. They can also live and breed almost anywhere except in polar regions. Some cockroach species can go for a month Without food, survive for a month on a drop of water from a dishrag, and withstand massive doses of radiation. One species can survive being frozen for 48 hours. They have high reproductive rates. In only a year, a single Asian cockroach and its offspring can add about 10 million new cockroaches to the world. Their high reproductive rate also helps them to quickly develop genetic resistance to almost any poison we throw at them. About 25 species of cockroach live in homes and can carry viruses and bacteria that cause diseases. On the other hand, cockroaches play a role in nature's food webs. They make a tasty meal for birds and lizards.

Q no 39.define specialist species?

Ans: Those species that occupy narrow range of niches are known as specialist species. They may be able to live in only one type of habitat, use one or a few types of food, or tolerate a narrow range of climatic and other environmental conditions.

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Q no 40. Is it better to be a generalist or a specialist?

Ans: It depends on environmental conditions. When environmental conditions are fairly constant, as in a tropical rain forest, specialists have an advantage because they have fewer competitors. But under rapidly changing environmental conditions, the generalist usually is better off than the specialist.

Q no 41. what are the impacts of non native species?

Ans: 1. when they found more favourable conditions, spreads rapidly

2. they do not force predators and diseases in new niches.

3. they can out compete native species in new ones.

4. cause habitat loss and ecosystem disturbance.

Q no 42. define indicator species?

Ans: Species that provide early warnings of damage to a community or an ecosystem are called as indicator species. for example birds and butterflies etc

Q no 43. what factors effects frogs population?

Ans: Such factors include habitat loss, drought, pollution, increased ultraviolet radiation, parasitism, disease, overhunting by humans, and non native predators and competitors.

Q no 44. discuss the effects of loss of keystone species?

Ans: the loss of keystone species may lead to population crash and extinction of species.

Q no 45. define non native species?

Ans: Species that are non native to their environment and are deliberately or accidentally introduced into an ecosystem are called non-native species. These are also named as invasive, alien, or exotic species. An introduced species is occasionally successful in the new environment. Introduction of non native species is a major cause of species loss.

Q no 46. define invasive species?

Ans: Non native species that have a potential to cause economic or environmental harm to humans are termed invasive species.

Q no 47. write some impacts of non native species?

Ans: 1. In their new niches, these species often do not face the predators and diseases they faced before.

2. Non-native species can spread rapidly if they find a new more favourable niche.

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3.They may be able to out-compete some native species in their new niches.

Q. 48. what is the effect of check and balance system on population?

Ans:when there is no check and balance in a new population then it grows rapidly and become invasive.now it gains benefit over the native population and tries to out compete that native population from that ecosystem.so introduced species with growing population have a negative impact on the environment as well as the native environment.

Q no 49.define indicator species?

Ans: Species that provide early warnings of damage to a community or an ecosystem are called indicator species. For example, the presence or absence of trout species in water at temperatures within their range of tolerance is an indicator of water quality because trout need clean water with high levels of dissolved oxygen.

Q no 50.why birds are called excellent biological indicators?

Ans: Birds are excellent biological indicators because they are found almost everywhere and are affected quickly by environmental changes such as loss or fragmentation of their habitats and introduction of chemical pesticides. The populations of many bird species are declining.

Q no 51.what are the factors affecting indicator species?

Ans: Such factors include habitat loss, drought, pollution, increased ultraviolet radiation, parasitism, disease, overhunting by humans, and non native predators and competitors.

Q no 52.define keystone species?

Ans: Some species play a key and crucial role in maintaining the structure of a biological community. They are called Keystone species because they have a large effect on the types and abundances of other species in an ecosystem.

Q no 53.what is the role of keystone species?

Ans: Keystone species can play several critical roles in helping to sustain an ecosystem. One such role is pollination of flowering pltop predator keystone species feed on and help regulate the populations of other species.ant species by bees, butterflies , hummingbirds, bats, and other species.

Q no 54.what happens when the loss of keystone occurs?

Ans: The loss of a keystone species can lead to population crashes and extinctions of other species in a community that depends on it for certain services.

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Q no 55. discuss some roles of foundation species?

Ans: Foundation species plays a major role in shaping communities. They create and Enhance the habitats in ways that provides benefits to other species. They facilitate the survival and reproduction of other species in the community.

Q no 56. what is the difference between foundation species and keystone species?

Ans: A foundation species creates or provide a foundation of an ecosystem while keystone species regulates and maintains that ecosystem

Q no 57. what do you mean by trophic structures?

Ans: trophic structures means the different feeding levels of organisms

Q no 58. name the classes of ecological pyramids?

Ans: there are three classes of ecological pyramids. 1. pyramids of numbers, 2. pyramids of biomass 3. pyramids of energy

Q no 59. how pyramids of numbers contributes in ecosystem?

It represents number of individuals at each pyramid level. more numbers of individuals at base while a gradual decrease in numbers towards top of pyramids.

Q no 60. Define detritivores with example?

Ans: - Detritivores are heterotrophs that obtain their nutrition by feeding on detritus. The detritus they consume includes decomposing plant and animal parts, as well as fecal matter. These organisms play an important role in all ecosystems by getting rid of decaying organic matter left behind by other organisms

. In food webs, detritivores commonly play the role of decomposers. Some common examples of detritivores are earthworms, who eat rotten plant leaves and other debris, and dung beetles, who eat feces. Other examples are millipedes, woodlice, slugs, and sea stars.

Q no 61. Define trophic level with example?

Ans: A trophic level is the position in an ecosystem an organism occupies in relation to primary sources of energy and the food chain. The first trophic level is always composed of primary producers that convert either solar or chemical energy into biomass.

Q no 62. Define pyramid of biomass?

Ans: it indicates mass of living matters at each trophic level of food chain. high biomass at the base while low at the top.

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Q no 63.how energy travels in an ecosystem?

Ans: Energy supports the activities of all organisms in the ecosystem. It usually enters the ecosystem in the form of sunlight. It is incorporated into the chemical bonds of molecules within living and decaying tissues, and is eventually lost as heat

Q no 64.define food pyramid?

Ans:a food pyramid is actually a graphical representation of flow of energy through different trophic levels of ecosystem.

Q no 65:define habitat or environment?

Ans:the actual place where an organism lives is called its habitat or environment.

Q no 66:what is range of optimum?

Ans: A certain range of values within the tolerance range is called the range of optimum.

Q NO 67.How tolerance range works for animals?

Ans: Animals always live within a certain range of values, called the tolerance range, for any environmental factor. At either limit of the tolerance range, one or more essential functions cease.

Q NO 68.Define limiting factors.

Ans: When an abiotic factor becomes out of an organism tolerance range then it is said to be a limiting factor. For example oxygen, food and water.

Q NO 69.Discuss about taxis with example?

Ans: response of an organism towards any a biotic factor is known as taxis. for example response of organism towards light.

Q no 70.what is food chain ?

Ans: it is defined as the sequence of organism in which energy moves in an ecosystem.

Q no 71.explain position of organism in trophic level?

Ans. primary produces → primary consumers → secondary consumers → tertiary consumers → quaternary consumers → decomposers

Q no 72.define food web?

Ans. food web is actually the graphical representations of food chains which are interconnected with each other.

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Q no 73.for what purpose the food chain and food webs are represented?

Ans:Food chains and webs show how producers, consumers, and decomposers are connected to one another as energy flows through trophic levels in an ecosystem.they Provide stability to ecosystem. **SHORT**

Q no 74.what is the role of producers in trophic levels?define producers?

Ans:they form the first trophic level.they obtain their nutrition from inorganic sources.they can generate their own food.green plants are their best example.

Q NO 75.how consumers work in trophic levels?

Ans: Consumers eat other organisms to obtain energy.Herbivores (primary consumers) eat producers. Some carnivores (secondary consumers) eat herbivores, and other carnivores (tertiary consumers) eat the carnivores that ate the herbivores.

Q NO 76.Define scavengers?

Ans:they are included in consumers and feeds on large chunks of dead and decaying organic matters.

Q no 77.what are decomposers?

Ans: Decomposers (detritivores) break down dead plant and animal material and wastes and release it again as energy and nutrients into the ecosystem for recycling

Q NO 78.what is the difference between photoautotrophes and chemoautotrophes?

Ans: Photoautotrophs are organisms that carry out photosynthesis. Using energy from sunlight. Chemoautotrophs are organisms that derive their energy from the oxidation or breakdown of various inorganic or organic food substances in their environment. The process releases energy which supports metabolic activity in the organism.phototrophes use sunlight while chemotrophes use hydreogen sulphide for their purpose.

Q no 79 What is the abbreviation of NADPH and ADP?

Ans: nicotinamide adenine dinucleotide phosphate (NADPH) and adenosine triphosphate (ATP).

Q no 80: what are polyplankton?

Ans: in oceans, lakes and slow-moving streams, phytoplankton are the major producers.Phytoplanktons are simply microscopic floating plants. Fish and other aquatic animals eat the phytoplankton as it floats through the water. Phytoplankton, a great source of food for a wide range of aquatic creatures including whales, shrimp, snails, and jellyfish.

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Q no 81. Write down the characteristics of terrestrial plants?

Ans: they are self supportive .they are strong and stiff. They experience gravity as main environmental force and wind as external mechanical force.

Q no 82. How can plants contribute in habitat structuring of terrestrial ecosystem?

Ans: Their physical structure governs the patterns of physical environment, organism feeding and activity, and ecosystem processes.

Q no 83. What are phytoplankton plants? Also give some examples.

Ans: Microscopic organisms that float or drift in the water. Phytoplankton, a great source of food for a wide range of aquatic creatures including whales, shrimp, snails, and jellyfish.

Q no 84. Discuss some characteristics of diatoms and dianoflagellates?

Ans:

Diatoms	dianoflagellates
1.they are unicellular	1.they are unicellular
2.their shells contains interlocking parts	2.contains double flagella
3.major producers of aquatic ecosystem	3.second important producers of aquatic ecosystem
4. Examples: pennales, bacillariophyceae.	4.examples:dinophyceae,synidinales

Q no 85. Define eutrophication?

Ans: actually it is the excess of nutrients in water which produces harmful algal blooms which becomes toxic to living creatures.

Q no 86. How red tides can be produced?

Ans: red tides are produced by toxic and harmful blooms of red dianoflagellates resulting the red colour of sea water.

Q no 87. What do you know about photosynthesis?

Ans: its a process by which producers manufacture food for organisms in an ecosystem. It starts ecological food web. Light energy is captured by chlorophyll and converted into chemical energy to produce basic source of energy called glucose.

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Q no 88. Define heterotrophes or consumers?

Ans: organisms that cannot able to manufacture their own food. They get their nutrients directly or indirectly from producers.

Q no 89. Differentiate between secondary consumers and tertiary consumers?

Ans: secondary consumers are carnivores that feed on meat of herbivores or An animal that preys on and eats a primary consumer. They are also called as Carnivores (Meat eaters). Spiders, hyenas, birds, frogs, and some zooplankton-eating fish. While Tertiary consumers are carnivores that feed on the flesh of other carnivores. They are third- and higher-level consumers. Tertiary consumers eat the carnivores that ate the herbivores. Tigers, wolves, mice-eating snakes, hawks, and killer whales.

Q no 90. Define herbivores?

Ans: these are the animals that feed on plants directly. Few examples are zooplankton, cow, zabera, rabbit etc

Q no 91. Define omnivores?

Ans: animals that feed both herbivores and carnivores. Human pigs, cockroach, tilapia, etc

Q no 92. Discuss some characteristics of herbivores?

Ans: They need a lot of energy to stay alive. Many have to eat all day long to get enough energy. Some herbivores have a special digestive system so they are able to eat or digest grasses.

Q no 93. define primary consumers? and also give examples:

Ans: A plant-eating animal (an herbivore) that obtains organic molecules by eating producers (autotrophs) or their products.

Q no 94. define aquatic producers?

Ans: Organisms that manufacture food in aquatic environment. In freshwater and marine ecosystems, algae and aquatic plants are the major producers. In open water, the dominant producers are phytoplankton.

Q no 95. how plants participate in terrestrial ecosystem?

Ans: Terrestrial plants are self supportive plants, so they are strong and stiff in nature. They experience Gravity as a main environmental force while Wind as an external mechanical force. Plants are the major habitat-structuring feature in terrestrial ecosystems. Their physical structure governs the patterns of physical environment, organism feeding and activity, and ecosystem processes.

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Q no 96.define omnivores?

Ans: Omnivores means animal which eat everything.they play dual roles by feeding on both plants and animals.examples are pugs,foxes,cockroaches,humans etc.

Q no 97.what type of teeths omnivores have and what functions they perform?

Ans: Omnivores have teeth that can perform a number of tasks like Tearing,Ripping,Chiseling and Grinding .

Q no 98.what are decomposers?

Ans: Decomposers break down dead organisms and feces by digesting organic matter extracellularly and absorbing the products of digestion. Certain types of bacteria and fungi, are Decomposers.

Q no 99.how decomposers works?

Ans: They release nutrients from the dead bodies of plants and animals and return them to the soil, water, and air for reuse by producers.

Q no 100.how decomposers feed?

Ans: Decomposers feed by secreting enzymes

Q no 101.what is the role of enzymes in decomposition?

Ans: Enzymes speed up the break down of bodies of dead organisms into nutrient compounds such as water, carbon dioxide, minerals, and simpler organic compounds

Q no 102.define Detritus feeders, or detritivores?

Ans:these are the organisms which feed on waste or dead bodies of other organisms.detritus feeders can transform a fallen tree trunk into a powder and finally into simple inorganic molecules that plants can absorb as nutrients.for example mites,vultures,cat fish etc

Q no 103.what is detritus?

Ans:waste or dead bodies of organisms are called as detritus.

Q no 104.which systems are included in Earths life supporting system?

Ans: Earth's life-support system consists of four main spherical systems that interact with one another.

1. The atmosphere (air)
2. The hydrosphere (water)
3. The geosphere (rock, soil, sediment)
4. The biosphere(living things)

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Q no 105.what is atmosphere?

Ans: A thin spherical envelope of gases surrounding the earth's surface.

- Nitrogen (78% of the total volume)
- Oxygen (21%).
- 1% of the air includes water vapor, carbon dioxide, and methane.

Q no 106.define green house gases?

Ans: 1% of the air includes water vapor, carbon dioxide, and methane, all of which are called greenhouse gases, because they trap heat and thus warm the lower atmosphere.

Q no 107.descibe about hydrosphere?

Ans: Consists of all of the water on or near the earth's surface. It is found as liquid water ice), and water vapor in the atmosphere. Most of this water is in the oceans, which cover about 71% of the globe.

Q no 108.define permafrost?

Ans:a thick subsurface layer of soil that remains below freezing point throughout the year,occurring chiefly in polar regions.

Q no 109.which things are included in geosphere?

Ans: The geosphere consists of

- The earth's intensely hot core
- A thick mantle composed mostly of rock
- A thin outer crust

Q no 110.what is biosphere?

Ans:The biosphere occupies those parts of the atmosphere, hydrosphere, and geosphere where life exists.This thin layer of the earth extends from about 9 kilometers (6 miles) above the earth's surface down to the bottom of the ocean.

Q no 111.which factors differentiates populations?

Ans: Populations differ in factors such as their

- I. Distribution
2. Numbers
3. Age structure
4. Density

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Q no 112.what is population dynamics?

Ans: Population dynamics is a study of how these characteristics of populations change in response to changes in environmental conditions.

Q no 113.which environmental conditions can effect the chractristics of population?

Ans: Such environmental conditions are

- Temperature
- Presence of disease organisms or harmful chemicals
- Resource availability
- Arrival or disappearance of competing species.

Q no 114.name patterns of population distributions?

Ans: General patterns of population distribution or dispersion

1. Clumping
2. Uniform dispersion
3. Random dispersion

Q no 115.define clumping?

Ans: Individuals are found in form of groups or clusters due to uneven distribution of resources.

Q no 116.define uniform dispersion?

Ans: The tendency for populations to be found evenly distributed about their habitat. This is generally caused by a species ability to survive anywhere in their habitat. They use the resources found immediately around them, and spread out as to use all of the available resources.

Q no 117.what is random dispersion?

Ans: Distribution of populations in a random fashion through out their habitat is termed as random dispersion. Generally randomly distributed populations are rare while clumped distribution is common.

Q no 118.define biotic potential?

Ans: Ability of a population to grow under ideal conditions is called as biotic potential.

Q no 119.differentiate between low and high biotic potential?

Ans: high biotic potential contains larger animals like elephants and blue whales while low biotic potential consists of smaller animals like insects and bacteria.

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Q no 120.what do you know about intrinsic rate of increase?

Ans: The rate at which the population of a species would grow if it had unlimited resources. Individuals in populations with a high intrinsic rate of growth typically,

- Reproduce early in life
- Short generation times (the time between successive generations)
- Reproduce many times
- Have many offspring each time they reproduce

Q no 121.define environmental resistance?

Ans: The constraints that climate, food, space, and other environmental factors place on a population is called environmental resistance. It is the combination of all factors that act to limit the growth of a population. Together, biotic potential and environmental resistance determine the carrying capacity.

Q no 122. define survivorship curves?

Ans: Survivorship curves are a plot of number of survivors versus age.

Q no 123.how population increases or decreases?

Ans: A population increases by birth and immigration (arrival of individuals from outside the population) and decreases by death and emigration (departure of individuals from the population).

Q no 124.in what ways the population age structure can be determined?

Ans: A population's age structure has a strong effect on population growth. Age structure of a population is usually discussed as

- The pre-reproductive age: Not mature enough to reproduce
- The reproductive stage: Those capable of reproduction
- The post-reproductive stage: Those too old to reproduce .

Q no 125.how reproductive stage effects the size of population?

Ans: The size of a population will likely increase if it is made up mostly of individuals in their reproductive stage or soon to enter this stage. In contrast, a population dominated by individuals past their reproductive stage will tend to decrease over time.

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Q no 126.what do you meant by carrying capacity of a population?

Ans: The maximum population of a given species that a particular habitat can sustain without being degraded. The carrying capacity of an area or volume is not fixed.

Q no 127.enlist some factors that influence carrying capacity?

Ans:these are food availability,water,environmental conditions and space.

Q no 128.Write factores influencing reproductive potential?

Factors influencing reproductive potential

- Number of offspring produced
- The likelihood of survival to reproductive age
- Duration of the reproductive period
- Length of time it takes to reach maturity

Q no 129.Define demography?

Ans: Demograpgy is the Study of human population and the factors that regulate the growth of population. Population of any ecosystem is regulated by certain biotic and a biotic factors which are necessary for the growth of population

Q no 130.write down the factores regulation population?

Ans: Factors regulating population

1. Death rate
2. Birth rate
3. Food
4. Climate
5. Water
6. Predators
7. Emigration
8. Immigration
9. Disease
10. Competition

Q no 131.Define metapulation?

Ans:A group of populations of same species which are separated by space. Individuals can move from one population to other. Extinction and colonization are the main process that regulate the Metapopulation.

Q no 132.What do you meant by population density?

Ans: Population density is the number of individuals in a population found in a particular area. Population density and population size are the two main factors which are used to study any population in an ecosystem

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Q no 133. Write factors influencing population independent factors?

Ans: Some of these factors are,

1. Earthquake
2. Floods
3. Hurricanes
4. Weather
5. Pollution
6. Habitat destruction
7. Fire
8. Climate changes

Q no 134. Define density-independent factors?

Ans: Factors that influence the number of animals in a population and their effect is not dependent on the density of the population.

Q no 135. Define exponential growth?

Ans: A rapid increase in number of individuals of a population at a constant rate of growth.

Q no 136. Define atmosphere?

Ans: The mixture of gases that surrounds the solid earth is called the atmosphere. Although it represents a very small fraction of the weight of the earth, it is very important because it is essential to life and is highly reactive.

Q no 137. Write composition of atmosphere?

Ans: It contains Nitrogen (78%), Oxygen (21%) and 1% includes water vapor, carbon dioxide, and methane, all of which are called greenhouse gases, because they trap heat and thus warm the lower atmosphere.

Q no 138. What is the role of nitrogen in ecosystem?

Ans: It composes 78% volume of total air and is relatively inert and it is unavailable to plants directly therefore it must undergo chemical reactions to make it useful for plants.

Q no 139. What is the role of oxygen in ecosystem?

Ans: Oxygen is chemically reactive and important in breathing, weathering of rocks, combustion and in the decay of organic matters.

Q no 140. What is the role of carbon dioxide in ecosystem?

Ans: Carbon dioxide plays an important role by trapping heat, causing the greenhouse effect, which keeps the earth warm and livable, for the most part and raw material for photosynthesis.

Q no 141. What is the role of water vapours in atmosphere?

Ans: Water vapor plays an extremely important role in the hydrological cycle. Water vapors are highly variable. Air in desert areas may contain only 1 percent vapor by volume; in tropical areas, however, where the air is warm and moist, the content can be as high as 4 percent.

BT101- MID TERM (NOTES)

Q no 142. Discuss some impacts of human population on environment?

Ans: these are:

1. Habitat destruction	2. Habitat fragmentation	3. Deforestation
4. Pollution	5. Soil erosion	6. Ozone layer destruction
7. Oil spillage	8. Coral reef destruction	6. Invasive species

Q no 143. Define Density dependent factors?

Ans: Factors that influence both, the population size and population density are termed as density dependent factors.

Q no 144. Define demography?

Ans: Study of human population and the factors that regulate the growth of population

Q no 145: How many % of earth covered by fresh water?

Ans: 3% of earth surface is covered by fresh water.

Q no 147: How many freshwater division? Write its name?

Ans: There are two division of freshwater.

1. Lentic water bodies or systems
2. Lotic water bodies or systems

Q no 148. Write the name of some factors which influence population density?

Ans: these factors are:

- | | | | | | |
|------------|----------------|--------------|---------------|---------|--------------|
| 1. Disease | 2. Competition | 3. Predation | 4. Parasitism | 5. Food | 6. Migration |
|------------|----------------|--------------|---------------|---------|--------------|

Q no 149. define lakes?

Ans: these are large natural bodies of standing freshwater formed when precipitation, runoff, or groundwater seepage fills depressions in the earth's surface.

Q no 150. discuss about formation of lakes?

Ans: Natural lakes are generally found in mountainous areas, rift zones, and areas with ongoing glaciation. Other lakes are found in endorheic basins or along the courses of mature rivers. In some parts of the world there are many lakes because of chaotic drainage patterns leftover from the last Ice Age.

BT101- MID TERM (NOTES)

Q no 151.write the names zones in deep lakes?

Ans: Deep lakes normally consist of four distinct zones

1. Littoral
2. Limnetic
3. Profundal
4. Benthic

Q no 152.define littoral zone?

Ans: The littoral zone adjoins the shore and extends down to a point called the light compensation level, or the depth at which the rate of photosynthesis equals the rate of respiration. Within the littoral zone producers are of two main types: rooted or benthic plants, and phytoplankton (plant plankton) or floating green plants, which are mostly algae.

Q no 153.define Limnetic Zone?

Ans:The limnetic zone includes all the waters beyond the littoral zone and down to the light compensation level. The limnetic zone derives its oxygen content from the photosynthetic activity of phytoplankton and from the atmosphere immediately over the lake's surface. The atmospheric source of oxygen becomes significant primarily when there is some surface disturbance of water caused by wind action or human activity.

Q no 154.what is Profundal Zone?

Ans:The bottom and deep water area of a lake, which is beyond the depth of effective light penetration, is called the pro-fundal zone. In north-temperate latitudes, where winters are long and severe, this zone has the warmest water (4°C) in the lake in winter and coldest water in summer.

Q no 155.define Benthic zone?

Ans:The benthic zone is the ecological region at the lowest level of a body of water such as an ocean or a lake, including the sediment surface and some sub-surface layers. Organisms living in this zone are collectively called the benthos, e.g. the benthic invertebrate community, including crustaceans and polychaetes. The organisms generally live in close relationship with the substrate bottom and many are permanently attached to the bottom.

Q no 156. Define Lotic water bodies ? Write its example?

Ans: Those water bodies that hold running water are termed as lotic water bodies.

Examples of lotic water bodies are:

1. Rivers
- 2.Streams
3. Springs

Q no 157. Difference between stream and spring?

Ans: **Stream:** A shallow fast flowing water body smaller than rivers is called stream.

Spring: A freshwater body in which water flows out of the ground is called spring.

BT101- MID TERM (NOTES)

Q no 158. How stream receive nutrients ?

Ans: Stream receive nutrients from :

- ❖ Falling leaves
- ❖ Animal feces
- ❖ Insects
- ❖ Biomass washed into streams during heavy rainstorms or by melting snow.

Q no 159. Write name of stream habitats?

Ans: A typical stream contains three major types of habitats:

- ❖ Riffle
- ❖ Pool
- ❖ Run

Q no 160. Define Riffle, pool and Run?

Ans : Riffle: A riffle is an area of shallow and fast moving, water.

Run: A run is an area of smoothly moving water.

Pool: A pool is an area of deep and stagnant water.

Q no 161. discuss the name of zones in river?

Ans: There are three river zone.

- 1 Source zone
- 2 Transition zone
- 3 Floodplain zone

Q no 162. define inland wetlands?

Ans: Inland wetlands are lands covered with freshwater all or part of the time and located away from coastal areas. marshes, swamps, floodplains etc are the major example of inland wetlands.

BT101- MID TERM (NOTES)

Q no 163.how seasonal wetlands work?

Ans: Seasonal wetlands are flooded in the winter and begin to dry out in the summer. The moisture content of these biomes changes seasonally as opposed to a daily cycle. Rains arrive in the winter and begin to fill the area with water. With the arrival of water, insects, reptiles, birds, and small mammals populate the wetlands.

Q no 164.define oligotrophic lakes?

Ans: Lakes that have a small supply of plant nutrients are called oligotrophic lakes and are poorly nourished lakes.

Q no 165.write some characteristics features of oligotrophic lakes?

Ans:they are deep,having Steep banks,Glaciers and mountain streams supply water,Little sediment or microscopic life,Crystal-clear water,Small populations of phytoplankton and fishes such as smallmouth bass and trout and Low net primary productivity.

Q no 166.what do you mean by term estuary?

Ans:actually it is a semi-enclosed body of mixed water where salt water from the sea mixes with fresh water from the land.this mixture of water is known as estuarine water or brackish water.

Q no 167.upon what factors the amount of water depends in estuary?

Ans:it depends upon amount of runoff from the land,the tidal range and the wind .

Q no 168.how many types estuary have?discuss their names?

Ans:there are four types of estuary named as Bar built estuary ,Fjords ,Tectonic estuary and Coastal plain estuary.

Q no 169.what are fjords?

Ans:it is a type of estuary that is formed in river valleys due to the action of valley glaciers. Mostly found in Norway.

Q no 170.discuss briefly about ecological and economic importance of a wetland?

Ans: Wetlands are vary valuable natural habitats in different areas of world. They provide a number of free ecological and economic services to humans and other living organisms

- 1.itReducing flooding and erosion
- 2.Helps to replenish stream flows during dry periods
- 3.Filtering and degrading toxic wastes and pollutants
- 4.Helps to recharge groundwater aquifersHelps to maintain biodiversity

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5. Provide habitats for a variety of species

6. Supply valuable products such as fishes and shellfish, blueberries, cranberries, wild rice, and timber

7. Provide recreation for birdwatchers, nature photographers, boaters, anglers, and waterfowl hunters.

Q no 171. define eutrophic lake?

Ans: it is defined as lakes with large supply of nutrients needed by producers. they are also known as well-nourished lakes because they receive maximum nutrients.

Q no 172. what is cultural eutrophication?

Ans: Human inputs of nutrients from the atmosphere and from nearby urban and agricultural areas can enhance the biological activity of lakes by a process called cultural eutrophication or simply eutrophication.

Q no 173. differentiate between hypertrophic lake and mesotrophic lake?

Ans: hypertrophic lake is the lake having excess amount of nutrients dissolved while the lake having moderate amount of nutrients dissolved is called mesotrophic lake

Q no 174. give importance of coastal wetlands?

1. Ans: Filter toxic pollutants, excess plant nutrients, and sediments,
2. They provide food,
3. Maintain water quality
4. Habitats, and nursery sites for a variety of aquatic and terrestrial species.
5. They also reduce storm damage and coastal erosion by absorbing waves .
6. Supply timber and fuel wood to coastal communities.

Q no 175. define coastal wetlands?

Ans: it is defined as a productive waterlogged area present between land and open sea These coastal aquatic systems provide important ecological and economic services

Q no 176. what are the components of marine water ecosystem?

Ans: Marine water ecosystem sustains four major components of the earth's biodiversity.

1. Ecological diversity
2. Functional diversity
3. Species diversity
4. Genetic diversity

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Q no 177.write the nam of zones in marine water ecosystem?

Ans: Marine life is found in three major life zones:

- 1) The coastal zone
- 2) Open sea
- 3) Ocean bottom

Q no 178.what are the chractristics of coastal zone?

Ans:chractristics of coastal zones are:

- Warm
- Nutrient-rich
- Shallow water
- Makes up less than 10% of the world's ocean
- Contains 90% of all marine species

Q no 179.define open ocean?

Ans: The part of ocean that is deep and away from the coastal zone is termed as open ocean.

Q no 180.write vertical divisions of open oceans?

Ans: . On the basis of the light penetration open ocean is divided into three vertical zones.

1. Euphotic zone
2. Bathyal zone
3. Abyssal zone

Q no 181.define euphotic zone?

Ans: Upper part of open ocean where maximum light can penetrate is known as euphotic zone.

Q no 182.Why low and high tides are produced?

Ans : These low and high tides are produced due to gravitational pull of moon and sun.

BT101- MID TERM (NOTES)

Q no 184. Define weathering ?

Ans : Process of decomposition and disintegration that causes the rocks to break down in a natural way.

Q no 185. What is lichens?

Ans : Lichens are the pioneers to occupy succeeded by mosses and quickly by other plants that take the opportunity to grow in cracks and crevices.

Q no 186. what are corals? discuss its types?

Ans: corals are defined as tiny living organisms belongs of group of organisms called cindaria. it has two types named as soft corals and hard corals.

Q no 187. what are coral reefs?

Ans: coral reefs are diverse underwater ecosystem produced by large mass of calcium carbonate secreted by corals in marine water. these are centres of equatic biodiversity.

Q no 188. discuss importance of coral reefs?

Ans: they provide natural habitat, economic benefits, food, medicine, recreations, nursing grounds and breeding grounds .

Q no 189 : write soil importance?

Ans : Soil importance: 1. Nutrients 2. Water 3. Habitat 3 .Seed germination
4. *Biological productivity*

Q no 190 : Write the name of soil tyes?

1. Ans : 1. Pedalfer soils 2. Pedocal soils

Q no 191: Write soil profile zone name?

1. O-horizon 2. A-horizon 3. B-horizon 4. C-horizon

Q no 192 : Write the factors that influence horizons?

▪ Erosion Wind Precipitation Human activity Topography

Q no 183. Write name of sandy shore adaptation ?

Ans : 1 :Burrowing in sand 2. Digging in sand 3: Tunnelling in sand

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Q no 193 : Write importance of temperature ?

Ans : Importance of temperature

- Metabolism
- Seed germination
- Opening and closing of flowers
- Seasonal falling of tree leaves
- Growth and development
- Animals migration due to seasonal changes in temperature
- Reproduction
- Temperatures changes in desert ecosystem

(hot day and cool nights)

Q no 194.Differentiate between Ectotherms and endotherms and also tell at least two names of animals included in both catagories?

Ans:these are the organisms that control their body temperature by external sources .for example,fishes,reptiles and amphibions. Animals that produce their own body heat through internal mechanisms,i.e,birds and mammals.

Q no 195.define torper with example?

Ans: A condition in which the rate of metabolism, circulation and respiration of individuals decreases when they are not feeding. Torpor allows the individual to survival in non feeding period. It is found in bats, hummingbirds, and other animals.

Q no 196.what is Hibernation?

Ans:hibernation is a condition in which animals become inactive usually in cold enviro nments for their survival

Q no 197.differentiate between Hibernation and winter sleeping?

Ans:

Hibernation	Winter sleep
1.Body temperature falls	1.Body temperature does not falls
2.animals remains inactive for weeks or even for months	2.animals can awake and active quickly

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3. animals become inactive usually in cold environments	3.hibernation in larger animals is winter sleep
4.includes small mammals like bats,rodents ,shrews etc	4.includes lager reptiles like bear,hadgehoges,garter snakes etc

Q no 198.Define Aestivation?

Ans: Aestivation or summer sleep is a period of inactivity and low metabolic rate in animals in response to high temperature and dry season.Aestivation is common in many invertebrates, reptiles, and amphibians.

Q no 199.write some survival mechanisms of endotherms in hot environment:

- Sweating Panting Vasodilation Aestivation

Q no 200.in what way animals survive under aestivation?

Ans: The animal usually enters a burrow as its environment begins to dry. It generally does not eat or drink and emerges again after moisture returns.

Q no 201.discuss some major chractristics of endotherms?

Ans: Characteristics of Endotherms

- High rate of metabolism
- Generate heat from body cellular activities
- Body insulation by fur or feathers

Q no 203.write adaptations of endotherms in cold environment?

Ans: Survival mechanisms in cold environment

- Fat deposits Fur Feathers Vasoconstriction Hibernation

Q no 204.how animals behave under torper condition?

Ans: Torpor is a mechanism that is under physiological control.Animals can regain its normal body activities in a short period of time after remaining in a state of torpor.

Q no 205.which characters the hibernating animals posses?

Ans: Hibernating animals possess,

- Low metabolic rate

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- Low respiratory rate
- Low body temperature

Q no 206.what is the reason behind hibernation?

Ans:the reason is very low temperature and shortage of food.

Q no 207.what is the role of light in lives?

- Photoperiodism
- Growth
- Seed germination
- Transpiration Modification in leaf structures
- Migration
- Communication
- Reproduction

Q no 208.what is the importance of photosynthesis ?and also write its process?

Ans: Plants receive light energy directly from sun to produce food by the process of photosynthesis. With the help of light energy plants can produce food and also oxygen for all living organisms which are dependent on plants for this purpose.

Carbon dioxide+water→glucose+oxygen

Product of photosynthesis are food and oxygen. Both these are valuable for animals survival. Animals take oxygen and expel carbon dioxide which is turn used by the plants for photosynthesis.

Q no 209.define electromagnetic radiations?

Ans: A form of kinetic energy, in which energy travels in the form of a wave as a result of changes in electric and magnetic

fields.Electromagnetic radiation (EM radiation or EMR) is the radiant energy released by certain electromagnetic processes. Visible light is an electromagnetic radiation. Other familiar electromagnetic radiations are invisible to the human eye, such as radio waves, infrared light and X-rays.

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Q no 210. discuss about the types of electromagnetic radiations?

Ans: On the base of wavelength there are two types of electromagnetic radiations named as Electromagnetic radiations with short wavelength and Electromagnetic radiations with long wavelength. Electromagnetic radiations with short wavelength are Gamma rays, x-rays and uv radiations while electromagnetic radiations with longer wavelengths are infrared radiations and visible light.

Q no 211. what is energy quality?

Ans: It determines the ability of an energy source to do useful work

Q no 212. differentiate between high quality energy and low quality energy?

Ans: High-quality energy is concentrated form of energy and has a high capacity to do useful work. Examples are, Very high-temperature heat and Nuclear fission etc while A dispersed form of energy that has a little capacity to do useful work. for example Heat energy of moving water molecules.

Q no 213. define community ecology?

Ans: Community ecology determines overall interactions of different populations of a community with one another as well as interaction with the surrounding environment.

Q no 214. what type of interactions occur in community ecology?

Ans: these interactions are:

- Predation Parasitism Mutualism Competition

Q no 215. what is species composition?

Ans: Species composition is all the different living organisms that develop or compose a community within an ecosystem. Species composition is an important tool for the determination of community structure of a specific place

Q no 216. what is the importance of species composition?

Ans: Study of species composition tells us how an ecosystem works as well as the importance of each species in that ecosystem. It is used as an important indicator for analyzing ecological and management processes occurring at a particular site.

Q no 217. what is the role of species composition as ecological indicators?

Ans: Species composition is used as an ecological indicator to evaluate natural biodiversity and to estimate environmental change. It provides typical knowledge about the vegetation of a particular site that is linked with different other species for food.

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Q no 218.what is the role of species composition in management indicators?

Ans: Species composition also reflects the effects of a disturbance regime or the efficacy of efforts to mitigate disturbance effects. The management of community in a specific site is directly connected with assessment or manipulation of species composition .

Q no 219.what is light?

Ans: Light is the main source of energy for organisms. Natural light has an importance .For animals the intensity of light affects their skin color, sensitivity, sight etc. There are insects that use UV light to distinguish between flowers and many experts believe that birds too orient

themselves in a specific direction depending on the slight difference of UV light reflected from object such as trees. Light not only is an energy source but an important factor for maintaining the biological rhythm of life. It part to play in the life of most plants as it is utilized by them for the process of photosynthesis.

Q no 220.discuss some characteristics of community ecology?

Ans: Important attributes or characteristics of community ecology are,

- ❖ Species composition
- ❖ Species richness
- ❖ Species diversity and dominance

Q no 221 : Write difference between species abundance and evenness?

Ans : Species abundance is the number of individuals per species, and relative abundance refers to the evenness of distribution of individuals among species in a community while Species evenness is a measure of the relative abundance of the different species that contribute to the richness of an area.

Q no 222: What is Species Dominance?

Ans :Species dominance refers to the biological supremacy of species that influence the ecosystem by controlling the energy flow in that ecosystem.

Q no 223: Define Succession?

Ans : The change in composition and organization of community over period of time is known as succession or ecological succession.

Q no 224 : Write difference between Autogenic and Allogenic succession?

Ans: In autogenic succession the successional process is controlled by living or biotic component of an Ecosystem while The entire successional process is controlled by non living or abiotic components of ecosystem.

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Q no 225: Write benefit of succession?

Ans : Development of an ecosystem.

- Sustainability of ecosystem.
- Recovery of ecosystem from damage caused by humans or any other natural disaster.
- Balance of nature.

Q no 226: Define Pioneer Community and Pioneers?

Ans : The first community to become established in an area is called the pioneer community.

Q no 227: What is climax community?

Ans : The relatively stable and uniform community developed by the pioneers through different successional stages is named as climax community. It is a final and mature stage of any community.