BT101 – ECOLOGY, BIODIVERISTY & EVOLUTION-I

ALL OBJECTIVEs & SUBJECTIVEs FROM PAST FILES FOR MID TERM

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OBJECTIVEs

1. The species occupation in its environment is tremendous _____ **Beavers/ Foundation Species.**
2. Top most horizon is ---------- **O Horizon .**
3. --------Plays a major role in shaping communities ------- **Foundation Species.**
4. The process of making carbohydrates from water and carbon dioxide Is called **Photosynthesis.**
5. Panda Is an example of --------- **Specialist Specias.**
6. Plant names Viola Orvensis Is present In ---------- **Basic Soil .**
7. Species having wider range of niches -------- **Generalist Species.**
8. Corals are tiny living animals belong to group of organisms --------**Cnidarians.**
9. The large natural bodies of standing freshwater found by precipitation on run off are -- **Lakes.**
10. Aestivation Is commonly occurred In **Many Invertebrates Reptiles And Amphibians.**
11. Division of freshwater ecosystems are --------**Lotic And Lentic Water Bodies.**
12. Currently human population is about ---------- **7.4 Billion.**
13. The rate that new organic matter is made by means of individual growth and reproduction in all the herbivores is---------- **Secondary Productivity .**
14. Liberating chemical-bond energy for metabolic use in glycolysis, Krebs's cycle and electron transport chain --------**Heterotrophs**
15. Introduced to Hawaii in the late 1800's ----------**Asian Tiger Mosquito.**
16. There is No limit to number of -- in Mullerian mimicry --- **Species Participating.**
17. Negative Phototactic movement occurs in --------**Earthworms.**
18. Oscillations are produced hy interactions between populations of at least --different species --- **Two.**
19. Mutualistic gut flora e.g cellulose digesting --------- **Bacteria**
20. Removal of apex predator in environment called --------- **Cascade Effect.**
21. Analogous structures are the product of --------- **Convergent Evolution**
72. Use of DDT was Banned in US in --------- **1972.**
73. At either limit, one or more essential functions cease --------- **Tolerance Range .**
74. They Synthesis of the organic compounds of their bodies from inorganic precursors -------- **Autotrophs**
75. It Occurs when uptake from the water is greater than excretion---**Bio concentration**
26. Pere David's deer was a native species of _____**China**
27. Mutualism is Long-term relationship between individuals of ____**Different Species**
28. High population ___ can lead to the accumulation of harmful waste products that kill individuals or impair reproduction, reducing the population's growth.---**Densities**
29. The maximum population -----the species that the environment can sustain indefinitely.----- --- **Size Of**
30. __ Is a group of population occupying same space in a particular time.----**Community.**
31. __ Is a group of individuals belonging to same species occupying same space in a particular.---------- **Population.**
32. Interaction as a system between both components -------- **Non Living Components**

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33. Gross primary productivity Gap Raw rate at which the synthesize new organic matter.- ----**Primary Producers.**
34. A population Increase by immigration and decrease by ------- or departure of Individuals from the population ----------**Emigration** .
35. CFCs destroy the -------- layer in the atmosphere--------**Ozone**
36. The main environmental force that influence the terrestrial plants ----------**. Gravity.**
37. Butterflies are one of the best example of--------- **Indicator Species.**
38. Measurements of species per unit area are Called --------**Species Richness**
39. Geographic limit causes the size of a population .---------- **Decrease**
40. The species occupation in its environment is tremendous -------**Beavers.**
41. Breakdown of tissues by bacteria Is called --------. **Putrefaction**
42. Breakdown of tissues by the body's own internal chemicals and enzymes Is called **Autolysis.**
43. Plant and food Is the primary source of ------- **Ominvores**
44. There are ----- types of herbivory depending upon different feeding habits. ---- **8**
45. The process occurs In dark habitats ---------- **Chemoautotrophs**
46. Synthesis of organic compounds of their bodies from inorganic precursors **Autotrophs**
47. Animals use -------- energy to make organic molecules _____**Chemical Energy.**
48. Formed in response to specific external factors in that environment ----------**Biome.**
49. The external factors are -------- **Climate And Topography**
50. Oxygen made stable ------ of atmosphere ----------**15% .**
51. Response of an organism towards an abiotic stimuli ___ **Taxi (Light)**
52. Example of primary consumer ___ **Zooplankton,Cow,Zebra,Grasshopper,Deer Etc**
53. The living portion of earth surface is named as __**Biosphere**
54. The population density of small organisms is __**High**
55. Hawk is an example_____ **Tertiary Consumer**
56. Nitrogen is in atmosphere is _____ **78%**
57. Plants use direct sunlight in process of_____ **Photosynthesis**
58. Which can eat both plants and animals _____**Omnivores**
59. The condition at which organisms are most successful in survival_**Range Of Optimum**
60. Land producers capture_____of solar radiations -------**1%**
61. Hibernating animals have____ **Low Body Temperature**
62. Y-axis is a logarithmic plot of numbers of survivors X-axis Is a linear plot of __**Age**
63. The first community to become established In an area ts called __**Pioneer Community**
64. High population _____ can lead to the accumulation of harmful waste products that kill individuals or impair reproduction, reducing the population's growth ___**Densities**
65. The maximum population -----the species (that the environment can sustain Indefinitely ____**Size Of.**
66. Subset of the food-web --- |s Impacted by a change In population Number --**Dynamic**
67. Which animal change its color rapidly ---------**Chameleon**
68. Plant algae and cyanobacteria are--------- **Photo Autotrophs**

69. Plants are --------- **Autotrophs**
70. oxygen atom form--------- **Ozone.**
71. above thermosphere is ----------**Exosphere**
72. Second layer is ----------**Stratosphere**
73. . This process of evaporation through plant leaves is called ----------**Transpiration.**
74. **Exotic Species** are species that occur outside of thelr natural ranges because of human activity
75. Deforestation directly affects rate of --------- **Transpiration**
76. ----- are worst affected due to their edges--------**Plants..**
77. Sometimes species cannot utilize their ------- niche-------**Entire.**
78. Camouflage also known as --------**Cryptic Coloration**
79. Transparency more efficient in --------**Deeper Water.**
80. _____ is produced as result of lightening------**Nitric Acid**
81. The shape of type Il survivorship curve is_____**Diagonal**
82. Female ----- enters via ostiole and oviposits in female flowers--------- **Wasp**
83. The _____located directly above the thermosphere------- **Exosphere .**
84. -------is useful tool to distinguish atmospheric layers-------**Temperature.**
85. HMS Beagle set sail on December 27, 1831 on a ------voyage ------**5-Year.**
86. Each successional Stage is called a --------**Seral Stage.**
87. Animal wastes, plant residues have -------- BOD --------**High .**
88. _____water holds less DO than cold water-------- **Warm.**
89. Chemicals that contain carbon atoms are called --------**Organic Compounds**
90. Third Atmosphere Reduces the amount of ------- in the atmosphere --------**Oxygen.**
91. Zebra Mussel Accidentally introduced to the Great Lakes in ------**1988**
92. A _ Feeds on plants such as grasses, soft flowering plants (forbs) and algae –**Grazers**
93. Genetic code of_____ is universal---------**mRNA**
94. Invertebrates predator are such as--------- **Jelly Fish**
95. Ticks and mites are the example of-------**Ectoparasites.**
96. Removal of the top -------can alter the food web dynamics-------- **Predators.**
97. Which of these Native to the Pacific Ocean ---------**Lionfish**
98. They can breakdown Carbohydrate Anaerobically also-------**Bacteria**
99. Extinct hippopotamus like animal, now called --------**Toxodon**
100. Disjunct Distribution occur due to following barriers except ---------**Chemical**
101. In the process of bacteria. release compounds such as cadaverine and putrescine causing decaying odor -------**Putrefaction.**
102. Reduction in area of safe zones for prey making them vulnerable to----.**Predators**
103. Mutualism is the long-term relationship between individuals of ----**Species Different**
104. Atmosphere of Earth is the layer of ..... **Gases**
105. Population size---------above carrying capacity-----**Decreases.**
106. Horses had been present and had become extinct long ago in ------- **S.America .**

107. Likely sea level rise during the 21st century is--------**5 Mm Per Year**
108. ----------cycle is thermostat of earth--------**Carbon Dioxide**
109. In --------water changes from its liquid state to a gaseous state----------**Evaporation**
110. Extrertely Wet or dry events within the monsoon period have Increased since—**1980**
111. In stratosphere temperature ranges from ..... near the tropopause ----**51c**
112. Inter specific competition between individuals --of species-**Same.**
113. A niche may be described in terms of----------**All Of These**.
114. Which of the following limiting factor cannot regulate population at constant level? ----------**Density Independent**
115. _____, can damage physiological and psychological health_____**Noise Pollution.**
116. Speed of wind far exceed those in the troposphere reaching near---------- **220 km/h**
117. 541 million years ago, O2 made stable --------0f atmosphere-----**15%** .
118. Reduction in area of safe zones for prey making them vulnerable to --------**Predators**
119. Mimicry is ..... them as something else------**Disguising**
120. Communities may begin in areas nearly devoid of ----------**Life**
121. Death __ New species and additional nutrients establish this community ----**Decay.**
122. In Mesosphere Layer, directly above the ..and directly Below the thermosphere--------**Stratosphere .**
123. It has relatively high probability of surviving to adulthood------- **K-Selected.**
124. Gradual changes over the time with changing environment was foundation of ---------**Theory Of Uniformitarianism**
125. Animals absorb phosphates by____eating plants--------**Herbivores.**
126. Natural environment where a species/organism lives is called -------**Habitat.**
127. In homeostasis_____ is a critical factor--------**Water.**
128. In Layers of atmosphere air pressure and density ------with altitude------ **Decreases**
129. The entire niche that a species is capable of using based on its_____ **tolerance** limits and resource needs-------**Physiological.**
130. Atmosphere contains about----billion metric tons of carbon in form of CO_2 ----**750**
131. Drop in Vapor pressure is due to____**Gravity**
132. Temperature increased due to absorption of Sun's UV radiation by the- **Ozone Layer**.
133. Atmosphere holds around 12,900 cubic kilometers of... at any given time------**Water.**
134. In aposematism advertisement of signals includes --------**Color, Odor, Sound**
135. Normal body temperature of goat------**103 F**
136. Which animal maintain its internal temperature constant ___**Warm Blooded Animal**
137. Mechanism of thermoregulation is influenced by_**Water + Shelter + Availability Of Water**
138. Phytoplankton includes_____**Algae**
139. Photosynthetic bacteria carry out---of primary productivity near oceans surface--**70%**
140. The size of ultraplankton _____**2um.**
141. Active swimmers belong to --------**Nekton**
142. Benthos does nat include_____**Deterioritus**

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143. Corals secrets ------ in marine water------- **Calcium Carbonate**
144. Which of the following is not included in importance of coral reefs-------- **Minerals.**
145. Corals belong to class -------**Cnidaria.**
146. The area of shoreline b/w low & high tides is ----**Intertidal Zone.**
147. Weathering is an important phenomenon in ... forming process?_____**Soil**
148. In general soils are classified into main ... groups-----**2**
149. Which of the following is not the example of filter feeders?-------**Worms.**
150. Both cold & dark water is present in--------**Abayssal Zone**
151. In bathyal zone the amount of sunlight is-------**Very Little**
152. Phytoplankton carry out about fof the'world's photosynthetic activity? ------- **40%.**
153. Eutrophic zone consists of high level of--------**Oxygen**
154. The zone containing 90% of marine species? -----**Coastal Zone**
155. Coastal Zone makes up less than ... of the world's ocean----- **10%**
156. The overall economic benefit from marine coastal ecosystems is -------**$ 12 Trillion**
157. _____Volume of water belongs to sea water--------**97%**
158. The economic service of marine ecosystem is --------**Pharmaceuticals.**
159. A microscopic drifting animal is known as--------**Zooplankton**
160. The mixture of water is------**Estuarine + Brackish Water**
161. Waterlogged area present b/w land and open sea------**Coastal Wetland.**
162. Sea grass beds supports to _____plant species------ **60**
163. Components of marine water ecosystem are -------- **4**
164. Which of the following shows functional diversity _____**Biological & Chemical Processes For Lives Survival .**
165. Marine life found in _____zone-------**3**
166. Organisms that are found in Deep Ocean are called____**Deposit + Filter Feeders**
167. Deposit feeders take _____ into their guts------ **Mud**
168. Benthic zone is present at _____level of body water-----**Lowest**
169. The algae production in oligotrophic lakes is-------**Low**
170. Streams receive nutrients are------- **Falling Leaves + Animal Feces + Insect**
171. How many types of stream habitat----- **3**
172. Which is an area of shallow & fast moving water------**Riffle**
173. Floodplain zone containing--------- **River**
174. There are ------zones in lakes------- **4**
175. Which of the following is not the factor of littoral Zone-------**Slope Of Water.**
176. Lakes contains------**Standing Water .**
177. Which is not example of lotic water---------**Pond.**
178. Spring is freshwater body in which water flows out of the--------**Ground .**
179. Lotic water bodies receive water supply from-**Precipitation + Snow Water + Springs.**

180. Ability of individuals to reproduce under ideal or optimum conditions is called--------**Reproductive Potential.**
181. Exponential growth is also called--------**Geometric Growth**
182. Exponential growth cannot occur---------- **Indefinitely.**
183. Due to,,natural resources are decreasingat airalarming rate -----**Overconsumption.**
184. -------- is a density - dependent ---------**Competition + Parasitism + Predation.**
185. ------is a human impact on environmental health-------**Deforestation + Pollution.**
186. What percent of the air includes water vapor, carbon dioxide and methane--------**1%**
187. Which of the following factor cannot effect the carrying capacity--**Nutrients Availability**
188. What de you mean by post reproductive stage of population--**Too Cold To Reproduce.**
189. Weather conditions often limit---------- **Population.**
190. Human activity __ often affect animal populations in a similar fashion ---- **Construction + Deforestation**.
191. --------is density - independent factor ----**Fire + Pollution + Climate .**
192. At carrying capacity (k) population growth_creating an S_shaped curve ---**Levels Off**
193. Oxygen made stable -------- of atmosphere---------- **15%**
194. The resemblence of -- species to another for protective or aggressive purposes- **One**
195. Lysosome were discovered by the Belgian Cytologist de Duve in ___ **1951.**
196. Named after Camilo Golgi an -------- biologist who discovered the organelle with a light microscope in 1897------- **Italian.**
197. Major mechanism through which -------- genetic material Is generated during molecular evolution------ **New.**
198. Prokaryotic microbes can synthesize - and nitrate from N2 in the atmosphere --**Ammonia .**
199. Arctic fox changes from brown or grey in the -- to white in the winter ----**Summer**
200. The water that goes into the atmosphere is --- than it was on Earth. ----**Cleaner**
201. Pathogens is the source of ---------- pollutions ----------**Non-Point Source**
202. Temperature of the troposphere ---------- with altitude. ---------**Decreases.**
203. --is an early freshwater reptile found as fossils from the early Permian period -- **Mesosaurus**
204. Mutualism Long-term relationship between individuals of --species --- **Different.**
205. There is limited number of feeding or trophic levels in ----- **Food Chain.**
206. ---- is loss of feature due to loss of its value in changed environment ----**Vestigiality.**
207. They Release digestive enzymes by their hyphae ----- **Fungi .**
208. Ecologists support concept of communities is -----**Individualistic**
209. Troposphere contains -------- of the atmosphere's mass -----**75%**
210. Koalas are the example of --------- **Folivores**
211. Insects,frog, turtle undergo --------**Aestivation**
212. One of the major disruptions is loss of habitat -------- **Extinction**
213. Layers of atmosphere increases with_____in some regions -----**Altitude.**
214. Variability in Net Primary Productivity Wetlands and tropical rain forests is -----**2000 G/M2 / Year.**
215. Volcanic eruptions release ------ into the atmosphere -------**Sulfur.**

216. Who was proposed the law of use and disuse -------**Lamarck**
217. ____Enables animals to survive periods of reduced food availability--------**Torpor**
218. Adult human body contains --------of water by weight------**60%**
219. -------Was Father of geology and stratigraphy -----**Nicolas Steno.**
220. Cascade Effect leads to increase in their --------species --------**-Prey**
221. Flies and ------- have outlandish proboscises ---------**Moths.**
222. Thermosphere Known as ------ **Lonosphere.**
223. It represent tiny portion of the complexity of real ecosystems--------- **Food Web**
224. Each --trophic level has its own secondary productivity ------ **Heterotroph.**
225. Hibernation occur which of the following animals ------**Rodents.**
226. Motion dazzling is protection without -------- **Hiding.**
227. Bacteria are use to remove organic matter dissolved in water (QDW)in the ------- process of conventional sewage treatment --------- **Secondary.**
228. Species Invest more heavily in fewer offspring -------**K-Selected**
229. In water cycle Rate of synthesis and breakdown is _____**Equal**
230. Mesosphere called as----------**Near Space .**
231. Animals use --------- to make organic molecules ---------**Chemical Bond Energy.**
232. Which Microparasites reproduce inside host -------- **Bacteria.**
233. Asian Tiger Mosquito Can be a vector for a virus for ------ disease_**West Nile .**
234. Polar aurora is observed due to entry of solar ---------**Winds**
235. ____ is key element in survival of life ----------**Atmosphere**
236. Which of the following species is hunted for its fur --------**Passenger Pigeon**
237. Passenger pigeon The process of carbon cycle is sometimes called--**Carbon Fixation**
238. Intraspecific interaction Follows logistic---------- growth curve --------**Population**
239. _____bacteria perform Denitrification Facultative --------**Anaerobic.**
240. _____ is the slowest cycle------- **Phosphorus Cycle.**
241. Lagoons, Stabilization Ponds are ---------feet deep-------**3-5**
242. Swallows and pink fairy armadillos are -------- **Insectivores**
243. --------of global fresh water use in agriculture -------**69% To 90%**
244. ----------near the surface, however, harmful to life ---------**Ozone**
245. Batesian Mimicry Mimics usually---------- than models--------**Smaller.**
246. In Mutualism both individuals get -------**Benefit**
247. Which is not the effect of fragmentation--------- **Genetic Drift Is Decreased.**
248. ------- of human body is carbon by wetght--------**20%**
249. Oxygen was produced ---- billion year ago --------**2.5**
250. 12 to 50 km layer of atmosphere is--------**Stratosphere.**
251. --Simplified abstractions of real food webs, but complex in their dynamics --**Food Chain**
252. It has a half life of 15 year ---------**Dichloro Diphenyltrichloroethane (DDT)**

SUBJECTIVEs

1. Feeding Strategies?

Different feeding strategies Major strategies:

- Grazers
- Browsers

Grazers

Feeds on plants such as grasses, soft flowering plants (forbs) and algae , Plants are not killed.

Examples: Deer & Snails

Types of Grazing

1. Graminivory

Feeding primarily on grass • Specifically "true" grasses in family Poaceae Examples: Horses, cattle, hippopotamus, grasshoppers

2. Browsers

Feed on non-grass plant material • Leaves, soft shoots, twigs, fruits, woody plants such as shrubs Examples: Goats, deer, giraffe, elephants

Over browsing - Introduction of herbivores - Low productivity of native plants - Less predation pressure

2. Logistic Growth?

Logistic Population Growth

- Carrying capacity of environment affect population growth
- Environmental resistance
- Growth rate gets smaller as approaches the carrying capacity Environmental factors affect population growth.

a. Climate
b. Food
c. Space
d. Competition.

3. Write A Short Note On Survival Ship Curves?5

Survivorship Curve

a. Y-axis is a logarithmic plot of numbers of survivors
b. X-axis is a linear plot of age Kinds of Survivorship Curve

Kinds of Survivorship Curve

Type 1 (Convex)

Populations survive to an old age, then die rapidly. Unimportance of environmental factors in influencing mortality. Potential life span

Example: Humans

Type II (Diagonal)

Constant probability of death throughout lives

- Influence of environmental factors on mortality
- Mortality independent of age

Example: birds, rodents

Type III (Concave)

- High juvenile mortality
- Influence of environmental factors and less resistance of juveniles on mortality
- Lower mortality in adults

Example: Fish

4. What Is Difference Between Habitat And Niche? 2 Marks

Actual place of an organism where it lives is called its habitat or environment. A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism.

Each organism in a community confronts the challenge of survival in a different way. Occupies a specific functional role and place called its niche. The niche an organism occupies is the total of all the ways it uses the resources of its environment.

5. What Is Aestivation?

Survival in extended period of drying. Avoid temperature damage and dehydration.

Examples: Insects, frog, turtle

6. Limit Factor That Control Population?

Limiting factors regulate population size

a. Rate of Birth

b. Rate of Death/mortality
c. Dispersal
d. Food Resources
e. Space to grow
f. Environmental factors

7. Types Of Grazing

❖ Graminivory

Feeding primarily on grass.Specifically "true" grasses in family Poaceae **Examples:** Horses, cattle, hippopotamus, grasshoppers

❖ Coprophagy

Feeding on grass, forbs, leafy weeds, fruits, tree bark Heavy, grazing for half an hour of grazing period , Followed by half an hour of selective feeding

Example: Horses, cattle, hippopotamus, grasshoppers

- Later feeding in intervals
- Eat their or other species's soft feces (caecotrophs) **Example:** Rabbit

8. Define Commensalism?

One species gain benefits while those of the other species is neither benefited nor harmed. Example: Remora fish and Sharks.

9. Major Category Of Parasite?

Protozoa, Helminths, and Ectoparasites.

10. Sources Of Nitrogen?

Sources of Nitrogen

a. Lightning
b. Inorganic fertilizers
c. Nitrogen Fixation
d. Animal Residues Crop residues
e. Organic fertilizers.

11. Define Transcription, Percolation And Ground Water?

Percolation (Infiltration)

a. Percolation is an important process. Rain water soaks into (infiltrates) the ground, into the soil and underlying rock layers.
b. Some of this water ultimately returns to the surface at springs or in low spots downhill.

Groundwater is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water.

12. Habitat Destruction?

Habitat destruction is the process by which a natural habitat becomes incapable of supporting its native species. In this process, the organisms that previously used the site are displaced or destroyed reducing biodiversity.

13. Explain The Process Of Coevolution By The Example Of Aphid-Ant About Co Evolution?

Coevolution: Two or more species living in same habitat, reciprocally affect each other's evolution. Ants protect aphids from parasites and predators.

Aphids produce honeydew, source of nutrition for ants. Specifically coevolved for ants

14. Water Pollution Major Type?

Surface Water Pollution: When harmful substances invade water bodies such as oceans, rivers, seas, and lakes.

Oxygen Depletion: When too much biodegradable materials promote microorganism growth, and they use almost all oxygen in the water.

15. Camouflage Strategies?

1) Crypsis Objects hide and hard to see
2) Mimicry Disguising them as something else
3) Motion dazzle Using visual illusions
4) Protect without hiding

16. How Mimicry Different From Camouflage?

The first difference is that mimicry involves morphological, behavioral, and physiological adaptations, whereas camouflage only involves morphological characteristics. Second, in most cases, camouflage relates to the blending of the animal or plant with its environment.

17. Habitat Fragmentation?

a. Habitat needs to be an intact body.
b. Least interference is required to protect niches of organisms.
c. Many species are too sensitive to tolerate changes in their niches e.g. insects.

18. Composition Of First Atmosphere?

First Atmosphere Composition of gases like solar nebula (disc of dirt and gases) Aged 4 billion years ago

- Hydrogen
- Methane
- Helium
- Ammonia Water vapors

19. Conventional Aviation?

Conventional aviation takes place here. It contains:

- 75% of the atmosphere's mass
- 99% of the total mass of water vapor and aerosols

20. Effect Of Noise?

Effects

Noise pollution can damage physiological and psychological health.

a. High blood pressure, stress related illness, sleep disruption, hearing loss, and productivity loss
b. It can also cause memory loss, severe depression, and panic attacks.

21. Layers Of Atmosphere?

1) **Exosphere:** 700 to 10,000 km (440 to 6,200 miles)
2) **Thermosphere**: 80 to 700 km (50 to 440 miles)
3) **Mesosphere**: 50 to 80 km (31 to 50 miles)
4) **Stratosphere**: 12 to 50 km (7 to 31 miles)
5) **Troposphere**: 0 to 12 km (0 to 7 miles)

22. Fudamental Niche?

The entire niche that a species is capable of using, based on its physiological tolerance limits and resource needs

23. Tropospheric Ozone?

Man- made pollutant in the lower atmosphere – Secondary air pollutant – Component of photochemical smog

24. Stages Of Water Cycle ?

a) Evaporation
b) Transpiration
c) Condensation
d) Precipitation
e) Surface Run off
f) Infiltration

25. Sources Of Nitrogen □ Lightning

a. Inorganic fertilizers
b. Nitrogen Fixation
c. Animal Residues
d. Crop residues
e. Organic fertilizers

26. Autographs

- Synthesis of the organic compounds of their bodies from inorganic precursors such as: - CO2 , H2O, NO3
- Using energy from an a biotic source - Light - inorganic oxidation reactions

27. Carbon Cycle

a. Carbon is main component of living organisms.
b. 20% of human body is carbon by weight.
c. CO2 is major source of carbon.
d. Atmosphere contains about 750 billion metric tons of carbon in form of CO2
e. CO2 released in air is again available for plants
f. In aquatic ecosystem, CO2 reacts with the water to form bicarbonate ions
g. Dissolved CO2 and bicarbonates are used by algae and aquatic plants in photosynthesis.

28. Consumer-Resource System?

- Direct or indirect balance between resources and consumption
- Predators indirectly increase plant growth.
- They prevent overgrazing by suppressing herbivores.
- The net effect of direct and indirect relations is called trophic cascades.

29. Difference Between Prokaryotes And Eukaryotes ?3 Marks

Prokaryotes

A prokaryote is a single-celled organism that lacks a membrane bound nucleus, mitochondria, or any other membrane-bound organelle. Prokaryotes can be divided into two domains, Archaea and Bacteria. Species with nuclei and organelles are placed in the domain Eukaryota. In the prokaryotes, all the intracellular water-soluble components (proteins, DNA and metabolites) are located together in the cytoplasm enclosed by the cell membrane, rather than in separate cellular compartments. Bacteria, however, do possess proteinbased bacterial microcompartments, which are thought to act as primitive organelles enclosed in protein shells.

Eukaryotes

A eukaryote is any organism whose cells contain a nucleus and other organelles enclosed within membranes. Eukaryotes belong to the taxon Eukarya or Eukaryota. The defining feature that sets eukaryotic cells apart from prokaryotic cells (Bacteria and Archaea) is that they have membranebound organelles, especially the nucleus, which contains the genetic material, and is enclosed by the nuclear envelope. Eukaryotic cells alsoncontain other membranebound organelles such as mitochondria and the Golgi apparatus. In addition, plants and algae contain chloroplasts. Eukaryotic organisms may be unicellular, or multicellular. Only eukaryotes have multicellular organisms consisting of many kinds of tissue made up of different cell types.

30. Define Weathering And Also Enlist Its Types? 5

Weathering

Weathering breaks down and loosens the surface minerals of rock so they can be transported away by agents of erosion such as water, wind and ice. There are **two types of weathering**:

1) Mechanical Weathering

2) Chemical Weathering

Mechanical weathering: is the disintegration of rock into smaller and smaller fragments There are five major types of mechanical weathering:

- Thermal Expansion.
- Abrasion and Impact.
- Exfoliation or Pressure Release.
- Frost Weathering.
- Salt-crystal Growth.

Plant and Animal Activities.

31. Define Bio Magnification?

Magnification is the process of enlarging the apparent size, not physical size, of something. This enlargement is quantified by a calculated number also called "magnification". When this number is less than one, it refers to a reduction in size, sometimes called minification or de-magnification.

32. Define Eutrophication?

Eutrophication, or hypertrophication, is when a body of water becomes overly enriched with minerals and nutrients which induce excessive growth of algae. This process may result in oxygen depletion of the water body

33. What Is The Function Of The Cell Membrane?

The cell membrane is selectively permeable to ions and organic molecules and controls the movement of substances in and out of cells. The basic function of the cell membrane is to protect the cell from its surroundings. It consists of the phospholipid bilayer with embedded proteins.

34. What Is Cell Membrane And Cell Wall?

Cell Membrane. The cell wall is the outer most covering of the cell. ... The cell wall is present in bacteria, fungi, algae and plant cell. It is absent in an animal cell and protozoa. The cell membrane is a biological membrane, which is semi- permeable.

35. Write A Note On Soil Horizon?

A soil horizon is a layer generally parallel to the soil crust, whose physical characteristics differ from the layers above and beneath

36. Define Detritivores With Example?

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.

37. Enlists Some Effects Of Ozone Depletion?

- Increased UV penetration
- Skin cancer in humans, basal and squamous cell carcinomas, have been strongly linked to UVB exposure.
- Malignant melanoma, lethal skin cancer related to UVA and UVB
- Cortical cataracts and UVB exposure
- Increased tropospheric ozone
- Increased production of vitamin D linked with UVB
- Cyanobacteria are sensitive to UV, indirectly affecting crops

38. Define Ectotherms And Enlist Its Characteristics. 5 Mark

An ectotherm is an organism in which internal physiological sources of heat are of relatively small or quite negligible importance in controlling body temperature. Such organisms (for example frogs) rely on environmental heat sources, which permit them to operate at very economical metabolic rates. Colloquially, some refer to these organisms as "cold blooded" though such a term is not technically correct, as the blood temperature of the organism varies with ambient environmental temperature. Some of these animals live in environments where temperatures are practically constant, as is typical of regions of the abyssal ocean. The ectotherms include the fishes, amphibians, reptiles, and invertebrates. The body temperatures of aquatic ectotherms are usually very close to those of the water. In contrast, in places where temperature varies so widely as to limit the physiological activities of other kinds of ectotherms, many species habitually seek out external sources of heat or shelter from heat;For example, many reptiles regulate their body temperature by basking in the sun, or seeking shade when necessary in addition to a whole host of other behavioral thermoregulation mechanisms. In contrast to ectotherms, endotherms rely largely, even predominantly, on heat from internal metabolic processes.

Characteristics of Ectotherms

- Low metabolic rate
- Generate body heat from external environment
- Body insulation is very poor.

39. Services Of Marine Water

The main goods and services provided by marine ecosystems are:

a. Resilience and resistance
b. Disturbance prevention
c. Nutrient cycling
d. Gas and climate regulation
e. Bioremediation of waste
f. Food provision
g. Raw materials, including ornamental resources
h. Leisure

40. What Is Manatee? 2 Marks

Fruit bats, hummingbirds and butterflies primarily consume plant material, and all are primary consumers, although they are not often thought of as plant-eaters. Manatee Eat 150 pounds of plants each day.

41. What Is Reproductive Potential And Major Affects 5 Marks

Reproductive Potential

Ability of individuals to reproduce under ideal or optimum conditions. Exponential growth cannot occur indefinitely.

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

42. What's Difference Between Plankton And Phyplanktone? 2 Marks

Plankton

A microscopic swimming and free floating organisms in water are termed as planktons. Organisms - Saltwater and freshwater life zones contain several major types of organisms. One such type consists of weakly swimming free-floating plankton,

Phytoplankton

In oceans, lakes and slow-moving streams, phytoplanktons 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.

43. Write A Note On Types Of Soil Horizon?5

1) O-horizon

This layer generally forms above the mineral soil or occurs in an organic soil profile. The "O" stands for organic matter. It is a surface layer dominated by the presence of large amounts of organic material derived from dead plant and/or animal residue which is in varying stages of decomposition. The O horizon is generally absent in grassland regions. The O horizon usually occurs in forested areas and is commonly referred to as the forest floor. The O horizon is a surface horizon that is comprised of organic material at various stages of decomposition. It is most prominent in forested areas where there is the accumulation of debris fallen from trees.

2) A-horizon

The A horizon is the topmost mineral horizon, often referred to as the 'topsoil'. This layer generally contains enough partially decomposed (humified) organic matter to give the soil a color darker than that of the lower horizons. The A horizons are often coarser in texture, having lost some of the finer materials by translocation to lower horizons and by erosion. The A horizon is a surface horizon that largely consists of minerals (sand, silt, and clay) and with appreciable amounts of organic matter.This horizon is predominantly the surface layer of many soils in grasslands and agricultural lands.

3) B-horizon

B horizons form below an O, A horizon and they have undergone sufficient changes during soil genesis, such that the properties of their original parent material are no longer discernible. The B horizon is commonly referred to as the "subsoil". In humid regions, B horizons are the layers of maximum accumulation of materials such as silicate clays, iron (Fe) and aluminum (Al) oxides, and organic material.

4) C-horizon

The C horizon (parent material) is below the B Horizon. This layer is little affected by soilforming processes and they thus have a lack of pedological development. In other words, the C horizon is the unconsolidated material underlying the solum (A and B horizons). It may or may not be the same as the parent material from which the solum formed. The C horizon forms as the R horizon weathers and rocks break up into smaller particles. The C horizon is a subsurface horizon. It is the least weathered horizon. Also known as the saprolite, it is unconsolidated, loose parent material

44. Differentiate Between Endemic And Indigenous Species With Example?

Endemic Species :

An endemic species is one whose habitat is restricted to a particular area. The term could refer to an animal, a plant, a fungus, or even a microorganism. Endemic species are often endangered, and

particular examples may become a focus point for campaigns to protect biodiversity in a given environment. Some have become national, or regional, emblems.

Example: Blind Indus dolphin is only found in Indus river of Pakistan

Indigenous Species

A species is defined as indigenous to a given region or ecosystem if its presence in that region is the result of only natural process, with no human intervention. Every natural organism (as opposed to a domesticated organism) has its own natural range of distribution in which it is regarded as indigenous**.**

Example: Snow leopard is found in Pakistan, Nepal, India, and Russia and in some other countries of central Asia.

45. Define Food Pyramid?2

A food pyramid is a graphical representation of flow of energy through different trophic levels of an ecosystem.

46. Define Torpor With Example?2

Torpor is a state of decreased physiological activity in an animal, usually by a reduced body temperature and metabolic rate. 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. Torpor enables animals to survive periods of reduced food availability. A torpor bout can refer to the period of time a hibernator spends at low body temperature, lasting days to weeks, or it can refer to a period of low body temperature and metabolism lasting less than 24 hours, as in "daily torpor".

Examples: Animals that undergo daily torpor include birds (even tiny hummingbirds, including many marsupial species. During the active part of their day, such animals maintain normal body temperature and activity levels, but their metabolic rate and body temperature drops during a portion of the day (usually night) to conserve energy. Torpor is often used to help animals survive during periods of colder temperatures, as it allows them to save the energy that would normally be used to maintain a high body temperature.

47. Types Of Parasites?

Types of Parasites

Microparasites: reproduce inside host Bacteria, viruses

Macroparasites: release juvenile outside host E.g. trematodes

Endo parasites Liver fluke, tape worm, nematodes

Ectoparasites Ticks, mites, fleas, mosquito, lice

48. Difference Between Waste Water Treatment And Primary Secondary Treatment?

Wastewater Treatment : is the process of converting wastewater – water that is no longer needed or is nolonger suitable for use – into bilge water that can be discharged back into the environment. It's formed by a number of activities including bathing, washing, using the toilet, and rainwater runoff. (Internet)

Primary Treatment: consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment. (Internet)

Secondary Treatment: is a treatment process for wastewater (or sewage) to achieve a certain degree of effluent quality by using a sewage treatment plant with physical phase separation to remove settle able solids and a biological process to remove dissolved and suspended organic compounds. (Internet)

49. Light Pollution And Its Environmental Effect?

Light pollution, also known as photo pollution

- Excessive, misdirected or obtrusive artificial light
- Major side-effect of urbanization
- It is blamed for compromising health, disrupting ecosystems and spoiling aesthetic environments.

Effects Animals

- Negative impacts on plant and animal physiology
- Sleep
- Foraging behavior
- Predation
- Reproduction
- Animal navigation
- Alter competitive interactions
- Change predator-prey relations.

50. Ozone Depleting Substance?

Ozone Depleting Substances

- Halocarbon refrigerants
- Solvents
- Propellants in aerosols
- Chlorofluorocarbons
- Hydro chlorofluorocarbons
- Methyl bromide
- Carbon tetrachloride

- Methyl chloroform

51. Logistic Growth?

Logistic Population Growth

a. Carrying capacity of environment affect population growth.
b. Environmental resistance
c. Growth rate gets smaller as approaches the carrying capacity Environmental factors affect population growth.
d. Climate
e. Food
f. Space
g. Competition.

52. Aposematism?

Aposematism is the advertising by an animal to potential predators that it is not worth attacking or eating. This unprofitability may consist of any defences which make the prey difficult to kill and eat, such as toxicity, venom, foul taste or smell, sharp spines, or aggressive nature.

53. Acid Rain?

Acid rain is a rain or any other form of precipitation that is unusually acidic, meaning that it has elevated levels of hydrogen ions (low pH). ... Acid rain is caused by emissions of sulfur dioxide and nitrogen oxide, which react with the water molecules in the atmosphere to produce acids. (Internet).

54. Invasion Specis?

Colonization, a natural process by which a species expands its geographic range, occurs in many ways.

Examples:

- Seed dispersal by birds
- Lowering of sea levels join two isolated land masses
- Flooding

Types of invasive species

a) Animals
b) Plants
c) Pathogens

- They cause an imbalance in the natural environment. They outcompete the native species

55. Define ecosystem?

An ecosystem is a community of living organisms in conjunction with the nonliving components of their environment, interacting as a system. These biotic and abiotic components are linked together through nutrient cycles and energy flows.

56. Define Trophic Cascade?

a. **Species Level** Cascade Subset of the food-web dynamic is impacted by a change in population numbers
b. **Community Level** Cascades Change in population numbers has a dramatic effect on the entire foodweb Example: Distribution of plant biomass.

57. Decomposition?

Plays important role in nitrogen and carbon cycles.

- **Autolysis** Breaking down of tissues by the body's own internal chemicals and enzymes
- **Putrefaction** Breakdown of tissues by bacteria. Release compounds such as cadaverine and putrescine causing decaying odor

58. Primary Productivity Decomposer?

Fungi

- Primary decomposer
- Release digestive enzymes by their hyphae
- Absorb organic matter and release CO2

59. Omniverse Types?

- **Frugivores**: wolves and orangutans
- **Insectivores**: swallows and pink fairy armadillos
- **Granivores**: large ground finches and mice

60. Role Of Autotrophs?

An organism that serves as a primary producer in a food chain. **Autotrophs** obtain energy and nutrients by harnessing sunlight through photosynthesis (photoautotrophs) or, more rarely, obtain chemical energy through oxidation (chemoautotrophs) to make organic substances from inorganic ones

61. Food Web?

Complexly interconnected food chains in an ecological community • Represent tiny portion of the complexity of real ecosystems.

62. Define Food Pyramid?2

A food pyramid is a graphical representation of flow of energy through different trophic levels of an ecosystem.

63. Define Tropic Level With Example?

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.

64. Flow of Energy in Ecosystem Feeding Levels

Food energy passes through different sequence.

a. Example: plants → grass hopper → frog → snake → hawk
b. Many plant species eaten by insects
   Many insects species eaten by frogs
c. this complexity is organized by ecologists.
d. Recognized limited number of feeding or trophic levels
e. In Food Chain
f. Food energy passes through different sequence.
g. Level 1: Primary producer
h. Level 2: Primary consumer
i. Level 3: Secondary consumer
j. Level 4: Tertiary Consumer Level
k. 5: Apex Predator.

65. Name Factor That Limit Population Growth? What Factor That Effect On The Rate Of Growth And Size Of Population?

- Limiting factors regulate population size
- Rate of Birth
- Rate of Death/mortality
- Dispersal
- Food Resources
- Space to grow
- Environmental factors. (PPTS) **OR**

Limiting factors are resources or other factors in the environment that can lower the population growth rate. Limiting factors include a low food supply and lack of space. Limiting factors can lower birth rates, increase death rates, or lead to emigration. (from Internet)

66. Fundamental Of Niche?

Fundamental Niche The entire niche that a species is capable of using, based on its physiological tolerance limits and resource needs.

67. Detail Note On Limiting Factor?

A limiting factor is a resource or environmental condition which limits the growth, distribution or abundance of an organism or population within an ecosystem. ... A limiting factor restricts organisms from occupying their fundamental niche and results instead in the fulfillment of their actual or realized niche. (From Internet)

68. Foraging?

Foraging is searching for wild food resources. It affects an animal's fitness because it plays an important role in an animal's ability to survive and reproduce. Foraging theory is a branch of behavioral ecology that studies the foraging behavior of animals in response to the environment where the animal lives.

69. Exponential Growth?

Exponential growth is a specific way that a quantity may increase over time. It occurs when the instantaneous rate of change (that is, the derivative) of a quantity with respect to time is proportional to the quantity itself.

70. Name Of Stages Of Foraging?

These stages form a foraging Cycle.

a. Search
b. Assessment
c. Capture
d. Handling

71. Properties Are R Selected Species?

R-selected species

- High growth rates
- Typically exploit less crowded ecological habitats
- Produce many offspring

- Relatively low probability of surviving to adulthood.
- High reproductive rate supports their survival.
- Especially in unstable environment

72. K And R Species Properties? / Trait Of K And R Species? Difference K And R Species?

The two evolutionary "strategies" are termed r-selection, for those species that produce many "cheap" offspring and live in unstable environments and K-selection for those species that produce few "expensive" offspring and live in stable environments.

OR

Traits of r-selected species	Traits of k-selected species
• High rate of reproduction • Small body size • Early maturity onset • Short generation time • Ability to disperse offspring widely **Examples**: bacteria, grasses, cephalopods, rodents	• Large body size • Long life expectancy • Production of fewer offspring • Often require extensive parental care until they mature **Examples**: humans, whales, parrots, eagles

جو شخص علم کا مزاج نہیں رکھتا اس کے سامنے
علمی گفتگو کرنا گویا اسے اذیت دینا ہے۔

عائیزہ رائیٹس