Chapter 25

Short questions:

1. What is ammonification? (LB-2010)

Ammonification: The soil-dwelling decomposers like bacteria and fungi use amino acids, proteins, nucleic acid and nucleotides from debris and release excess amount of ammonia and ammonium ions. This process is called as Ammonification.

2. What are root nodules? (LB-2017)

Root Nodules: The legume plants (peas, and beans) are the hosts to bacteria which inhabit the roots forming root nodules. The bacteria in the root nodules fix atmospheric nitrogen and plant provides bacteria with food and protection.

3. What is assimilation? (LB-2014)

Assimilation: The plants when absorb nitrogen from soil, it is used up to produce amino-acids, proteins and nucleic acid and other organic compounds. This is known as assimilation.

4. What is a Mycorrhiza? **(OR)** What are Mycorrhizae? (LB-2009, 2011)

Mycorrhizae: is symbiotic association between the roots of plants growing in acidic soil and certain fungi. The host provides the fungus with an enzyme to digest carbohydrates in leaf litter. In return the fungus passes mineral ions from soil to the host.

5. What are lichens? (LB-2008)

Lichens: Lichen is a dual organism composed of symbiotic, mutualistic association of an alga living within a fungus mycelium. The lichens may grow on exposed rock surface and are important colonizers of bare ground.

1. What is grazing? How grazing affect the texture of soil? **(OR)** Define grazing. How grazers affect the ecosystem? (LB-2008, 2010)

Ans:

Grazing: Many animals like rabbits, goats, sheep, cows, buffaloes and horses feed and graze on grasses. This mode of feeding is called grazing. These animals live in pasture land where they feed on grasses, herbs and shrubs. The overgrazing may result in barren-land.

2. What is biome? **(OR)** Differentiate between biome and biosphere?

Biome: Major types of ecosystems, which occupy broad geographical regions are called biomes. A biome consists of a fully developed climax community e.g. grass-lands, forests.

Biosphere: is a thin layer of earth in which all living organisms live. It is a combination of all the biomes of earth together forming a planetary ecosystem. It extends 8-10 km. to upper atmosphere and 8-10 km. into the depths of ocean.

3. Briefly write about secondary succession. (LB-2012)

Secondary Succession: Succession is a community relay in which a community replaces the earlier. During secondary succession, a new ecosystem develops after an existing ecosystem is disturbed, as in case of forced fire or an abandoned farmland. It happens much more rapidly because the pervious community has left its marks in the form of improved soil and seeds.

4. Define predation. **(OR)** Give the significance of predation. (LB-2012, 2016)

Predation: An animal that preys on other animals is called as **predator.** So the predator is a tertiary or secondary consumer or a carnivore. The animal that is caught and eaten is called as **prey**. The over all process is called as predation e.g. cat/mouse, fox/rabbit.

5. Define succession and name its types. (LB-2014)

Succession: is a kind of community relay in which assemblages of plants and animals replace the earlier ones, in a sequence that is at least somewhat predictable. Succession is initiated by a few hardy invaders celled pioneers and it ends with a diverse and stable climax community.

Primary Succession: Succession is a community relay in which a community replaces the earlier. During primary succession an ecosystem is forged from bare rock or a clear glacial pool, where there is no trace of previous life. It is very slow in working.

Secondary Succession: Succession is a community relay in which a community replaces the earlier. During secondary succession, a new ecosystem develops after an existing ecosystem is disturbed, as in case of forced fire or an abandoned farmland. It happens much more rapidly because the pervious community has left its marks in the form of improved soil and seeds.

6. Define biogeochemical cycles. **(OR)** What are biogeochemical cycles? (LB-2012)

Bio-Geo-Chemical Cycles: The nutrient cycles are also called Biogeochemical cycles because the nutrients move from living to non-living to living portions of ecosystem in a cyclic manner e.g. carbon cycle, Nitrogen cycle.

7. Define productivity of an ecosystem (LB-2008)

Productivity: Can be defined as the rate of production of new biomass during a specific period. Productivity is generally expressed in terms of grams or Kilocalories per square meter. The productivity can be indicated by consumption of CO_2 and evolution of oxygen in the process of photosynthesis.

8. Define ecosystem. Write its components. **(OR)** Define ecosystem. (LB-2012, 2016, 2019)

Ecosystem: Eco means the environment and system means a collection of related parts that function as a unit. So it can be defined as.

A natural area where living organisms and physical environment interact and exchange materials between them so as to achieve functional stability is known as ecosystem e.g. forest ecosystem, a pond ecosystem.

9. Define biosphere. **(OR)** What is biosphere. **(OR)** Define biosphere and ecosystem. (LB-2014, 2015, 2018, 2019)

Biosphere: is a thin layer of earth in which all living organisms live. It is a combination of all the biomes of earth together forming a planetary ecosystem. It extends 8-10 km. to upper atmosphere and 8-10 km. into the depths of ocean.

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10. Define and describe biotic components of an ecosystem. (LB-2014)

Biotic Components: Include all living organisms of an ecosystem. These include

(a) **Plants:** Which produce food by photosynthesis.

(b) **Animals:** Which consume the produced food.

(c) **Bacteria and Fungi:** which decompose the organic materials.

11. Define parasitism. Give its significance. **(OR)** Differentiate between predation and parasitism. (LB-2009, 2012, 2019, 2021)

Predation: An animal that preys on other animals is called as **predator.** So the predator is a tertiary or secondary consumer or a carnivore. The animal that is caught and eaten is called as **prey**. The over all process is

called as predation e.g. cat/mouse, fox/rabbit.

Parasitism: This is an association between a host and a parasite, which involves providing the parasite, with food, protection and conditions for its survival. The parasite may or may not harm the host. The parasites are of two types.

- Ecto-parasites: The parasite which live outside the body of the host is known as ectorparasite e.g. fungi causing dandruff.
- Endo-parasites: The parasite which live inside the body of host known as Endoparasite e.g. tape worm in intestine of man.

12. Define commensalism. Give one example. **(OR)** Define commensalism with the help of an example. (LB-2013, 2018)

Commensalisms: It is the type of relationship in which two organisms live together, but only one organism gets benefit from the relationship, the other is not affected at all e.g. shark and remoras fish. As shark feeds, the remoras pick up the scrap. The remoras benefit this relationship and shark is not affected.

13. Define food chain and food web. **(OR)** Define food chain by giving an example. (LB-2010, 2012, 2013, 2015, 2019, 2021)

Food Chain: (LHR-2010) is the transfer of food energy from the source in plants through a series of organism with repeated stages of eating and being eaten e.g

Producers ____ herbivores _____ carnivores _____ Decomposers.

grass _____ grasshoppers___ ___lizards _____ snakes _____hawk.

Food web: (LHR-2010) is a complex pattern of several interlocking food-chains in a complex community or between several communities.

All the food chains and food webs begin with a green plant and may consist of three to five trophic levels.

14. Differentiate between population and community. (LB-2014)

Population: is a group of interbreeding individuals (same species) occurring together in space and time e.g. population of human beings in Lahore in 1990.

Community: All the populations with in an ecosystem are known as a community and are in one or another manner interconnected to one another e.g. all the producers, consumers and decomposers of a pond ecosystem constitute a community.

15. Differentiate between habitat and niche. **(OR)** Define niche. **(OR)** Explain ecological niche. (LB-2011, 2012, 2013)

Habitat: An organism responds to a variety of environmental factors. When all these factors are with in the range of tolerance, the organism can inhabit the location. So the actual location of a place where an organism lives is called its habitat.

Ecological Niche: It can be defined as the role that a species plays in a community including behavior and influence.

16. Differentiate between autecology and synecology. **(OR)** What is synecology? **(OR)** What is autecology? (LB-2011, 2013, 2018,2019)

Autecology	Synecology
• The study of relationship of a single population to its environment is called autecology. **Example:** when we study 50-100 plants of soybean in order to know the effect of water pollution on their growth and yield, this study is called autecology.	• **Synecology:** The study of relationship of different communities (grouping of population) to their environment is called synecology or community ecology.

17. Differentiate between micro and macro nutrients? (LB-2010)

Macronutrients: The elements which are needed by the organisms in large amount like hydrogen, oxygen, nitrogen, phosphorus, sulphur and calcium.

Micro-Nutrients: The elements which are required by organisms in small quantity or in traces like zinc, iron, molybdenum and iodine.

18. Differentiate between consumers and decomposers. **(OR)** What are consumers? (LB-2014)

Consumers: are all the organisms, primarily animals which use readymade organic food. They are mainly heterotrophic organisms. These may be primary, secondary or tertiary consumers. **(LHR-2014, 14)**

Decomposers: are mainly the fungi and bacteria, which obtain their energy from the dead and decaying plants and animals. They release chemical elements as ions. The main chemical ions are nitrates, ammonia, phosphates, potassium and Calcium.

19. Differentiate between hydrosere and xerosere. (LB-2015, 2017)

Hydrosere: Primary succession starting in a pond is termed as Hydrosere, and plants of that habitat will be hydrophytes.

Xerosere: Primary succession starting on a dry soil or habitat is called xerosere. The plants growing in xeric conditions are called as xerophytes.

20. Differentiate between primary and secondary succession. **(OR)** How primary succession differ from secondary succession? (LB-2012, 2017)

Primary Succession: Succession is a community relay in which a community replaces the earlier. During primary succession an ecosystem is forged from bare rock or a clear glacial pool, where there is no trace of previous life. It is very slow in working.

Secondary Succession: Succession is a community relay in which a community replaces the earlier. During secondary succession, a new ecosystem develops after an existing ecosystem is disturbed, as in case of forced fire or an abandoned farmland. It happens much more rapidly because the pervious community has left its marks in the form of improved soil and seeds.

21. Differentiate between nitrification and denitrification. (2021).

Nitrification	Denitrification
• Several bacteria in soil are able to oxidize ammonia or ammonium ions, this oxidation is known as nitrification.	• Denitrification is the reverse of nitrification in which bacteria break down nitrates releasing nitrogen back into atmosphere and using the oxygen for their own respiration.

22. What is nutrient cycle? (2021).

Biologeochemical Cycle:

The cycle in which nutrients move from non-living components to living components of ecosystem in a cyclic manner is called as biogeochemical cycle or nutrient cycle.