

Chapter: 25

Ecosystem

MCQs

1. Lichen is symbiotic association between a fungus and :
(A) Diatom (B) Angiosperms (C) Gymnosperms (D) **An Alga**
2. The symbiotic relationship between insect and flowering plants is the example of :
(A) Parasitism (B) Predation (C) Commensalism (D) **Mutualism**
3. Lichens are an example of :
(A) Parasitism (B) Predation (C) **Mutualism** (D) Commensalism
4. The study of relationship of an organism to their environment is known as :
(A) **Ecology** (B) Biology (C) Zoology (D) Mycology
5. Similar group of individuals who can inter breed and produce organisms of their own kind forms a:
(A) Population (B) Community (C) Succession (D) **Species**
6. When living and non - living interact to produce a stable system in which exchange of material with flow of energy takes place , it forms a / an:
(A) Environment (B) **Ecosystem**
(C) Stable community (D) Ecological succession
7. The living organism which prepare their own food are:
(A) **Producers** (B) Predators (C) Parasites (D) Prey
8. Who defined the niche as the species occupation?
(A) Sutton (B) Cuvier (C) **Charles Eton** (D) Charles Layll
9. The living organisms , which cannot prepare their own food but obtain readymade food from others are :
(A) Primary and secondary consumers (B) **Consumers**
(C) Only primary consumer (D) Secondary and tertiary consumers
10. A group of inter breeding individuals , belonging to same species and sharing a common geographic area , is called:
(A) **Population** (B) Community (C) Biome (D) Ecosystem
11. Who proposed the term niche in ecology?
(A) Haeckel (B) Darwin (C) **Joseph Grinnel** (D) Charles Eton
12. All living organisms of the planet earth are collectively called:
(A) Atmosphere (B) Hydrosphere (C) Lithosphere (D) **Biosphere**
13. The actual location of place where an organism lives is called:
(A) **Habitat** (B) Niche (C) Environment (D) Ecosystem
14. Biosphere is spread out over the surface of planet earth extending about:

- (A) 8 - 10 km (B) 3 - 6 km (C) 4 - 8 km (D) 8 - 12 km
15. Biome is a large :
(A) Simple community (B) **Regional community**
(C) Complex community (D) Climax community
16. In 1971 , the term Niche was first proposed by American Ornithologist named :
(A) Earnest Haeckel (B) Darwin (C) Lamark (D) **Joseph Grinnell**
17. The whole of the world's land is called :
(A) **Lithosphere** (B) Ecosphere (C) Biosphere (D) Hydrosphere
18. All the food chains and food webs begin with :
(A) **Producers** (B) Secondary comsume
(C) Primary consumer (D) Decomposers
19. In nature , balance of ecosystem is kept by :
(A) Food chain (B) Trophic level (C) Succession (D) **Food web**
20. When bacteria in soil oxidize ammonia or ammonium ions , this is called :
(A) Oxidation (B) **Ammonification** (C) Denitrification (D) Nitrification
21. Several bacteria in the soil are able to oxidize ammonia or ammonium ions ,this oxidation is known as :
(A) Ammonification (B) Nitrification (C) **Oxidation** (D) Denitrification
22. Bacteria in the root nodules fix nitrogen and convert it into :
(A) Nitrate (B) Nitrite (C) Amino acids (D) **Ammonia**
23. Once nitrate enters the plant cell it is reduced to :
(A) Nitrite (B) Carbohydrate (C) Proteins (D) **Ammonia**
24. Mutualism is a type of :
(A) Predation (B) Parasitism (C) Commensalism (D) **Symbiosis**
25. The bacteria in the root nodules fix nitrogen in soil from air , converting it into :
(A) Nitrate (B) Ammonia (C) **Nitrite** (D) Amino Acid
26. Disease in living organisms caused by parasites is called :
(A) **Infestation** (B) Parasitism (C) Infection (D) Predation
27. Relationship between insects and flowering plants is the example of :
(A) Commensalism (B) Parasitism (C) Predation (D) **Mutualism**
28. An association between organisms of different species in which one partner gets benefit and other is harmed :
(A) Mutualism (B) **Parasitism** (C) Symbiosis (D) Commensalism

Fill in the blanks.

1. A group of similar organisms living together in space and time is called



2. Organisms which can synthesize their own food are called
3. Animals, non-green plants and microorganisms directly or indirectly depend upon green plants for their food so they so are called

Answers

- | | | | | | |
|----|------------|----|-----------|----|-----------|
| 1. | Population | 2. | Producers | 3. | Consumers |
|----|------------|----|-----------|----|-----------|

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★ Short Questions Answers ★

1. **What are the biochemical cycles?**

Ans: Process through which different chemicals circulate between environment and living organisms in form of cyclic way is **called** biogeochemical cycle.

Or

The back and forth movements of chemical elements between organism and environment along particular circular paths are **known** biogeochemical cycles.

2. **Define grazing.**

Ans: Many animals like rabbits, goat, sheep, cow, buffalo and horses feed on grasses. This mode of feeding is called grazing and these animals are **called** grazers.

3. **What percentage of sun energy reaches to plants?**

Ans: The percentage of sun energy that reaches the plants is **1%**.

4. **What is autecology?**

Ans: When one is studying a single population's relationship to its environment it will be called as autecology. For example, we are studying 50 to 100 plants of soyabean for effect of water pollution on their growth and yield, we are studying the single or one population of soyabean plant, and this is autecology.

5. **Define synecology?**

Ans: Study of relationship of different communities with environment is called synecology or community ecology.

6. **Differentiate between food chain and food web?**

Ans: **Food chain** is a linear relationship of eating and being eaten while **food web** is the interaction of many food chains.

7. **Differentiate between pioneer and climax community?**

Ans:

Pioneer community:	Climax community:
❖ Succession begins by a few hardy invaders called pioneers community.	❖ At the end of succession the diverse and stable community is called climax community.
❖ Crustose lichens in xerosere.	❖ Trees or forest at the end of xerosere.

8. **What do you mean by seral community?**

Ans: Each stage of succession is **called** sere, and the community at each stage of succession is **called** seral communities.

First seral community is **called** pioneer.
while last seral community is **called** climax community.

9. **Differentiate between primary and secondary succession?**

Ans:

Primary Succession:	Secondary Succession
❖ Succession at a bare rock, sand or clear glacial pool, where there were no trace of previous community.	❖ Succession at a place where there was a previous community but was disturbed as in case of fire.
❖ It is slow process as soil conditions are not suitable and little nutrients.	❖ It is relatively fast process as previous community has left its mark in the form of improved soil and seeds.

10. **How a predator is related to its prey?**

Ans: In predator-prey relation, the populations of both the organisms are interrelated. As the population size of prey increases that can support more predators so population of predators also increases.

But when the predators increase in number due to rapid predation the size of prey decreases. In this way ecosystem is kept balanced.

11. **How nitrogen is lost is atmosphere?**

Ans: The soil nitrogen is converted into atmospheric gaseous nitrogen by a process known as Denitrification. Some denitrifying bacteria in the absence of oxygen break down nitrates back into the atmosphere and using the oxygen for their own respiration.

12. **Differentiate between gross primary production and net primary production?**

Ans:

Gross Primary Production:	Net Primary Production:
❖ It is total amount of energy fixed by plants into food.	❖ It is amount of energy left after plants have met their respiratory need.
❖ It is total photosynthate produced by the fixing of 1% light energy.	❖ It is also called as plant biomass available for next trophic level.

13. **What type of food chain better supports a community? And why?**

Ans: A short food chain of 2 to 3 trophic levels supports a community more efficiently than a long food chain of 5 links.

As in each trophic level about **80 to 90 %** energy is lost into outer space so in long food chain very little energy is available for higher trophic levels supporting less number of individuals.

14. **Why the process of assimilation is called reverse of nitrification?**

Ans: In nitrification, ammonium ion is converted into nitrites and nitrates in soil. When these nitrites and nitrates are taken up by plant for assimilation, they convert them back into ammonium ions for further utilization. So both processes are reverse of each other.

15. **Define ecology?**

Ans: It is defined as the study of the relationship of animals to their environment.

16. **Define ecosystem and Eco-components?**

Ans: **Ecosystem:**

A unit or area where organisms interact with their environment is **called** ecosystem.

Eco-components:

The ecosystem consists of two basic interacting components the living or biotic, and the

physical or abiotic factors. Biotic components consists of animals, plants, fungi, micro-organism etc. and abiotic components are atmosphere, climate, soil and water.

17. **What is community?**

Ans: All population of different species within an ecosystem is **known** as a community and is in one or another manner interconnected to one another.

18. **What is biome? How many biomes are presents?**

Ans: **Biome:**

- ❖ Major types of ecosystems, those that occupy broad geographical regions primarily determined by climate are **called** biomes.

Major Biomes:

- ❖ Some major terrestrial biomes are forest, grassland and desert. Combined the biomes of earth together form the planetary ecosystem.

19. **What is ecological niche?**

Ans: Niche is defined as "the ultimate distributional unit within which a species is restrained by the limitations of its physical structure and its physiology."

Charles Eton, considered the niche, the basic role of an organism in the community what it does in and for living community, its relationship to its food and enemies. In other words, he defined the niche as the species's occupation.

Or

A niche is defined as the role a species plays in a community including behaviour and influence.

20. **Differentiate between autecology and synecology?**

Ans: At different places in an environment the study of only one population. is autecology while study of different population or a community is **called** synecology.

21. **Define succession?**

Ans: Succession is change in the community structure of an ecosystem over a period of time. Succession begins by a few hardy invaders **called** pioneers and end with a diverse and relatively stable climax community.

22. **Name subdivision of biotic and abiotic components?**

Ans: **Biotic Components:**

- ❖ Producers.
- ❖ Consumers.
- ❖ Decomposers.

Abiotic Components:

- ❖ Atmosphere.
- ❖ Hydrosphere.
- ❖ Lithosphere.

23. **What is tropic level?**

Ans: Each feeding level in a food chain is called trophic level.

24. **Explain association of organism in lichen and mycorrhiza.**

Ans: **Lichen:**

- ❖ Lichen is a dual organism composed of symbiotic association of an alga living within a fungus mycelium.

Mycorrhiza:

- ❖ Mycorrhiza is an association between the roots of plants growing in acid soil and certain fungi. The host provides the fungus with an enzyme to digest carbohydrates in leaf litters. In return, the fungus passes mineral ions from the soil to the host.

25. **What is nitrogen cycle?**

Ans: The living components of the ecosystem are called biotic while non-living components are **called** abiotic.

26. **What is infestation?**

Ans: Diseases in living organisms, which are caused by parasites, are **called** infestations.

27. **What is symbiosis? Discuss its types?**

Ans: It is an association between two organisms, which brings benefit to both the organisms.

Types:

- ❖ It can be mutualism or commensalisms.

28. **Define biogenic elements.**

Ans: The chemical elements essential for life in living organisms are called biogenic elements or nutrients elements.

Examples:

Carbon, hydrogen, oxygen etc.

29. **What are the advantages and disadvantages of grazing?**

Ans: Grazing is a very important factor in determining the ecosystem.

Advantage:

- ❖ Moderate grazing is very helpful to maintain grassland ecosystem. It destroys the competitors and helps the grass to grow well.

Disadvantage:

- ❖ Over grazing may lead to the transformation of a grassland into a desert.

30. **What are the functions of nitrosomonas and nitrobacter?**

Ans: **Nitrosomonas:**

- ❖ It converts ammonia and ammonium ions to nitrites.

Nitrobacter:

- ❖ It converts Nitrites into Nitrates.

31. **Define denitrification?**

Ans: In the absence of oxygen bacteria break down nitrates releasing nitrogen back into the atmosphere and using oxygen for their own respiration. This process is **known** as denitrification in poorly drained soils.

32. **Define Habitat.**

Ans: The actual location of place where an organism lives is **called** its habitat.

33. **Differentiate between hydrosere and xerosere.**

Ans: **Hydrosere:**

- ❖ In this case the primary succession occurs in a pond.

Xerosere:

- ❖ In this case, succession occurs on a dry soil or rock.



34. **How grazers affect the texture of the soil?**

Ans: The grazers are more resistant than herbaceous plants. They have ability to regrow very fast. But the hooves of grazing animals trample the soil. It changes the soil into hard layer. Thus the rain water cannot penetrate into this soil. The water runs off from the upper surface and removes the topsoil with it. Thus over grazing finally makes the land totally barren.

35. **Write the significance of root nodules in plants.**

Ans: **Significance of root nodules:**

- ❖ The legume plants, pea and bean are the hosts of symbiont bacteria.
- ❖ These bacteria inhabit the roots of these plants and form root nodules.
- ❖ The root nodules bacteria fix nitrogen in soil air.
- ❖ They convert this nitrogen into amino acid.
- ❖ These amino acids are used by the host.
- ❖ In return, host provides bacteria with food and protection.

36. **What is nitrogen cycle?**

Ans: The process by which the limited amount of nitrogen is circulated and recirculated throughout the world of living organisms is **known** as nitrogen cycle.

