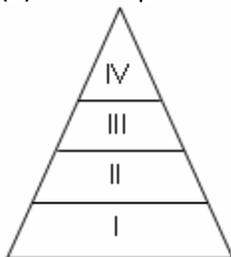


Class: X
Subject: Biology
Topic: Our Environment
No. of Questions: 20

- Q1. The _____ constitute the fourth trophic level.
- (a) Producers
 - (b) Herbivores
 - (c) Carnivores
 - (d) Top carnivores

Sol. (d) Each step in the food chain forms a trophic level.



Trophic level I – (Autotrophs or producers) - Produce or prepare their own food, e.g. plants
Trophic level II – (Herbivores or primary consumers) – Dependent on plants for their food, e.g. deer, rabbit
Trophic level III – (Small carnivores or secondary consumers) - Eat herbivores, e.g. snake
Trophic level IV – (Larger/top carnivores (eat flesh or tertiary consumers) - Eat small carnivores, e.g. lion, vultures

- Q2. From the autotrophs, the energy goes to the _____ and then finally to the _____.
- (a) Heterotrophs and producers
 - (b) Carnivores and omnivores
 - (c) Heterotrophs and decomposers
 - (d) Producers and decomposers

Sol. (c)
Autotrophs (e.g. plants), which prepare their own food, fix solar energy (energy from the sun) and make it available for the heterotrophs (which are not capable of preparing their own food and are dependent on Autotrophs). Flow of energy is unidirectional and it finally decomposes (e.g. microbes). When heterotrophs or carnivores die, microbes degrade them and finally consume the energy.

- Q3. A group of interbreeding individuals forms a _____.
- (a) Community
 - (b) Species
 - (c) Ecosystem
 - (d) Population

Sol. (b)
Species is a group of organisms capable of interbreeding and producing fertile offsprings of both genders.
Community is a group of interacting organisms (may be of different species) sharing an environment. A community consists of only living things.
Ecosystem is generally an area, which consists of abiotic factors of environment such as rocks and soil and biotic factors of environment such as plants and animals within the same habitat.
Population is the group of interbreeding organisms of a particular species.
Therefore, a group of interbreeding individuals forms a species.

- Q4. _____ is the abiotic component of a pond ecosystem
- (a) Fish
 - (b) Frog
 - (c) Water
 - (d) Bacteria

Sol. (c)
Biotic – living organisms, e.g. plants, animals
Abiotic – non–living resources, e.g. air, water, soil
In a pond ecosystem, fish, frog and bacteria are biotic components as they are living, but water is an abiotic component as it is non-living.

- Q5. Which of the following substances is not recycled in nature?
- (a) Nitrogen
 - (b) Water
 - (c) Sodium
 - (d) Carbon

Sol. (c)
It is a metallic element. It cannot be recycled as residues of it may be considered as hazardous waste.

Q6. Which of the following options is not the component of an ecosystem?

- (a) Plant
- (b) Soil
- (c) Sunlight
- (d) Biome

Sol. (d)

Globally similar areas, including ecosystems. They are climatically and geographically defined as similar climatic conditions on the earth such as communities of plants, animals and soil organisms are sometimes referred to as ecosystem.

Q7. The organisms which consume both plant as well as animal products are known as _____.

- (a) Herbivores
- (b) Carnivores
- (c) Piscivores
- (d) Omnivores

Sol. (d)

Omnivores – eat both plants as well as animal products, e.g. man

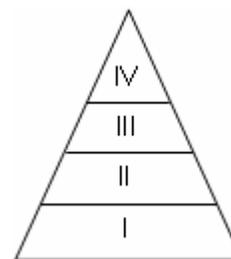
Q8. _____ is not an example of ecosystem.

- (a) Aquarium
- (b) Pond
- (c) Desert
- (d) Air

Sol. (d) It is a physical component with no biological component. So, it cannot be an example of ecosystem.

Q9. In which trophic level are herbivores found?

- (a) First
- (b) Second
- (c) Third
- (d) Fourth



Sol. (b)

Trophic level I – (Autotrophs or producers) - produce or prepare their own food, e.g. plants

Trophic level II – (Herbivores or primary consumers) – dependent on plants for their food, e.g.

deer, rabbit

Trophic level III – (Small carnivores or secondary consumers) - eat herbivores e.g. snake

Trophic level IV – (Larger/top carnivores (eat flesh or tertiary consumers) - eat small carnivores e.g. lion, vultures

Q10. Which of the following ecosystems is natural?

- (a) Crop field
- (b) River
- (c) Aquarium
- (d) Park

Sol. (b)

It is a natural watercourse in which water is flowing towards an ocean, a lake, a sea or another river.

Q11. The accumulation of non-biodegradable substances at each trophic level is referred as _____.

- (a) Food web
- (b) Biological magnification
- (c) Decomposition
- (d) Fermentation

Sol. (b) Non-biodegradable substances – These are the substances, which cannot be degraded naturally, e.g. plastics. Plastics are polymer products, which are not utilized or digested by any living systems as they don't have digestive enzymes for such polymers.

Since man is an omnivore and has all trophic levels for food, he gets these toxic compounds (non-biodegradable) into his body in large amount. This accumulation of such toxic compounds at each trophic level is called bio-magnification or biological magnification or bio amplification.

Q12. Organisms in an area interact with the non-living constituents of the environment to form a/an _____.

- (a) Ecosystem
- (b) Biome
- (c) Trophic level
- (d) Biotic factor

Sol. (a)

Term 'ecosystem' refers to combined physical and biological components of an environment.

Soil and sunlight are physical components of an environment.

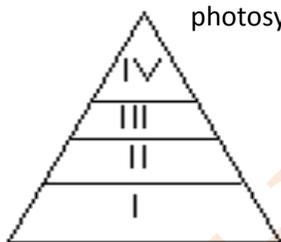
Plants are biological components of an environment.

- Q13. Man belongs to the _____ category of consumers.
- (a) Herbivores
 - (b) Carnivores
 - (c) Omnivores
 - (d) Parasites

Sol. (c) Man is considered as omnivores because he can eat green leafy vegetables as well as flesh.

- Q14. Which of the following organisms can synthesise their food by the process of photosynthesis?
- (a) Algae
 - (b) Fungi
 - (c) Virus
 - (d) Zooplankton

Sol. (a)
Algae can synthesise their own food as they are large and diverse groups of simple, auto trophic (which can make their own food) organisms ranging from unicellular to multicellular forms. They are photosynthetic like plants. Each step in food chain forms a trophic level.



Trophic level I – (Autotrophs or producers) - produce or prepare their own food, e.g. plants
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- Q15. The trophic levels represent the steps in a/an
- (a) Community
 - (b) Food chain
 - (c) Ecosystem
 - (d) Biosphere

Sol. (b)

Trophic level of an organism is the position it occupies in food chain. The word “trophic” refers to food or feeding.

Steps in a community – do not exist

Steps in an ecosystem – Steps taken for developing ecosystem

Steps in a biosphere – Steps taken for the preservation of biosphere

So, the correct answer is option (2).

Q16. Which of the following options is a phytoplankton?

- (a) Bacteria
- (b) Algae
- (c) Fungi
- (d) Protozoa

Sol. (b) Phytoplankton is an autotrophic member of plankton community. They obtain energy through the process of photosynthesis. They are microscopic plants like organisms that live in ocean. Small fish and some species of whales eat them.

Prokaryotic Phytoplankton – Cyanobacteria

Eukaryotic Phytoplankton – Red and green algae

Q17. Which of the following options is a primary consumer?

- (a) Deer
- (b) Plant
- (c) Lion
- (d) Fish

Sol (a)

Primary consumers (known as herbivores) belong to the second trophic level and are dependent on the first trophic level called producers (plants). They eat plants. Hence, deer is a primary consumer. Plants cannot be called as primary consumers as they are producers not consumers.

Q18. In which of the following positions can a tiger be placed in a food chain?

- (a) Primary consumer
- (b) Producer
- (c) Decomposer
- (d) Tertiary consumer

Sol. (d) Tertiary consumers are carnivores, which eat flesh. Tiger eat deer (flesh). Therefore, tiger is a tertiary consumer.

- Q19. The lowest level of organization is
- (a) Cellular level
 - (b) Ecosystem
 - (c) Molecular level
 - (d) Population level

Sol. (c)
Atoms → Molecules → Organelle → Cell → Tissues → Organ → Organ system → Organism → Population → Community → Ecosystem
So, the lowest level is atomic level and after that molecular level and so on. Thus, out of the given options, molecular level is the lowest level of organization.

- Q20. The sequence of living organisms in a community in which one organism consumes another with the transfer of food energy is known as ____.
- (a) Food chain
 - (b) Food web
 - (c) Ecosystem
 - (d) Biosphere

Sol. (a)
A food web is a graphical description of feeding relationships (i.e. who eats whom) among species in an ecological community. Ecosystem is generally an area, which includes abiotic factors of environment such as rocks and soil and biotic organisms such as plants and animals. Biosphere is biological component of earth's system, which includes lithosphere, hydrosphere and atmosphere.
Therefore, the correct answer is food chain.

