Very Short Answer Type Questions

1. What is the functional unit of the environment comprising of the living and non-living components called?

Answer

The ecosystem is the functional unit of the environment consisting of living and non-living components.

2. Name two natural ecosystems and two artificial ecosystems.

Answers

Two natural ecosystems are the pond ecosystem and the forest ecosystem. Two artificial ecosystems are the crop field ecosystem and the aquarium ecosystem.

3. Which one of the following is not a terrestrial ecosystem?
Forest, Grassland, Aquarium, Desert

Answer

An aquarium is not a terrestrial ecosystem.

4. Why are plants called producers?

Answers

Plants are known as producers because they prepare their own food by the process of photosynthesis.

5. What name has been given to those organisms which break down the complex organic compounds present in dead animals and plants?

Answer

Decomposers are the organisms that break down the complex organic compounds present in dead animals and plants.

6. What are planktons?

Answer

The tiny herbivorous plants and animals present in water are known as plankton.

7. State whether the following statements are true or false :
(a) In biology, human beings are called producers.
(b) Secondary consumers and tertiary consumers, both are carnivores.

Answer

(a) False
(b) True

8. Which category of organisms forms the starting point of a food chain?

Answer

Green plants or producers form the starting point of a food chain.

9. Which of the following belong to the same trophic level?
Goat; Spider; Plants; Hawk; Rat

Answer

Goats and rats belong to the same trophic level.

10. Which of the following belong to the same trophic level?
Tree; Frog; Snake; Grass; Lizard

Answer

Trees and grass belong to the same trophic level.

11. Write an aquatic food chain.

Answer

Plankton Fish Crane Hawk

12. Name the organisms belonging to the second and the fourth trophic levels in the food chain comprising the following:
Frogs, Plants, Snakes, Hawk, Insects

Answer

Second trophic level: Insects

Fourth trophic: Snakes

13. What are the various steps of the food chain called?

Answer

The various steps of a food chain are called trophic levels.

14. Construct a food chain comprising the following:
Snakes, Hawk, Rats, Plants

Answer

Plants → Rats → Snakes →Hawks

15. **Arrange the following in a food chain:**
Fish, Algae, Small animals, Big Fish

Answer

Algae→ Small animals → Fish → Big fish

16. Which organisms belong to third and fourth trophic levels in the food chain comprising the following?
Rats, Plants, Hawk, Snakes

Answer

Third trophic level: Snake

Fourth trophic level: Hawk

17. Which one term in the following includes the others?
Air, flora, fauna, environment, water, sunlight, soil

Answer

Environment is the term that includes air, flora, fauna, water, sunlight and soil.

18. A food chain represents a unidirectional flow of X. What is X?

Answer

X is energy.

19. Fill in the following blanks with suitable words :
(a) Decomposer organisms are _____in their action.
(b) In nature, all green plants are_____ whereas animals are consumers.
(c) A series of organisms, each of which feeds on the next organism, the beginning of which is a green plant, is called a _____
(d) The science that deals with the inter-relationships of living things with one another and their environment is called_____
(e) Plastic is a _____material whereas paper is a _____material.

Answer

(a) Decomposer organisms are specific in their action.
(b) In nature, all green plants are producers, whereas animals are consumers.
(c) A series of organisms, each of which feeds on the next organism, the beginning of which is a green plant, is called a food chain.
(d) The science that deals with the inter-relationships of living things with one another and their

environment is called ecology.
(e) Plastic is a non-biodegradable material, whereas paper is a biodegradable material.

Short Answer Type Questions

20. Explain the terms 'producer' and 'consumer'. Give two examples of producers and two of consumers.

Answers

Organisms that produce their own food from available raw materials like water and carbon dioxide are called producers. Example: green plants
Organisms that depend on food prepared by producers are called consumers. Example: animals

21. (a) Define decomposers. Name one decomposer.
(b) What is the role of decomposers in the ecosystem?

Answer

(a) Micro-organisms that break down the complex organic compounds present in dead plants and animals and their products, such as faeces and urine, into simpler substances are called decomposers. Bacteria are decomposers.

(b) Decomposers decompose dead plants and animals and keep the environment clean and fresh.

22. What is meant by a primary consumer, secondary consumer and a tertiary consumer? Give one example of each.

Answer

The consumers that feed on the producers that are on plants are called primary consumers. Example: Insects.
The consumers that feed on primary consumers are called secondary consumers. Example: Frogs.
The consumers that feed on secondary consumers are called tertiary consumers. Example: Birds.

Insects → Frog → Birds

23. Give an example of a four-step food chain operating in grassland. Name the secondary consumer in this food chain

Grass →Insect → Butterfly → Crow

The secondary consumer in this food chain is the butterfly

24. (a) Define trophic level. Draw the food chain with four trophic levels.
(b) What will happen if we kill all the organisms in one trophic level?

Answer

(a) The various steps in a food chain at which the transfer of food and energy takes place are known as trophic levels.
A food chain with four trophic levels can be shown as follows.
Grass → Insect → Butterfly → Crow
(b) If we kill all the organisms in one trophic level, there will be no food for the organisms of the next trophic level, and this may cause the death of those animals. Also, the organisms of the previous trophic levels may increase in number as there will be no organism to consume them as food which leads to an imbalance in the ecosystem.

25. What is the difference between the food habits of organisms belonging to the first and the third trophic levels? Give one example each of the organisms belonging to these two trophic levels.

Answer

The organisms in the first trophic level are the producers and hence they prepare their own food. Example plants. The organisms in the third trophic level are carnivores and depend on herbivores for food. Example Lion

26. Can the organisms of any trophic level be removed without causing any damage to the ecosystem? Will the impact of removing all the organisms in a trophic level be different for different trophic levels?

Answer

No, the organisms of any trophic level can be removed without causing damage to the ecosystem. By doing this there would be an imbalance in the ecosystem. Yes, the impact of removing all the organisms in a trophic level will be different for different trophic levels. If the producers are removed then organism belonging to the higher trophic levels will not be able to exist, as produces form the basis of the food chain being in the first tropic level. Similarly, if the organisms from other levels are removed then it will affect the next level causing the extinction of organism of that upcoming level.

27. Consider the food chain :

Grass → Deer → Lion

What will happen if all the lions are removed from the above food chain?

Answer

If all the lions are removed from the above food chain, the population of deer will increase greatly, as there will be no lion to consume them as food. Then the density of grass will decrease due to overconsumption by a large number of deer.

28. The number of malaria patients in a village increased tremendously when a large number of frogs were exported from the village. What could be the cause for it?

Answer

The number of malaria patients in a village increased tremendously when a large number of frogs were exported from the village because frogs eat the insects that cause the disease malaria. Due to the export of frog, there is a drastic increase in the population of insects that cause the disease malaria.

29. How does a biodegradable waste differ from a non-biodegradable waste? Give two examples of non-biodegradable wastes which pollute our environment.

Answer

Biodegradable waste: The waste material that can be easily broken down into non-poisonous substances that can be decomposed and recycled easily is called biodegradable waste. Example: Kitchen waste, paper bits etc.

Non- Biodegradable waste: The waste material that cannot be broken down into non-poisonous substances also that cannot be decomposed and recycled is called non-bio degradable waste. Example: Plastic, polythene bags etc.

30. Which of the following are biodegradable and which non-biodegradable?
Glass bottle, Paper, Ballpoint pen refill, Hay, DDT, Wheat, Cake, Wood, Polythene bag, Jute bag, Cotton cloth, Grass, Vegetable peels

Answer

Biodegradable: Paper, hay, wheat, cake, wood, jute bag, cotton cloth, grass, vegetable peels.
Non-biodegradable: Glass bottle, ballpoint pen refill, DDT, polythene bag.

31. (a) Describe an activity to show that while the paper is biodegradable but plastic (say, polythene) is non-biodegradable.
(b) Explain why some materials are biodegradable but some are non-biodegradable.

Answer

(a) An activity to prove that paper is biodegradable and plastic is non-biodegradable is described below.

Take a piece of paper and a polythene bag. Burry these two items separately in soil about 15cm deep. After a month when you relook on digging you will notice that the paper is completely decomposed by bacteria but the polythene bag is the same. This shows that paper is decomposed and is biodegradable and plastic is non-biodegradable.

(b) Some materials are biodegradable, whereas some are non-biodegradable because decomposers break down natural materials but do not break down man-made materials such as plastics as they are made up of complex materials and they are not specific in their action on non–biodegradable waste.

32. Write down a food chain:
(a) in the sea
(b) which ends with humans
(c) with five links in it.

(a)Plankton →Small fish → Large fish→ Shark

(b) Grass → Goat → Man

(c) Grass → Insects → Frog → Snake → Eagle

33. At which trophic level a person is feeding when he is eating:
(a) roasted chicken
(b) bread
(c) eggs
(d) apple
(e) fish

Answer

(a) Third
(b) Second
(c) Third
(d) Second
(e) Fourth

34. A student went to study a local pond. In one part of the pond, she noticed tadpoles scraping at some pondweed. In another part, she saw a water beetle holding a tadpole in its jaws.
(a) Construct a food chain for the pond.
(b) How many links are there in this chain?

Answer

(a) Weed → Tadpole → Water beetle
(b) There are three links in this food chain.

35. Construct (a) a long food chain, and (b) a short food chain, ending with man.

Answer

(a) Plankton→ Small fish→ large fish→ Man

(b) Plants → Man

36. (a) State one advantage of using jute bags over plastic bags for shopping.
(b) Write a common food chain of a pond ecosystem having four links.

Answer

(a) Jute bags are biodegradable, and can be easily recycled and reused but in the case of plastic bags, it is not the same. Plastic is a non-biodegradable substance it cannot be decomposed and degraded. The disposal of jute bags is much easier as compared to plastic.

(b) Plankton→ Protozoa→ Small fish → Big fish

37. We do not clean ponds or lakes but an aquarium needs to be cleaned periodically. Why?

Answer

Ponds and lakes are natural ecosystem and they contain decomposers. Decomposers act as cleansing agents here, whereas an aquarium is an artificial ecosystem, it does not contain decomposers that cleanse it. Hence, an aquarium needs to be cleaned periodically.

38. What will be the consequence of the absence of decomposers in the ecosystem?

Answer
Decomposers play a vital role in the ecosystem. The key role of decomposers is to cleanse the environment. They decompose the waste generated in water bodies and also help to restore the nutrients present in the soil. If there were no decomposers in the ecosystem, then dead plants and animals would remain as such, and their elements would never be returned to the soil, air and water.

39. Give two differences between food chain and food web.

Answer

Food chain is the chain of living organisms in a group where one organism is dependent on others for food. The flow of energy is unidirectional.

Food web is the interconnected group of food chain living in the same ecosystem. This involves the chain of various species in the same category. The flow of energy is multi-directional.

40. Write one or two words for each of the following statements/definitions :
(a) Each level of the food chain where the transfer of energy takes place
(b) The physical factors like temperature, rainfall, light soil air and water of an ecosystem
(c) Organisms which depend on the producers for food either directly or indirectly
(d) The physical and biological world where we live in
(e) Self-contained unit of living things and their non-living environment needing only sunlight for its functioning

Answer

(a) Trophic level
(b) Abiotic components
(c) Consumers
(d) Environment
(e) Ecosystem

Long Answer Type Questions

41. (a) What is meant by biodegradable waste materials? Give two examples of biodegradable wastes.
(b) Which of the following materials are non-biodegradable?
Aluminium wire, Tea leaves, Synthetic fibre, Wool

Answer

(a) The waste material that can be easily broken down into non-poisonous substances that can be decomposed and recycled easily is called biodegradable waste. Example: Kitchen waste, paper bits etc.

(b) Aluminium wire and synthetic fibre are non-biodegradable.

42. (a) What is meant by non-biodegradable waste materials? Give two examples of non-biodegradable wastes.
(b) Which of the following materials are biodegradable?
Animal bones, Iron nails, Plastic mugs, Leather belts, Silver foil

Answer

(a) The waste material that cannot be broken down into non-poisonous substances also that cannot be decomposed and recycled is called non-biodegradable waste. Example: Plastic, polythene bags etc.

(b) Animal bones and leather belts are biodegradable wastes.

43. (a) Define an ecosystem. Give examples of any two ecosystems.
(b) List the biotic and abiotic components of an ecosystem.

(a) An ecosystem includes all of the living things (plants, animals, and organisms) in a given area that interact with each other, as well as the non-living environments (weather, earth, sun, soil, climate, and atmosphere) that surround the living things.

Terrestrial ecosystem: A terrestrial ecosystem is a land-based community of organisms and the interactions of biotic and abiotic components in a given area. Example forest

Marine ecosystem: A marine ecosystem is a land-based community of organisms and the interactions of biotic and abiotic components in a given water body. Example Pond

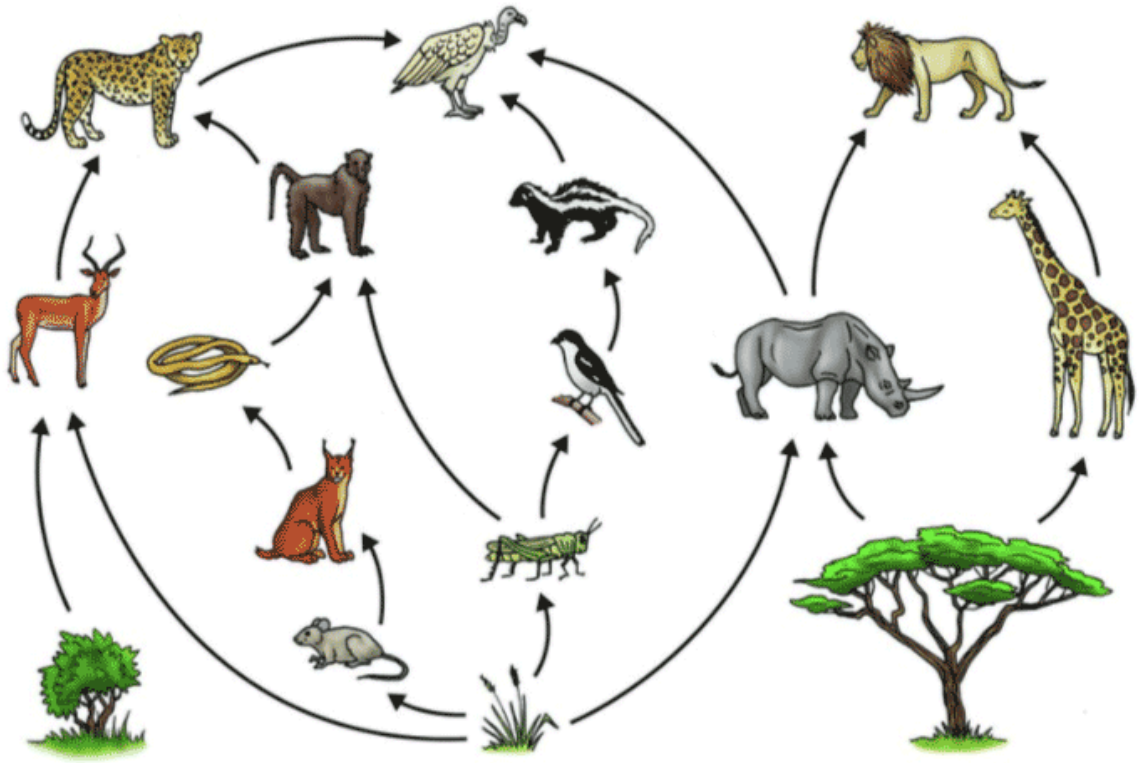
(b) The biotic components of an ecosystem are the plants, animals and decomposers present in it. The abiotic components of an ecosystem are air, water and soil.

44. (a) What is a food chain? Give one example of a simple food chain.
(b) What is a 'food web'? Show its formation.

(a) Food chain is the chain of living organisms in a group where one organism is dependent on others for food. The flow of energy is unidirectional.

Plankton→ Small fish→ large fish→ Man

(b) Food web is the interconnected group of food chain living in the same ecosystem. This involves the chain of various species in the same category. The flow of energy is multi-directional. The formation of a food web is shown in the diagram below



45. (a) What is meant by 'environment'?
(b) What type of substances are the major pollutants of the environment? Name two such substances.
(c) Name the organisms whose uncontrolled activities are damaging the environment.
(d) Explain why it is better to use paper bags than plastic bags.

(a) The environment is everything that is around us which can be living or nonliving things. It includes physical, chemical and other natural forces. Natural Environment comprises land, water, air, plants and animals.
(b) Non-biodegradable substances are the major pollutants of the environment. Two such substances are plastic articles and glass articles.

(c) Human beings are organisms whose uncontrolled activities are damaging the environment.

(d) Paper bags are biodegradable, and can be easily recycled and reused but in the case of plastic bags, it is not the same. Plastic is a non-biodegradable substance it cannot be decomposed and degraded. The disposal of paper bags is much easier as compared to plastic.

Multiple Choice Questions

46. Which of the following constitutes a food chain?
(a) Grass, Wheat and Mango
(b) Grass, Goat and Human
(c) Goat, Cow and Elephant
(d) Grass, Fish and Goat

Answer

(b) Grass, goat and human

47. In a food chain, the initial organism is usually:
(a) photosynthetic
(b) herbivore
(c) saprophytic
(d) parasitic

Answer

(a) photosynthetic

48. Which of the following represents a possible food chain found in a pond :

Primary producers	Primary consumers	Secondary consumers
(a) green algae	Fish	mosquito larvae
(b) fish	green algae	mosquito larvae
(c) mosquito larvae	Fish	green algae
(d) green algae	mosquito larvae	fish

Answer

(d) green algae, mosquito larvae, fish

49. Which of the following are decomposers of dead organisms?

	Bacteria	***Fungi***	***Viruses***
(a)	**no**	**yes**	**yes**
(b)	**yes**	**no**	**yes**
(c)	**yes**	**yes**	**no**
(d)	**yes**	**yes**	**yes**

Answer

(c) yes, yes, no

50. Which of the following is an artificial ecosystem?
(a) pond
(b) crop field
(c) lake
(d) forest

Answer

(b) Crop field

51. Disposable plastic plates should not be used because:
(a) they are made of lightweight materials
(b) they are made of toxic materials
(c) they are made of biodegradable materials
(d) they are made of non-biodegradable materials

Answer

(d) they are made of non-biodegradable materials

52. In a food chain, the third trophic level is always occupied by:
(a) carnivores
(b) herbivores

(c) decomposers
(d) producers

Answer

(a) carnivores

53. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as:
(a) eutrophication
(b) pollution
(c) biomagnification
(d) accumulation

Answer

(c) biomagnification

54. If a grasshopper is eaten by a frog, then the energy transfer will be from:
(a) producer to decomposer
(b) producer to primary consumer
(c) primary consumer to secondary consumer
(d) secondary consumer to tertiary consumer

Answer

(c) primary consumer to secondary consumer

55. An ecosystem includes :
(a) all living organisms
(b) non-living objects
(c) both living organisms and non-living objects
(d) all living organisms and input of sun's energy

Answer

(c) both living organisms and non-living objects

56. The decomposers in an ecosystem :
(a) convert inorganic material to simpler forms
(b) convert organic material to inorganic forms
(c) convert inorganic material into organic compounds
(d) do not break down organic compounds

Answer

(b) convert organic materials to inorganic forms

57. What will happen if deer is missing in the food chain given below?

Grass → Deer → Tiger

(a) The population of tigers increases

(b) the population of grass decreases

(c) Tigers will start eating grass

(d) The population of tigers decreases and the population of grass increases.

Answer

(d) The population of tigers decreases and the density of grass increases.

58. Organisms which synthesise carbohydrates from inorganic compounds by using radiant energy are called :
(a) decomposers
(b) producers
(c) herbivores
(d) carnivores

Answer

(b) producers

59. Organisms of a higher trophic level which feed on several types of organisms belonging to a number of lower trophic levels constitute the :
(a) ecosystem
(b) food web
(c) ecological pyramid
(d) food chain

Answer

(b) food web

60. In the following groups of materials, which group/groups contain only non-biodegradable materials?
(i) wood, paper, leather
(ii) polythene, detergent, PVC
(iii) plastic, detergent, grass
(iv) plastic, bakelite, DDT

(a) (iii)
(b) (iv)
(c) (i) and (iii)
(d) (ii) and (iv)

Answer

(d) (ii) and (iv)

61. Which of the following statement is incorrect?
(a) all green plants and blue-green algae are producers
(b) green plants get their food from readymade organic compounds
(c) producers prepare their own food from inorganic compounds
(d) plants convert solar energy into chemical energy

Answer

(b) Green plants get their food from readymade organic compounds.

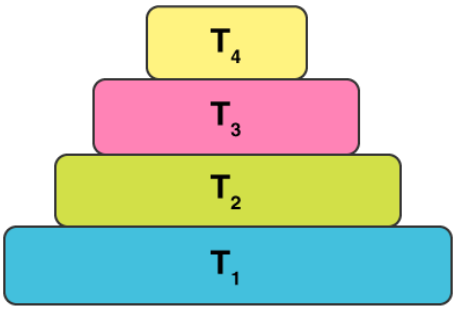
62. Which of the following group of organisms are not constituents of a food chain?
(i) grass, lion, rabbit, wolf
(ii) plankton, man, fish, grasshopper
(iii) wolf, grass, snake, tiger
(iv) frog, snake, eagle, grass, grasshopper

(a) (i) and (iii)
(b) (iii) and (iv)
(c) (ii) and (iii)
(d) (i) and (iv)

Answer

(c) (ii) and (iii)

63. In the figure given alongside, the various trophic levels are shown in the form of a pyramid. At which trophic level the maximum energy is available?
(a) T_4
(b) T_2
(c) T_1
(d) T_3



Answer

(c) T_1

64. One of the following is not a biodegradable material. This one is:
(a) cotton
(b) animal bones
(c) aluminium foil
(d) wood

(c) aluminium foil

65. Which of the following is not a non-biodegradable material?
(a) nylon socks
(b) plastic school bag
(c) jute carry bag
(d) polyester clothes

Answer

(c) jute carry bag

66. The use of one of the following will pollute the environment. This one is :
(a) paper carry bags
(b) cotton cloth carry bags
(c) nylon cloth carry bags
(d) jute carry bags

Answer

(c) nylon cloth carry bags

67. One of the following is not a consumer. This one is:
(a) giraffe
(b) antelope
(c) algae
(d) alligator

Answer

(c) algae

68. Which of the following is not a producer?
(a) grass
(b) zooplankton
(c) phytoplankton
(d) paddy

Answer

(b) zooplankton

69. One of the following is a micro-consumer. This one is:
(a) ant
(b) lice
(c) fungi
(d) mosquito

Answer

(c) fungi

70. Which of the following act as decomposers in an ecosystem?
(a) Lactobacillus bacteria
(b) Cyanobacteria
(c) Putrefying bacteria
(d) Rhizobium bacteria

Answer

(c) Putrefying bacteria

71. One of the following helps in the recycling of materials in an ecosystem. This one is:
(a) autotrophs
(b) saprotrophs
(c) omnivores
(d) carnivores

Answer

(b) saprotrophs

72. In the food chain comprising of a snake, grass, insect, and frog, the secondary consumer is :
(a) insect
(b) snake
(c) frog
(d) grass

Answer

(c) frog

73. Sahara Desert was formed over a period of time due to one of the following uncontrolled activities of man :
(a) excessive cutting down of forest plants and trees
(b) excessive killing of large herbivores
(c) excessive killing of large carnivores
(d) excessive use of poisonous chemicals herbicides

Answer

(c) excessive killing of large carnivores