



BIOLOGY

BOOKS - TARGET PUBLICATION

ENERGY FLOW IN AN ECOSYSTEM

Exercise

1. Primary consumers are directly dependent on _____.

A. secondary consumers

B. carnivores

C. autotrophs(producers)

D. decomposers

Answer: C



Watch Video Solution

2. Butterfly is a _____ consumer

A. primary

B. secondary

C. tertiary

D. None of these

Answer: A



Watch Video Solution

3. Which of the following animals is an examples of omnivorous animal?

A. cow

B. grasshopper

C. caterpillar

D. sparrow

Answer: D



Watch Video Solution

4. In food chain, first trophic level is occupied by _____.

A. carnivores

B. herbivores

C. decomposers

D. producers

Answer: D



Watch Video Solution

5. In food chain, frog is _____

A. primary consumer

B. secondary consumer

C. tertiary consumer

D. producers

Answer: B



Watch Video Solution

6. Which of the following animals is an aquatic food chain would contain maximum kcal of energy?

A. humans

B. phytoplanktons

C. fishes

D. zooplanktons

Answer: B



Watch Video Solution

7. Identify the primary consumer among the following.

A. Tiger

B. frog

C. squirrel

D. eagle

Answer: C



Watch Video Solution

8. If decomposers had been absent

A. it would not have any difference.

B. there would have been heaps of
garbage.

C. no garbage would have been left.

D. nutrients would have been thoroughly
mixed with soil.

Answer: B



Watch Video Solution

9. Complete the paragraph

Fill in the blanks by selecting the correct word from the bracket and complete the given paragraph.

(plants, animals, trophic, apex, decomposer, energy, phytoplanktons, carbon, nitrogen, increases, primary, decreases)

Each level of the food chain is called a _____ level. The amount of matter and energy gradually _____ from producers to consumers. After the death of _____ consumers, their energy becomes

available to _____ which decompose bodies of dead animals and convert them into simple compounds. These compounds are then incorporated into the food chain by _____.



[Watch Video Solution](#)

10. Name the following

The consumers which use herbivores as their food.



[Watch Video Solution](#)

11. Name the following

The consumers which feed on both herbivores as well as carnivores.



Watch Video Solution

12. Name the following

Each level in a food chain.



Watch Video Solution

13. Name the following

The process by which plants convert carbon dioxide into carbohydrates.



Watch Video Solution

14. Name the following

The element involved in the formation of ozone.



Watch Video Solution

15. Name the following

Microbes which do not need oxygen for respiration.



Watch Video Solution

16. Name the following

The process of nitrogen cycle by which nitrogen compounds are converted into gaseous nitrogen.



Watch Video Solution

17. True or false

The amount of matter and energy gradually increases from producers at lowest level to consumers at the highest level.



[Watch Video Solution](#)

18. True or false

The number of organisms increases from the lowest trophic level to highest trophic level.



[Watch Video Solution](#)

19. True or false

After the death of apex consumers their energy becomes available to the secondary consumers.



Watch Video Solution

20. True or false

Fungi and other micro-organisms decompose dead bodies of animals hence they are called as decomposers.



[Watch Video Solution](#)

21. True or false

Decomposers dissipate some amount of energy in the form of heat.



[Watch Video Solution](#)

22. True or false

The cyclic flow of nutrients within an ecosystem is called the bio-geo-chemical cycle.



[Watch Video Solution](#)

23. True or false

The gaseous type of bio-geo-chemical cycle cannot be completely separated from each other.



[Watch Video Solution](#)

24. True or false

The cycle of gases and the sedimentary cycle

cannot be completely separated from each other.



[Watch Video Solution](#)

25. True or false

During carbon cycle, abiotic carbon atoms are circulated and recycled into biotic form mainly through photosynthesis and respiration.



[Watch Video Solution](#)

26. True or false

Micro -organism which use oxygen for respiration are known as anaerobes.



Watch Video Solution

27. Correct and write the following statements and justify your corrections:

Carnivores occupy the second trophic level in the food chain.



Watch Video Solution

28. Correct and write the following statements and justify your corrections:

The flow of nutrients in an ecosystem is considered to be a one way transport.



Watch Video Solution

29. Correct and write the following statements and justify your corrections:

Plants in an ecosystem are called primary consumers.



[Watch Video Solution](#)

30. Odd one out

Grasshopper, Frog, Squirrel, Elephant



[Watch Video Solution](#)

31. Odd one out

Frog, Tiger, Lion, Humans



[Watch Video Solution](#)

32. Odd one out

Respiration, Photosynthesis, Decomposition,
Ammonification



[Watch Video Solution](#)

33. Odd one out

Iron, Phosphorous, Nitrogen, Calcium



[Watch Video Solution](#)

34. Complete the analogy

Elephant: Primary consumer :: Owl: _____



[Watch Video Solution](#)

35. Complete the analogy

Flow of nutrients: Cyclic :: Flow of energy: _____



[Watch Video Solution](#)

36. Complete the analogy

Oxygen cycle: _____ :: Phosphorus cycle:

Sedimentary cycle



[Watch Video Solution](#)

37. Complete the analogy

Oxygen is released : Photosynthesis :: _____ :

Combustion



[Watch Video Solution](#)

38. Complete the analogy

Oxygen: 21% :: Nitrogen: _____



Watch Video Solution

39. Complete the analogy

Nitrogen fixation: Nitrogen to nitrates and nitrites :: _____ : Ammonia into nitrite and then nitrate



Watch Video Solution

40. Match the following

Match the trophic levels given in Group 'A' with their examples given in Group 'B'.

Group 'A'		Group 'B'	
i.	Secondary consumers	a.	Bear, humans
ii.	Omnivores	b.	Tiger, lion
		c.	Elephant, squirrel
		d.	Frog, owl



[Watch Video Solution](#)

41. Answer the following

How are organisms classified on the basis of mode of nutrition?



[Watch Video Solution](#)

42. Define the following:

Food Chain



Watch Video Solution

43. What is food web?



Watch Video Solution

44. What is the difference between food chain and food web?



Watch Video Solution

45. Answer the following question:

Explain in detail the interrelationship between the food chain and food webs.



Watch Video Solution

46. Answer the following question:

What type of changes occur in the amount of energy during its transfer from plants to apex consumers?



Watch Video Solution

47. Answer the following question:

What are the differences between flow of matter and of energy in an ecosystem? Why?



Watch Video Solution

48. Answer the following

How do decomposers play significant role in food chain?



Watch Video Solution

49. What is Bio-geo-chemical cycle?



Watch Video Solution

50. Answer the following question:

What would you do to help maintain the equilibrium in the various bio-geochemical cycles? Explain in brief.



Watch Video Solution

51. Answer the following question:

State the different types of bio-geochemical cycles and explain the importance of those cycles.





[Watch Video Solution](#)

52. True or false

The cycle of gases and the sedimentary cycle cannot be completely separated from each other.



[Watch Video Solution](#)

53. Answer the following

Explain the following cycles in your own words with suitable diagram **Carbon cycle.**



[Watch Video Solution](#)

54. Answer the following

Explain the following cycles in your own words with suitable diagram Nitrogen cycle.



[Watch Video Solution](#)

55. Answer the following

Explain the following cycles in your own words with suitable diagram Oxygen cycle.





[Watch Video Solution](#)

56. Answer the following

Give the chemical equations representing main process in the carbon cycle.



[Watch Video Solution](#)

57. Answer the following

Complete the following table (carefully study

the carbon, oxygen and nitrogen cycles).

	Bio-geo-chemical cycles	Biotic processes	Abiotic processes
i.	Carbon cycle		
ii.	Oxygen cycle		
iii.	Nitrogen cycle		



[Watch Video Solution](#)

58. Energy flow through an ecosystem is 'one way'.



[Watch Video Solution](#)

59. Give reasons:

Equilibrium is necessary in the various biogeochemical cycle.



Watch Video Solution

60. Give reasons:

The flow of nutrients through an ecosystem is cyclic.



Watch Video Solution

61. Difference between gaseous cycle and sedimentary cycle.



Watch Video Solution

62. Question based on diagram

Draw a pyramid representing various trophic levels.



Watch Video Solution

63. Question based on diagram

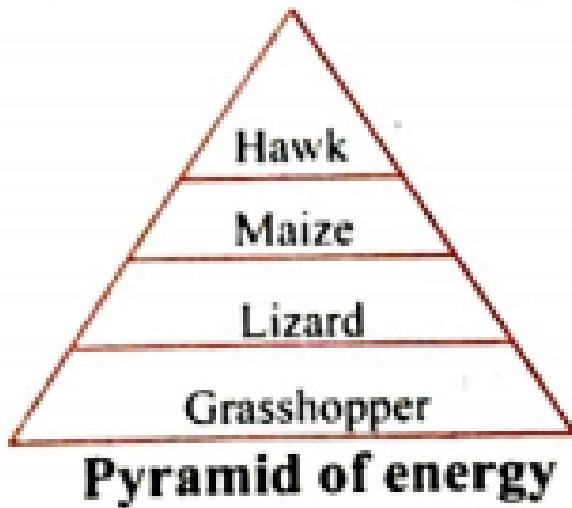
Draw 'pyramid of energy in an aquatic ecosystem'.



[Watch Video Solution](#)

64. Question based on diagram

Correct and explain the given diagram.



Watch Video Solution

65. Question based on paragraph

A class of students was taken on an excursion by the school to the banks of a river. They were explained that energy can be transferred from phytoplanktons to humans. This pattern of

energy in the ecosystem could be explained as a 'pyramid of energy'. The pyramid of energy consists of phytoplanktons at the bottom, followed by three successive trophic levels consisting of zooplanktons, fishes and humans respectively. There is a gradual decrease of energy and number of organisms from the base to the apex of the pyramid. The passage of energy is referred to as 'one way' transport. Based on the above passage, answer the question

Name the apex consumers and primary producers in the given paragraph.



Watch Video Solution

66. Question based on paragraph

A class of students was taken on an excursion by the school to the banks of a river. They were explained that energy can be transferred from phytoplanktons to humans. This pattern of energy in the ecosystem could be explained as a 'pyramid of energy'. The pyramid of energy consists of phytoplanktons at the bottom, followed by three successive trophic levels consisting of zooplanktons, fishes and humans

respectively. There is a gradual crease of energy and number of organisms from the base to the apex of the pyramid. The passage of energy is referred to as 'one way' transport. Based on the above passage, answer the question

What would happen if the population of primary producers is drastically reduced?



[Watch Video Solution](#)

67. Question based on paragraph

A class of students was taken on an excursion by the school to the banks of a river. They were explained that energy can be transferred from phytoplanktons to humans. This pattern of energy in the ecosystem could be explained as a 'pyramid of energy'. The pyramid of energy consists of phytoplanktons at the bottom, followed by three successive trophic levels consisting of zooplanktons, fishes and humans respectively. There is a gradual decrease of energy and number of organisms from the

base to the apex of the pyramid. The passage of energy is referred to as 'one way' transport.

Based on the above passage, answer the question

Why is the pyramid of energy always upright?



[Watch Video Solution](#)

68. Question based on paragraph

A class of students was taken on an excursion by the school to the banks of a river. They were explained that energy can be transferred from

phytoplanktons to humans. This pattern of energy in the ecosystem could be explained as a 'pyramid of energy'. The pyramid of energy consists of phytoplanktons at the bottom, followed by three successive trophic levels consisting of zooplanktons, fishes and humans respectively. There is a gradual decrease of energy and number of organisms from the base to the apex of the pyramid. The passage of energy is referred to as 'one way' transport. Based on the above passage, answer the question

If the aquatic ecosystem has 10,000 kcal

concentrated by phytoplanktons, how much energy will be transferred to humans?



[Watch Video Solution](#)

69. Question based on paragraph

A class of students was taken on an excursion by the school to the banks of a river. They were explained that energy can be transferred from phytoplanktons to humans. This pattern of energy in the ecosystem could be explained as a 'pyramid of energy'. The pyramid of energy

consists of phytoplanktons at the bottom, followed by three successive trophic levels consisting of zooplanktons, fishes and humans respectively. There is a gradual decrease of energy and number of organisms from the base to the apex of the pyramid. The passage of energy is referred to as 'one way' transport. Based on the above passage, answer the question

Why is the flow of energy through the ecosystem considered as one way transport?



[Watch Video Solution](#)

70. What is meant by 'ecosystem ?



Watch Video Solution

71. What do you mean by ecosystem?



Watch Video Solution

72. Enlist different types of ecosystem?



Watch Video Solution

73. How do the interactions take place in the biotic and abiotic factors of ecosystem?



Watch Video Solution

74. Observe figure 7.1 given on page no. 81 of your textbook and explain the relationship between the given components.



Watch Video Solution

75. Construct food chains like the one shown in figure 7.1



Watch Video Solution

76. Give the food chains of various ecosystems.



Watch Video Solution

77. Make a list of the various consumers of the ecosystems, classify them according to mode

of nutrition.



Watch Video Solution

78. Pictures of various organisms are given in figure 7.2 on page no. 82 of your textbook. Construct a food web from those pictures.



Watch Video Solution

79. Is the number of consumers in a food web fixed?



[Watch Video Solution](#)

80. Use your brain power

What will be the effect on an ecosystem if only one type of organism in it forms the food for several different consumers in that ecosystem?



[Watch Video Solution](#)

81. Use your brain power

Why is balance or equilibrium necessary in a food web?



[Watch Video Solution](#)

82. Which problems will arise if there is either increase or decrease in number of any component of food chain or food web?



[Watch Video Solution](#)

83. Make some interesting observations while having a meal at home. Identify the trophic level of the various food items in your dish. Identify your own level in the chain.



Watch Video Solution

84. What happens to the energy during its transfer from producers to apex consumers?



Watch Video Solution

85. Energy does it remain trapped in the apex consumer?



Watch Video Solution

86. Does it (energy) remain in the body of apex consumer till its death ?



Watch Video Solution

87. What would happen if the energy remains trapped in the body of apex consumers even

after their death?



Watch Video Solution

88. What happens if there are no decomposers on the Earth?



Watch Video Solution

89. Use your brain power

Why are the number of tertiary consumers

(apex carnivores) always less than those of other consumers?



Watch Video Solution

90. Study the various components given in figure 7.5 on pages no . 84 your textbook and explain the bio-geo -chemical cycle in your own words.



Watch Video Solution

91. The carbon cycle is very effective in the temperate region. Why is it so?



Watch Video Solution

92. Use your brain power

Even though the carbon content on earth is constant, why is there a rise in temperature due to carbon dioxide?



Watch Video Solution

93. What is the relationship between carbon in the air and the rise in atmospheric temperature.



Watch Video Solution

94. Write a short note on nitrogen fixation?



Watch Video Solution

95. Enlist microbes which are responsible for nitrogen fixation?



Watch Video Solution

96. Who keep balance between the oxygen cycle and carbon cycle ?



Watch Video Solution

97. Enlist biotic and abiotic components of ecosystem.



Watch Video Solution

98. Write a paragraph on 'Balance in a Ecosystem'.



Watch Video Solution

99. Choose the correct alternative

All producers in the ecosystem are

A. carnivores

B. omnivores

C. autotrophs

D. heterotrophs

Answer:



Watch Video Solution

100. Choose the correct alternative

Who are an apex consumer in aquatic ecosystem?

A. Humans

B. Zoopanktons

C. fishes

D. Phytoplanktons

Answer:



Watch Video Solution

101. Choose the correct alternative

Oxygen is released during which of the following processes?

A. Corrosion

B. Photosynthesis

C. Ammonification

D. Respiration

Answer:



Watch Video Solution

102. Choose the correct alternative

**_____are directly dependent on autotrophs
(producers)?**

A. Secondary consumers

B. carnivores

C. Primary consumers

D. decomposers

Answer:



Watch Video Solution

103. Name the following

Complete the given analogy.

Oxygen : 21% of the atmosphere :: _____ :

78% of the atmosphere



Watch Video Solution

104. Name the following

The graphical model/pattern of energy exchange in an ecosystem.



Watch Video Solution

105. Name the following

Match the columns:

	Group 'A'		Group 'B'		Group 'C'
a.	Producers	1.	Humans	i.	Second trophic level
b.	Omnivores	2.	Phytoplanktons	ii.	Third trophic level
		3.	Fishes	iii.	First trophic level
		4.	Zooplanktons	iv.	Fourth trophic level



Watch Video Solution

106. Name the following

True or False. If false, write the correct sentence.

The flow of nutrients in an ecosystem is considered to be a 'one way' transport.



[Watch Video Solution](#)

107. Give scientific reasons.

The nutrients are supplied to organisms for their growth and development through the ecosystem in a cyclic manner.



[Watch Video Solution](#)

108. Give scientific reasons.

The amount of energy decreases from the bottom to the apex of an energy pyramid.



Watch Video Solution

109. Answer the following

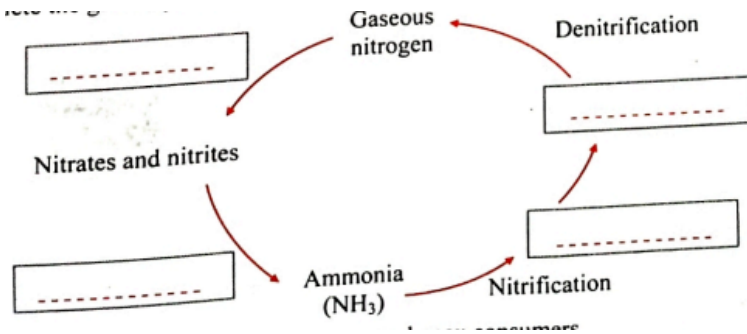
What are decomposers? Give examples.



Watch Video Solution

110. Answer the following

Complete the given cyclic representation of nitrogen cycle.



[Watch Video Solution](#)

111. Answer the following

Differentiate between primary consumers and

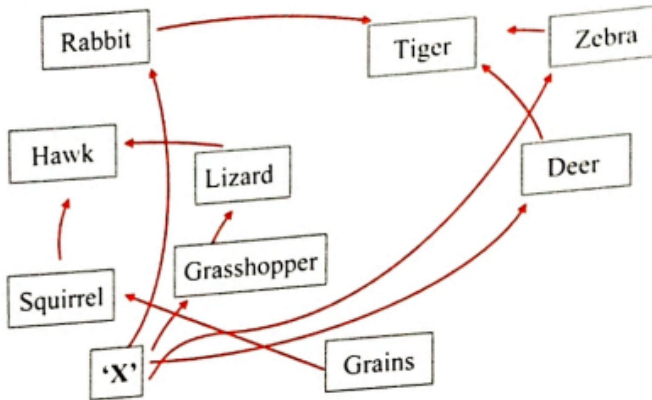
apex consumers.



Watch Video Solution

112. Answer the following

Observe the given food web and answer the questions given below it.

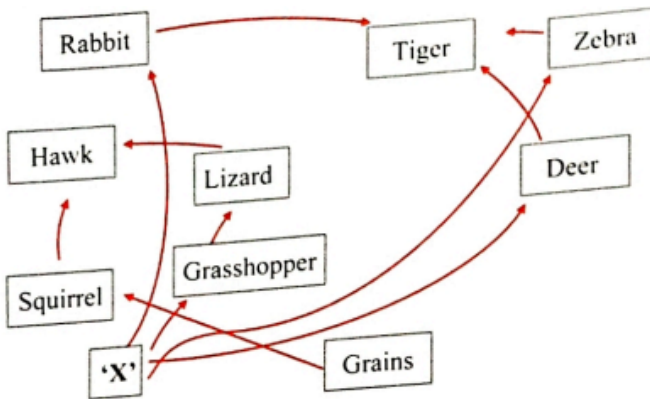


Identify 'X' in the given food web.



113. Answer the following

Observe the given food web and answer the questions given below it.

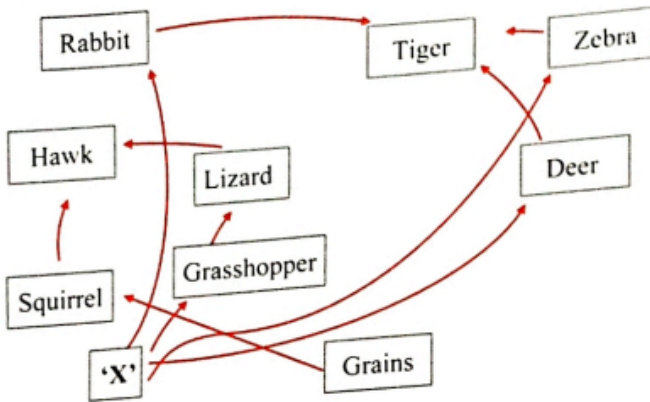


Mention the apex consumers in the given food web.



114. Answer the following

Observe the given food web and answer the questions given below it.



What would be the trophic level of zebra?



[Watch Video Solution](#)

115. Answer the following

Suggest measures that should be employed to maintain the equilibrium of various bio-geo-chemical cycles.



Watch Video Solution

116. Answer the following

Write note on recycling carbon.



Watch Video Solution

117. Answer the following

With the help of a suitable diagram explain recycling of oxygen in the biosphere.



Watch Video Solution

118. Answer the following

Read the paragraph and answer the questions given below it.

A biotic carbon atoms are circulated into the biotic form through processes like photosynthesis and respiration. Green plants

convert carbon dioxide into carbohydrates and also produce carbon compounds like proteins and fats. Biotic compounds are transported from plants to apex consumers through intermediate trophic levels. After the death of all types of consumers, carbon is recycled by biotic decomposition. The carbon recycled in this way goes into the atmosphere and can be taken up by living organisms thus ensuring circulation and recycling of carbon in the biosphere.

Which bio-geo-chemical cycle is described in the given paragraph?



Watch Video Solution

119. Answer the following

Read the paragraph and answer the questions given below it.

A biotic carbon atoms are circulated into the biotic form through processes like photosynthesis and respiration. Green plants convert carbon dioxide into carbohydrates and also produce carbon compounds like proteins and fats. Biotic compounds are transported from plants to apex consumers

through intermediate trophic levels. After the death of all types of consumers, carbon is recycled by biotic decomposition. The carbon recycled in this way goes into the atmosphere and can be taken up by living organisms thus ensuring circulation and recycling of carbon in the biosphere.

By which process do green plants convert atmospheric carbon into carbohydrates?



[Watch Video Solution](#)

120. Answer the following

Read the paragraph and answer the questions given below it.

A biotic carbon atoms are circulated into the biotic form through processes like photosynthesis and respiration. Green plants convert carbon dioxide into carbohydrates and also produce carbon compounds like proteins and fats. Biotic compounds are transported from plants to apex consumers through intermediate trophic levels. After the death of all types of consumers, carbon is

recycled by biotic decomposition. The carbon recycled in this way goes into the atmosphere and can be taken up by living organisms thus ensuring circulation and recycling of carbon in the biosphere.

What process plays a significant role to ensure that carbon is available to living organisms even after the death of apex consumers?



[Watch Video Solution](#)

121. Answer the following

Read the paragraph and answer the questions given below it.

A biotic carbon atoms are circulated into the biotic form through processes like photosynthesis and respiration. Green plants convert carbon dioxide into carbohydrates and also produce carbon compounds like proteins and fats. Biotic compounds are transported from plants to apex consumers through intermediate trophic levels. After the death of all types of consumers, carbon is

recycled by biotic decomposition. The carbon recycled in this way goes into the atmosphere and can be taken up by living organisms thus ensuring circulation and recycling of carbon in the biosphere.

Draw a simple food chain to show transfer of carbon from plants to decomposers.



[Watch Video Solution](#)

122. Mention two processes that contribute to the release of carbon into the atmosphere.



Watch Video Solution