

Chapter 3 – Lesson 1 (Part2)

1. Which of the following levels represents a group of individuals of the same species that share the same time and place and interact with each other?

- A) Organism
 - B) Population
 - C) Community
 - D) Ecosystem
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2. Which of the following is *not* considered a biotic factor in an ecosystem?

- A) Plants
 - B) Insects
 - C) Bacteria
 - D) Light
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3. Which of the following organisms is classified as a decomposer?

- A) Algae
 - B) Plants
 - C) Fungi
 - D) Invertebrates
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4. Which of the following organisms obtains its energy directly from the Sun?

- A) Plant
 - B) Mouse
 - C) Grasshopper
 - D) Viper
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5. Which of the following organisms begins a food chain in a balanced ecosystem?

- A) Grasshopper
 - B) Frog
 - C) Wheat plant
 - D) Human
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6. All food chains begin with plants because they are _____.

- A) Easy to grow
 - B) Autotrophic
 - C) Basic organisms
 - D) Do not need energy
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7. Which of the following reactions occurs inside plant leaves under the effect of light energy?

- A) $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow{\text{(light energy, chlorophyll)}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} + 6\text{O}_2$
 - B) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \xrightarrow{\text{(light energy, chlorophyll)}} 6\text{O}_2 + 6\text{H}_2\text{O}$
 - C) $6\text{CO}_2 + 12\text{O}_2 \xrightarrow{\text{(light energy, chlorophyll)}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O}$
 - D) $6\text{O}_2 + 12\text{H}_2\text{O} \xrightarrow{\text{(light energy, chlorophyll)}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} + 6\text{CO}_2$
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8. What is the ratio between the number of CO_2 molecules consumed and O_2 molecules produced during photosynthesis?

- A) 2 : 1
 - B) 1 : 2
 - C) 1 : 1
 - D) 3 : 1
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9. Which organisms occupy more than one trophic level in a food chain?

- A) Plants
 - B) Herbivores
 - C) Decomposers
 - D) Carnivores
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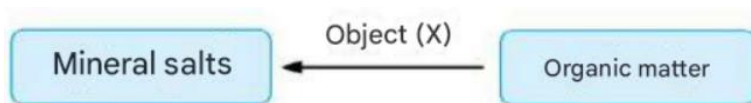
10. (Monufia Governorate)

Which of the following energy transfer examples is carried out by a decomposer?

- A) A plant performing photosynthesis
 - B) A snake preying on a mouse
 - C) A fungus obtaining energy from a dead tree
 - D) An insect obtaining energy from a plant
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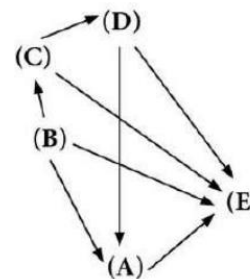
11. The adjacent diagram shows the role of an organism (X) in the ecosystem. Study it, then answer: What type of organism is (X)?

- A) Producer
- B) Herbivore
- C) Carnivore
- D) Decomposer



12. Study the food web shown, then conclude:
Which letter represents decomposing bacteria?

- A) (A)
- B) (B)
- C) (E)
- D) (D)



13. Study the following food chain, then conclude:

What organisms are represented by the symbol (Y) in food chains of aquatic and terrestrial ecosystems respectively?

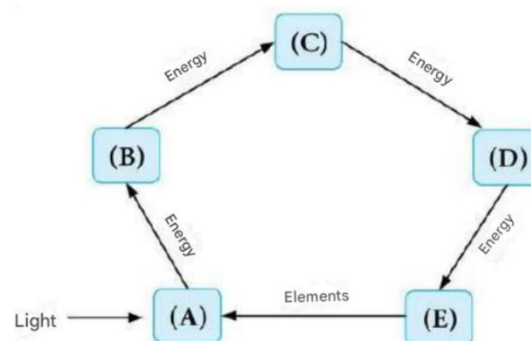


- A) Small fish – Eagles
- B) Large fish – Rabbits
- C) Small fish – Deer
- D) Phytoplankton – Rabbits

14. (Kafr El-Sheikh Governorate)

The adjacent diagram represents a marine food chain. Each letter A, B, C, D, and E represents a different trophic level. Which of these levels is found at the base of the food pyramid?

- A) (A)
- B) (B)
- C) (C)
- D) (E)



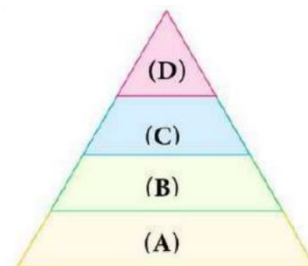
15. (Alexandria Governorate)

The organisms that occupy the greatest number in the food chain are at the _____ trophic level.

- A) First
- B) Second
- C) Third
- D) Fourth

16. In the energy pyramid shown, non-producers are found at the level(s):

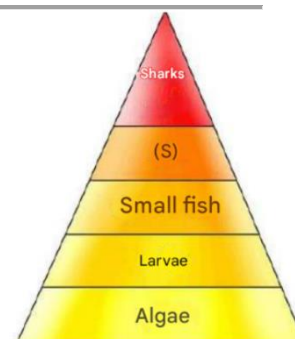
- A) A only
- B) C only
- C) A and D
- D) B, C, and D



17. Study the diagram shown, then answer:

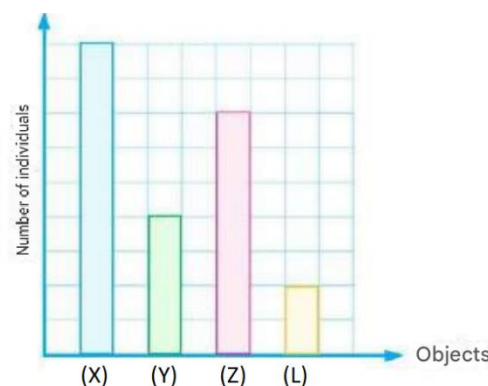
The organism (S) belongs to which group?

- A) Producers
- B) Herbivores
- C) Carnivores
- D) Decomposers



18. Study the bar graph that shows the numbers of organisms forming a food chain in a balanced ecosystem, then conclude: What happens when the number of individuals of species (Y) decreases?

- A) The number of species (Z) decreases
- B) The number of species (L) increases
- C) The number of species (X) increases
- D) The number of species (Z) increases

**19. (Kafr El-Sheikh Governorate)**

What type of energy is transferred from one organism to another within a food chain?

- A) Light energy
- B) Heat energy
- C) Chemical energy
- D) Kinetic energy

20. Which of the following statements correctly describes energy transfer through the food pyramid?

- A) Energy moves from the base to the top and increases at each level.
- B) Energy moves from the top to the base and increases at each level.
- C) Energy moves from the base to the top and decreases at each level.
- D) Energy moves from the top to the base and decreases at each level.

21. The table shows the available biomass (g/m²) at the trophic levels of a food chain. Study it, then conclude:
Which trophic level represents the organisms that form the base of the food pyramid?

- A) X
- B) Y
- C) Z
- D) L

Available biomass g/m ²	Level
37	(X)
1.5	(Y)
800	(Z)
11	(L)

22. (Damietta Governorate)

To obtain the highest amount of energy from marine food chains, we depend on:

- A) Whales
- B) Marine algae
- C) Larvae
- D) Small fish

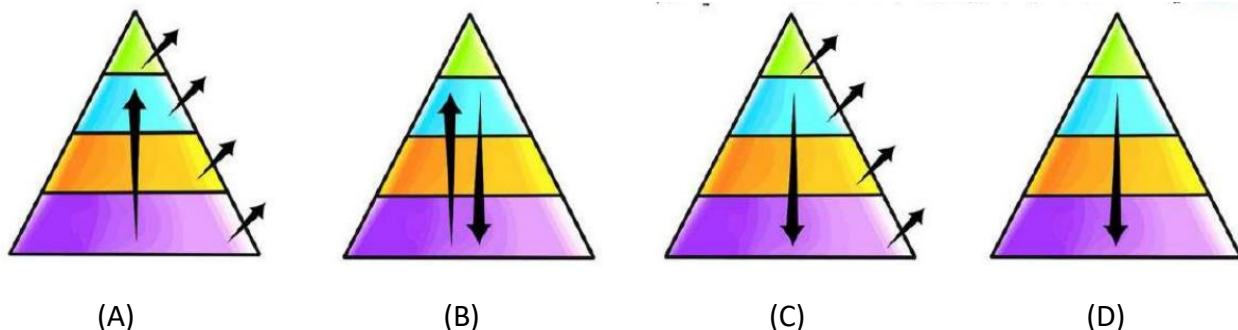
23. Which of the following organisms obtains the least amount of energy in a food pyramid of a food chain?

- A) Plant
- B) Mouse
- C) Grasshopper
- D) Snake

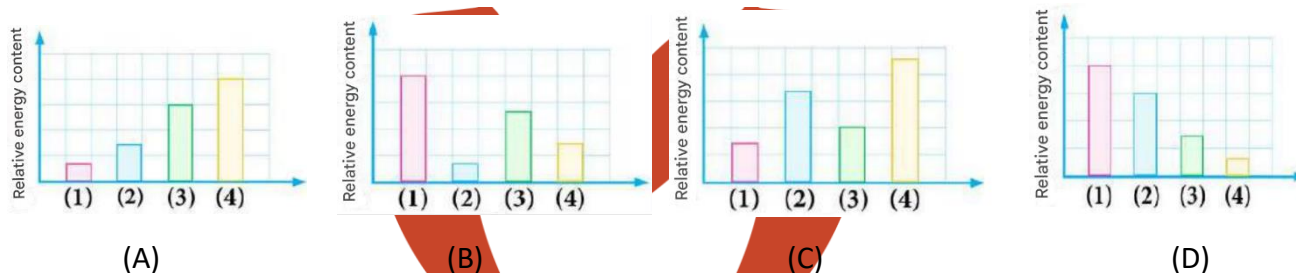
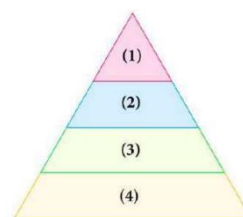
24. The percentage of energy transferred from one trophic level to the next in a food chain equals:

- A) 100%
- B) 90%
- C) 50%
- D) 10%

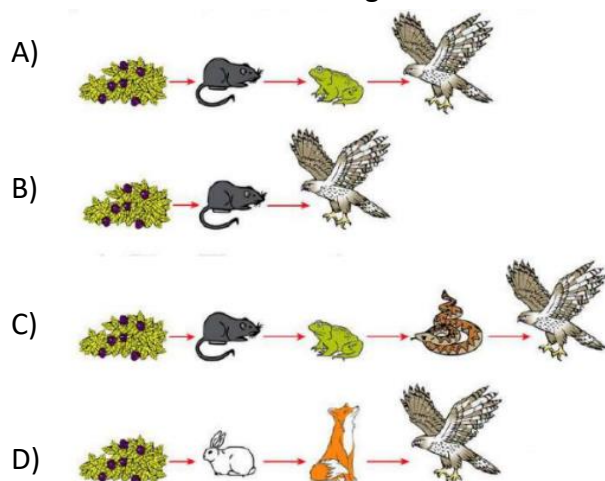
25. Which of the following diagrams represents the direction of energy transfer in an energy pyramid?



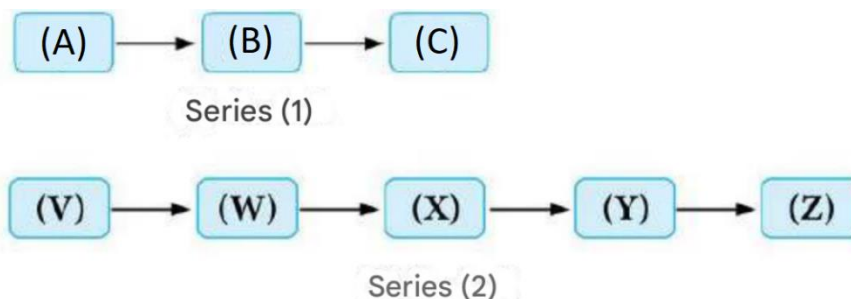
26. The diagram shows an energy pyramid. Study it carefully, then answer: Which bar graph represents the relative energy content of the levels of this pyramid?



27. In which of the following food chains does the hawk obtain the least amount of energy?



28. The diagram shows two food chains in which producers receive the same amount of energy from the Sun. Study it, then answer:



(I) Which of the following transfers is accompanied by the greatest amount of energy loss in the two chains?

- A) B to C
- B) A to B
- C) X to Y
- D) Y to Z

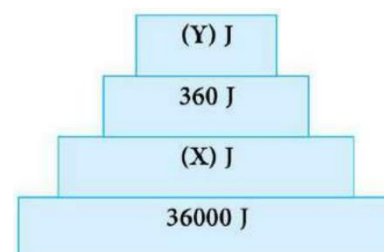
(II) Which of the following transfers is accompanied by the least amount of energy loss in the two chains?

- A) A to B
- B) B to C
- C) W to X
- D) Y to Z

29. Study the energy pyramid shown, then answer:

What is the amount of energy at levels (X) and (Y) respectively?

- A) 3600 – 3.6
- B) 3600 – 36
- C) 36 – 3.6
- D) 360 – 36



30. In one of the lakes, small fish (primary consumers) consumed 3000 kJ of energy from aquatic plants. How much energy is lost before this energy is transferred to the larger fish that feed on them?

- A) 300 kJ
- B) 900 kJ
- C) 2700 kJ
- D) 2900 kJ

31. Study the following food chain, then conclude:

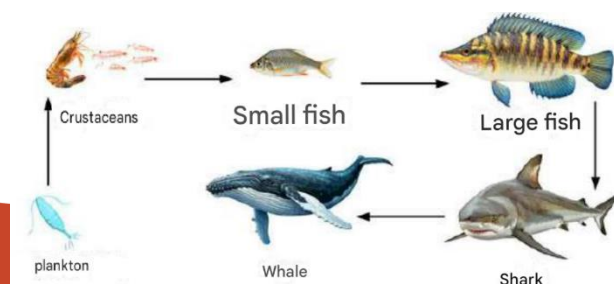
If the energy in algae equals 2000 J, how much energy is lost (in joules) when it is transferred from algae to the octopus?



- A) 180 J
- B) 1800 J
- C) 1980 J
- D) 1998 J

32. In the food chain shown, the whale obtains _____ of the energy present in the shark.

- A) 10%
- B) 1%
- C) 0.1%
- D) 0.001%



33. If consumer (Y) feeds on consumer (X), which of the following represents all the energy transferred from (X) to (Y)?

- a) The energy used in movement of (X)
- b) The energy stored in the tissues of (X)
- c) The energy used in digestion of (Y)
- d) The energy stored in the tissues of (Y)

34. Two food chains (A) and (B): (B) contains 4 trophic levels, while (A) contains 3 trophic levels. If the amount of energy at the last level in both is equal, which of the following can explain this?

- a) The amount of energy in the producer in chain (A) is greater than in chain (B).
- b) The amount of energy in the producer in chain (B) is greater than in chain (A).
- c) The amount of energy in the producer is equal in both chains (A) and (B).
- d) The percentage of energy transferred from one level to another differs between the two chains.