



## BIOLOGY

### BOOKS - GR BATHLA & SONS BIOLOGY (HINGLISH)

## ECOSYSTEM

#### Multiple Choice Question

1. The term ecosystem was coined by:

- A. Reiter
- B. Odum
- C. Tansley
- D. Ernst Haeckel

**Answer: C**



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2. An ecosystem is:

- A. the abiotic component of an area
- B. a community of organisms interacting with one another
- C. that part of Earth and its atmosphere where living organisms exist
- D. a community of organisms together with the environment in which they live

**Answer: D**



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3. An ecosystem is a complex interacting system of:

- A. Populations
- B. Individuals

C. Communities and their soil conditions

D. Communities and their physical environment

**Answer: D**



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4. Ecosystem has two components:

A. plants and animals

B. biotic and abiotic

C. weeds and trees

D. none of these

**Answer: B**



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5. Ecosystem is not a/an:

- A. open system
- B. closed system
- C. variable system
- D. none of these

**Answer: B**



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6. Ecosystem is:

- A. open
- B. closed
- C. both open and closed
- D. neither open nor closed

**Answer: A**



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**7. The concept of ecosphere includes:**

- A. no flow in energy
- B. non-transfer of food
- C. balance of ecological processes
- D. interactions between living organisms and their environment

**Answer: D**



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**8. Largest ecosystems in the world are:**

- A. Forests

B. Oceans

C. Great lakes

D. Grasslands

**Answer: B**



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**9. Which of the following is the most stable ecosystem?**

A. Desert

B. Forest

C. Ocean

D. Mountain

**Answer: C**



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10. The Great Barrier Reef along the east coast of Australia can be categorized as:

- A. Biome
- B. Ecosystem
- C. Population
- D. Community

**Answer: B**



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11. Identify which one of the following is an example of incomplete ecosystem?

- A. Cave
- B. River
- C. Wetland

D. Grassland

**Answer: A**



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12. Out of the following given ecosystem which one is most recently discovered ecosystem?

A. Vents

B. Crater

C. Tundra

D. Iceberg

**Answer: A**



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13. In a comparative study of grassland ecosystem and pond ecosystem it may be observed that:

- A. The biotic components are almost similar
- B. The abiotic components are almost similar
- C. Primary and secondary consumers are similar
- D. Both biotic and abiotic components are different

**Answer: D**



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14. Lotic ecosystem refers to:

- A. system water system
- B. ecosystem of estuaries
- C. deep marine water systems
- D. ecosystem of flowing water

**Answer: D**



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**15.** The actively moving aquatic ecosystem is,

A. nekton

B. benthose

C. phytoplankton

D. zooplankton

**Answer: A**



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**16.** The force operating in an ecosystem which opposes the unchecked growth of population is:

- A. mortality
- B. fecundity
- C. biotic control
- D. environmental resistance

**Answer: D**

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17. The number of individuals of a species in a particular ecosystem at a given time remains constant due to:

- A. man
- B. predators
- C. parasites
- D. available food

**Answer: B**

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18. Which of the following type of ecosystem is expected in an area where evaporation exceeds precipitation, and mean annual rainfall is below 100mm:

- A. Desert
- B. Grassland
- C. Mangrove
- D. Shrubby forest

**Answer: A**

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19. A natural ecosystem:

- A. is auto-operated

B. depends on man

C. depends on plants

D. depends on animals

**Answer: A**



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**20.** Which of the following is an example of man-made ecosystem?

A. Forest

B. Aquarium

C. Herbarium

D. Tissue culture

**Answer: B**



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21. A man-made ecosystem is:

- A. less in diversity
- B. more in diversity
- C. man does not make ecosystem
- D. more stable than natural ecosystem

**Answer: A**



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22. Pond is an example of:

- A. Forest ecosystem
- B. Natural ecosystem
- C. Artificial ecosystem
- D. Grassland ecosystem

**Answer: B**



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**23.** The number of primary producers within a specified area would be maximum in:

- A. Desert
- B. Forest ecosystem
- C. Pond ecosystem
- D. Grassland ecosystem

**Answer: C**



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**24.** The zone at the edge of a lake or ocean which is alternatively

- A. Lentic one
- B. Pelagic zone
- C. Benthic zone
- D. Littoral zone

**Answer: D**

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**25.** In a pond ecosystem, benthos means:

- A. virus
- B. bacteria
- C. zooplankton on the water surface
- D. primary consumers in the depth of a pond

**Answer: D**

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26. Which of the following habitats is most unsuitable for primary productivity?

A. Cave

B. Pond

C. Meadow

D. Forest river bank

**Answer: A**



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27. Which of the following ecosystem has very little primary productivity?

A. Sea

B. River

C. Forest

D. Grassland

**Answer: B**



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**28.** The total energy fixed by a green plant of an ecosystem on the whole is called:

- A. Primary production
- B. Secondary production
- C. Gross production
- D. none of these

**Answer: C**



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29. Productivity is the rate of production of biomass expressed in terms of:

*i.*  $(\text{kcal m}^{-3})\text{yr}^{-1}$

*ii.*  $\text{g}^{-2}\text{yr}^{-1}$

*iii.*  $\text{g}^{-1}\text{yr}^{-1}$

*iv.*  $(\text{kcal m}^{-2})\text{yr}^{-1}$

A. ii

B. iii

C. I and ii

D. ii and iv

**Answer: D**



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30. The rate of conversion of light energy into chemical energy or organic molecules in an ecosystem is:

A. Net primary productivity

- B. Gross primary productivity
- C. Net secondary productivity
- D. Gross secondary productivity

**Answer: B**



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31. Which of the following ecosystem has the highest gross primary productivity?

- A. Grasslands
- B. Coral reefs
- C. Mangroves
- D. Tropical rain forests

**Answer: D**



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32. Maximum net productivity in terrestrial ecosystem is:

- A. rain forest
- B. deciduous forest
- C. mangrove plantation
- D. both (a) and (b)

**Answer: A**



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33. An ecosystem having highest primary productivity is:

- A. temperate forest
- B. coniferous forest
- C. tropical rain forest
- D. shrubby thorn forest

**Answer: C**



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**34.** The biomass available for consumption by the herbivores and the decomposers is called:

- A. Standing crop
- B. Secondary productivity
- C. Net primary productivity
- D. Gross primary productivity

**Answer: C**



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**35.** How much of the net primary productivity of a terrestrial ecosystem is eaten and digested by herbivores?

A. 1 %

B. 10 %

C. 40 %

D. 90 %

**Answer: B**



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**36. Which atom is limiting the primary productivity mostly?**

A. D

B. N

C. C

D. P

**Answer: C**



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37. Which of the following is expected to have the highest value ( $g/m^2/yr$ ) in a grassland ecosystem?

- A. Net Production (NP)
- B. Secondary Production
- C. Tertiary Production
- D. Gross Production (GP)

**Answer: D**



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38. The storage of energy at consumer level is known as:

- A. net productivity
- B. secondary productivity
- C. Net primary productivity



D. Gross primary productivity

**Answer: B**



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**39.** Select the formula for ecological efficiency:

A. 
$$\frac{\text{Gross primary productivity} \times 100}{\text{Incident total solar radiation}}$$

B. 
$$\frac{\text{Food primary assimilated} \times 100}{\text{Food energy ingested}}$$

C. 
$$\frac{\text{Net primary productivity} \times 100}{\text{Gross primary productivity}}$$

D. 
$$\frac{\text{Energy in biomass production at a trophic level} \times 100}{\text{Energy in biomass production at previous trophic level}}$$

**Answer: D**



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**40.** Arrange the following ecosystem in terms of their increasing productivity:

1. Grassland
2. Open ocean
3. Desert
4. Tropical rain forest

Select the correct answer code using the codes given below: Answer codes:

A. 3, 2, 1, 4

B. 1, 2, 3, 4

C. 3, 1, 2, 4

D. 4, 1, 2, 3

**Answer: A**



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41. Which most often limits the primary productivity of the ecosystem?

A. Oxygen

B. Nitrogen

C. Consumers

D. Solar radiation/Light

**Answer: D**



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42. Most diverse organism of an ecosystem is:

A. producer

B. consumer

C. carnivores

D. decomposer

**Answer: D**



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**43.** Decomposers are:

- A. autotrophs
- B. heterotrophs
- C. organotrophs
- D. autoheterotrophs

**Answer: B**



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**44.** Decomposition of organic matter is brought about by:

- A. plants

B. protozoans

C. microorganisms

D. none of these

**Answer: C**



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**45. Bacteria and fungi in a forest ecosystem are generally:**

A. producers

B. decomposers

C. primary consumers

D. Secondary consumers

**Answer: B**



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46. Which of the following organisms form the decomposers?

- A. Pteris
- B. bacteria
- C. Saprophytic fungi
- D. Both (b) and (c)

**Answer: D**



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47. Which of the following groups of organisms are ecologically similar?

- A. Producer protists and Consumer protists
- B. Monerans and Producer protists
- C. Consumer protists and Fungi
- D. Monerans and Fungi

**Answer: D**



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**48.** A large number of organic compounds can be decomposed by:

- A. Pseudomonas
- B. Azotobacter
- C. Mycoplasma
- D. Chemolithotrophs

**Answer: D**



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**49.** Decomposers like fungi and bacteria are

- A. i and ii

B. i an iv

C. ii and iii

D. i and ii

**Answer: C**



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50. Among the following where do you think the process of decomposition would be the fastest?

A. Antarctic

B. Alpine region

C. Dry arid region

D. Tropical rain forests

**Answer: D**



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51. If we completely remove the decomposers from an ecosystem, the ecosystem functioning will be adversely affected because:

- A. energy flow will be blocked
- B. mineral movement will be blocked
- C. herbivore will not receive solar energy
- D. rate of decomposition of other components will be very high

**Answer: B**



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52. An organism that feeds on dead organic matter other than bacteria or fungi is called:

- A. producer
- B. consumer

C. detritivore

D. decomposer

**Answer: C**



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**53.** A detritivorous animal of economic importance is:

A. Leech

B. Earthworm

C. Giriraja fowl

D. Caterpillar larva

**Answer: B**



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54. Which of the following statements regarding decomposition is false?

A. Earthworm is a detritivore

B. Detritus is the raw material for decomposition

C. Warm and moist environment favours decomposition

D. Precipitation of soluble inorganic nutrients into the soil horizon as unavailable salt is called mineralization

**Answer: D**



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55. When fungi feed on dead organic matter, they are known as

A. parasites

B. dimorphic

C. saprophytes

D. none of these

**Answer: C**



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**56.** Saprophytes in an ecosystem belongs to:

A. producer component

B. herbivore component

C. carnivore component

D. decomposer component

**Answer: D**



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57. The breakdown of detritus into smaller particles by earthworm is a process called

- A. catabolism
- B. humification
- C. fragmentation
- D. mineralisation

**Answer: C**



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58. The process of mineralisation by microorganisms helps in the release of

- A. inorganic nutrients from humus
- B. both organic and inorganic nutrients from detritus
- C. organic nutrients from humus

D. inorganic nutrients from detritus and formation of humus.

**Answer: A**



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**59.** An ecosystem must have continuous, external source of:

A. Food

B. Energy

C. Minerals

D. All of these

**Answer: B**



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60. Which one of the following components of ecosystem comes from outside?

- A. Energy
- B. Oxygen
- C. Insects
- D. Temperature

**Answer: A**



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61. The ultimate source of energy in an ecosystem is:

- A. ATP
- B. Glucose
- C. Sunlight
- D. Nucleic acid

**Answer: C**



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**62.** Driving force of ecosystem is:

A. Biomass

B. producer

C. solar energy

D. carbohydrate in plants

**Answer: C**



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**63.** Which one of the following is source of energy to an ecosystem?

A. ATP



B. Solar energy

C. Sugar stored

D. Heat liberated during respiration

**Answer: B**



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**64.** In an ecosystem, the function of the producers is to:

A. release energy

B. utilize chemical energy

C. convert organic compounds into inorganic compounds

D. trap solar energy and convert it into chemical energy

**Answer: D**



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65. Approximately how much of the solar energy that falls on the leaves of a plant is converted to chemical energy by photosynthesis?

- A. 30 %
- B. 50 %
- C. 2 – 10 %
- D. Less than 1 %

**Answer: C**



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66. It is estimated that about 85 % of the Earth's photosynthetic activity is carried out by:

- A. trees
- B. savannahs
- C. herbaceous plant

D. phytoplanktons

**Answer: D**



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**67.** In an ecosystem, which of the following occurs in abiotic components?

A. Flow of energy

B. Cycling of materials

C. Both of these

D. None of these

**Answer: C**



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**68.** Importance of ecosystem lies in:

A. cycling of materials

B. flow of energy

C. Both of these

D. none of these

**Answer: C**

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**69.** The major functional processes of an ecosystem are:

A. energy flow and food chain

B. food chain and decomposers

C. energy flow and decomposers

D. mineral recycling and energy flow

**Answer: D**

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70. The correct path of energy flow in ecosystem is:

- A. producers → herbivores → carnivores → decomposers
- B. producers → carnivores → herbivores → decomposers
- C. herbivores → carnivores → producers → decomposers
- D. herbivores → producers → carnivores → decomposers

**Answer: A**



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71. The energy sources for omnivores are:

- A. primary producers and primary consumers
- B. primary consumers and secondary consumers
- C. primary producers, carnivores and decomposers

D. primary producers and consumers and carnivores

**Answer: D**



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**72.** The flow of energy in the ecosystem is:

A. cyclic

B. bidirectional

C. unidirectional

D. multidirectional

**Answer: C**



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**73.** In an ecosystem:

- A. movement of energy is unidirectional
- B. cycling of energy is an independent process
- C. macro and micronutrients cycle at the same pace
- D. cycling of energy and nutrients is a coupled process

**Answer: A**

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**74.** 10 % law of energy transfer in food chain was given by:

- A. Elton
- B. Tansley
- C. Haeckel
- D. Lindeman

**Answer: D**

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75. The average trophic efficiency of transfer of energy from one trophic level to the higher trophic level is called:

- A. Assimilation efficiency
- B. Exploitation efficiency
- C. Gross primary production
- D. Lindeman's trophic efficiency rule

**Answer: D**



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76. The "10 per cent law" is related to:

- A. Mendelian genetics
- B. Non-Mendelian genetics
- C. Energy transfer from lower trophic level to higher trophic level



D. Energy consumption during photosynthesis in  $C_4$  plants

**Answer: C**

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77. What amount of energy is lost in transferring food energy from one trophic level to another?

A. 90 %

B. 20 %

C. 5 %

D. 10 %

**Answer: A**

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78. Percentage of energy transported from primary producer to herbivores in an ecosystem is:

- A. 0 %
- B. 20 %
- C. 10 %
- D. 50 %

**Answer: C**



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79. Approximately what amount of energy is available to one trophic level from one level lower to it?

- A. 10 %
- B. 01 %
- C. 20 %

D. 30 %

**Answer: A**



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**80.** Approximately how much of the chemical energy within producer tissue becomes chemical energy within herbivore tissue?

A. 01 %

B. 30 %

C. 10 %

D. 90 %

**Answer: C**



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**81.** If all green plants on the Earth are destroyed:

- A. all pests shall die
- B. all animals shall die ultimately
- C. nothing shall happen to animals
- D. only herbivorous animals shall die

**Answer: B**



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**82.** Consider the following statements:

1. The energy flow in an ecosystem results in entropy.
2. In prairie ecosystem, 90 % of the secondary productivity occurs in the soil.
3. The detritus chain is of greater importance in energy flow in many ecosystem than are herbivorous/carnivorous/omnivorous grazing chains.

Which of these statements are correct?

A. 1 and 2

B. 1, 2 and 3

C. 2 and 3

D. 1 and 3

**Answer: A**



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**83.** Which of the following processes does not affect the nutrient flow in an ecosystem?

A. Migration

B. Parasitism

C. Predation

D. Production

**Answer: A**

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**84.** The transfer of energy from organisms to organisms in a natural community establishes:

- A. natural barriers
- B. food chains
- C. biological control
- D. all of these

**Answer: B**

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**85.** The transfer of food energy from plants through herbivores to carnivores is called:

- A. ecosystem

B. food chain

C. ecological niche

D. biotic succession

**Answer: B**



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**86.** Movement of energy and nutrients from one feeding group of organisms to another in a series is called:

A. food chain

B. food link

C. trophic level

D. none of these

**Answer: A**



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87. Sequence of species through which the organic molecules in a community passes is called:

- A. ecosystem
- B. food chain
- C. Population
- D. ecological pyramid

**Answer: B**

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88. Food chain is:

- A. transfer of chemical energy from producers to consumers
- B. a number of human beings forming a chain for food
- C. animals near a source of food



D. none of the above

**Answer: A**



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**89.** In a food chain, as we go from lower to higher trophic level, the energy:

A. becomes doubled at each step

B. increases irregularly

C. remains constant

D. decreases

**Answer: D**



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90. Food chains are met only in the:

A. sea

B. forests

C. deserts

D. in all of these places

**Answer: D**



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91. Which of the following food chains is correct?

A. Grasses → Fox → Rabbit

B. Phytoplankton → Zooplankton → Fish

C. Grasses → Chameleon → Insects → Birds

D. Fallen leaves → Bacteria → Insect → Birds

**Answer: B**



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**92.** Which of the following is the correct sequence in the food chain?

A. Grass → Wolf → Deer → Buffalo

B. Grass → Snake → Insect → Deer

C. Grass → Insect → Bird → Snake

D. Bacteria → Grass → Rabbit → Wolf

**Answer: C**



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**93.** Which of the following is a correct food chain?

A. Eagle → Snake → Grasshopper → Grass → Frog

B. Frog → Snake → Eagle → Grasshopper → Grass

C. Grasshopper → Grass → Snake → Frog → Eagle

D. Grass → Grasshopper → Frog → Snake → Eagle

**Answer: D**



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**94.** Which of the following is correct about food chain?

A. Zooplankton → Phytoplankton → Fishes

B. Phytoplankton → Fishes → Zooplankton

C. Phytoplankton → Zooplankton → Fishes

D. None of the above

**Answer: C**



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95. The food chain in which microorganisms break down the energy rich compounds synthesized by producers, is called:

- A. ecosystem
- B. predator food chain
- C. detritus food chain
- D. parasitic food chain

**Answer: C**



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96. The detritus food chain begins with:

- A. primary producers and primary consumers
- B. primary consumers
- C. secondary consumers
- D. dead organic matter

**Answer: D**



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**97.** Identify the correct type of food chain.

Dead animal → Blowfly maggots → Common frog → Snake:

- A. grazing food chain
- B. detrital food chain
- C. predator food chain
- D. decomposer food chain

**Answer: B**



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**98.** Which one of the following shows detritus food chain?

A. Organic wastes → Bacteria → Molluses

B. Plankton → Small fishes → Large fishes

C. Grass → Insect → Snake

D. All of the above

**Answer: A**

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**99.** In a tiger reserve, the tiger is placed in the:

A. apex of the food chain

B. bottom of the food chain

C. core of the reserve forest

D. centre of complex food web

**Answer: A**

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**100.** The statement "Tiger is the apex of food chain" indicates

- A. tiger is carnivorous
- B. tiger has many enemies
- C. tiger has maximum biomass
- D. tiger is dependent upon large number of herbivores and even more number of trees in forest

**Answer: A**



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**101.** In a food chain, lion is a:

- A. secondary consumer
- B. primary consumer



C. tertiary consumer

D. secondary producer

**Answer: C**



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**102. Ecosystem creates:**

A. Food chain

B. Food web

C. Both of these

D. None of these

**Answer: C**



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**103.** In a pond ecosystem, the food chain starts with:

- A. small fishes
- B. aquatic insects
- C. zooplankton
- D. phytoplankton

**Answer: D**



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**104.** A food chain begins with:

- A. nitrogen fixation
- B. carbon dioxide fixation
- C. carbohydrate metabolism
- D. decomposition of dead substances

**Answer: B**



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**105.** The first link in any food chain is green plants because:

- A. they are firmly fixed to soil
- B. they are widely distributed
- C. they alone have the capacity to fix the atmospheric  $CO_2$  in the presence of sunlight
- D. there are more herbivorous animals than carnivores

**Answer: C**



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**106.** When man eats fish, which feeds on zooplankton, which have eaten small plants, the producer in the chain is:

A. fish

B. man

C. small plants

D. zooplankton

**Answer: C**



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**107.** Assertion (A) : In a food chain members of successive higher levels are fewer in number.

Reason (R) : Number of organisms at any trophic level depends upon the availability of organisms which serve as food at the lower level.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true but (R) is not the correct explanation of

(A)

C. (A) is true statement but (R) is false

D. Both (A) and (R ) are false

**Answer: A**



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**108.** In grazing food chain, carnivores may also referred to as:

- A. primary producers
- B. secondary producers
- C. primary consumers
- D. secondary consumers

**Answer: D**



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**109.** Which of the following statements regarding food chain is false?

- A. In an aquatic system, grazing food chain is the major conduct for energy flow
- B. In terrestrial ecosystem, a large fraction of energy flows through detritus food chain
- C. The detritus food chain begins with dead organic matter
- D. Primary consumers belong to the first trophic level

**Answer: D**



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**110.** Most food chains are composed of:

- A. 1 or 2 species
- B. 3 or 4 species
- C. 9 or 10 species
- D. More than 16 species

**Answer: B**



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**111.** In a food chain, herbivores are:

- A. decomposers
- B. primary producers
- C. primary consumers
- D. secondary consumers

**Answer: C**



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**112.** If phytoplanktons are destroyed from sea, then:

- A. algae will get more space to grow

B. primary consumers will grow luxuriantly

C. food chain will be affected

D. no effect will be seen

**Answer: C**



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**113.** Which of the following groups is absolutely essential functional component of the ecosystem?

A. Producers

B. Detritivores

C. Producers and herbivores

D. Producers and detritivores

**Answer: D**



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**114.** Food chain is a series of population which starts with producers. It is concerned with:

- A. energy flow and transfer of nutrients
- B. biotic components only
- C. biotic and decomposers
- D. both (a) and (b)

**Answer: D**



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**115.** During food chain, the maximum energy is stored in:

- A. producers
- B. herbivores
- C. carnivores

D. decomposers

**Answer: A**



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**116.** 1. Plants, 2. Rabbit, 3. Fox and 4. Lion are the components of a food chain. In this food chain, the maximum energy will be found in:

A. 3

B. 4

C. 2

D. 1

**Answer: D**



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**117.** Study the following statements regarding food chains and select the correct ones.

(i) Removal of 80% tigers from an area resulted in greatly increased growth of vegetation.

(ii) Removal of most of the carnivores resulted in an increased population of deers.

(iii) The length of food chains is generally limited to 3-4 trophic levels due to energy loss.

(iv) The length of food chains may vary from 2 to 8 trophic levels.

A. 1 and 2

B. 2 and 3

C. 3 and 4

D. 1 and 4

**Answer: B**



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**118.** Food levels in an ecosystem are called:

- A. trophic levels
- B. consumer levels
- C. producer levels
- D. herbivore levels

**Answer: A**



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**119.** Ecosystem contains:

- A. producers
- B. consumers
- C. decomposers
- D. all of these

**Answer: D**



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**120.** Trophic levels in ecosystem is formed by:

- A. only plants
- B. only bacteria
- C. only herbivorous
- D. organisms linked in food chain

**Answer: D**



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**121.** Which are the biotic components of forest ecosystem?

- A. Producers

B. Consumers

C. decomposers

D. All of these

**Answer: D**



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**122.** The most important organisms for a biosystem are:

A. herbivores

B. carnivores

C. green plants

D. protozoa

**Answer: C**



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**123.** Green plants form:

- A. complete food chain
- B. first trophic level
- C. second trophic level
- D. third trophic level

**Answer: B**



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**124.** Energy and nutrients enter a community through:

- A. producers
- B. herbivores
- C. carnivores
- D. decomposers

**Answer: A**



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**125.** In every ecosystem, the green plants are:

- A. decomposers
- B. producers
- C. consumers
- D. none of these

**Answer: B**



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**126.** The dominant producers in the neritic zone of the sea are:

- A. diatoms



B. zooplankton

C. phytoplankton

D. microorganism

**Answer: C**



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**127. Phytoplanktons are:**

A. producers of forest

B. producers of lake

C. consumers of sea

D. decomposers of land

**Answer: B**



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**128.** Which of the following is not a producer?

- A. Nostoc
- B. Volvox
- C. Agaricus
- D. Spirogyra

**Answer: C**



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**129.** Most of the energy is present in:

- A. Producers
- B. Herbivores
- C. carnivores
- D. Tertiary consumers

**Answer: A**



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**130.** If the carbon atoms fixed by producers already have passed through three species, the trophic level of the last species would be

- A. scavenger
- B. tertiary producer
- C. tertiary consumer
- D. secondary consumer

**Answer: C**



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**131.** Biological equilibrium is an equilibrium among the:

- A. producers
- B. producers and consumers
- C. producers and decomposers
- D. producers, consumers and decomposers

**Answer: D**

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**132.** In an ecosystem, bacteria are:

- A. Microconsumers
- B. Macroconsumers
- C. Primary consumers
- D. Secondary consumers

**Answer: A**

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133. In a terrestrial ecosystem such as forest, maximum energy is at trophic level:

A.  $T_1$

B.  $T_2$

C.  $T_3$

D.  $T_4$

**Answer: A**



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134. A bamboo plant is growing in a forest. What will be its trophic level?

A. First trophic level ( $T_1$ )

B. Second trophic level ( $T_2$ )

C. Third trophic level ( $T_3$ )

D. Fourth trophic level ( $T_4$ )

**Answer: A**



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**135.** The trophic level of lion in a forest ecosystem is:

A.  $T_3$

B.  $T_4$

C.  $T_2$

D.  $T_1$

**Answer: B**



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**136.** In an aquatic ecosystem, the organism present at the trophic level equivalent to cows in grasslands is

- A. nekton
- B. Benthos
- C. Phytoplankton
- D. zooplankton

**Answer: D**



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**137.** Which one of the following types of organisms occupy more than one trophic level in a pond ecosystem?

- A. fish
- B. Frog
- C. Zooplankton

D. Phytoplankton

**Answer: A**



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**138.** Which one of the following animals may occupy more than one trophic levels in the same ecosystem at the same time?

A. Frog

B. Sparrow

C. Lion

D. Goat

**Answer: B**



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**139.** The second trophic level of longer food chains in a lake is:

- A. fishes
- B. benthos
- C. zooplankton
- D. phytoplankton

**Answer: C**



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**140.** An organism contains carbon molecules which have passed through three levels of ecosystem. The organism is a:

- A. predator
- B. producer
- C. primary consumer
- D. Tertiary consumer

**Answer: D**



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**141.** Stability of ecosystem depends upon:

- A. primary productivity
- B. number of producers
- C. number of consumers
- D. interchange between producers and consumers

**Answer: D**



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**142.** Peacock eats a snake and snake eats frog and frog eats insect while insect eats green plant, then position of peacock is:

- A. decomposer
- B. primary producer
- C. secondary producer
- D. top at the apex of food pyramid

**Answer: D**

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**143.** These belong to the category of primary consumers:

- A. snakes and frogs
- B. water insects
- C. insects and cattle
- D. eagle and snakes

**Answer: C**

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**144.** Which one of the following is a primary consumer?

- A. Carnivore
- B. Herbivore
- C. Producer
- D. None of these

**Answer: B**



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**145.** Mr. X is eating curd/yoghurt. For this food intake in a food chain he should be considered as occupying:

- A. first trophic level
- B. second trophic level
- C. third trophic level

D. fourth trophic level

**Answer: C**



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**146.** The minimum number of components required for an ecosystem to survive:

- A. producer and decomposer
- B. producer and primary consumer
- C. producer and secondary consumer
- D. primary consumer and decomposer

**Answer: A**



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**147.** Study the four statement (i-iv) given below and select the two correct ones out of them

(i) A lion eating a deer and a sparrow feeding on grains are ecologically similar in being consumers.

(ii) Predator star fish *Pisaster* helps in maintaining species diversity of some invertebrates

(iii) Predators ultimately lead to the extinction of prey species

(iv) Production of chemicals such as nicotine, strychnine by the plants are metabolic disorders

The two correct statements are

A. 1 and 2

B. 1 and 4

C. 2 and 3

D. 3 and 4

**Answer: A**



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**148.** Mass of living matter at a trophic level in an area at any time is called:

- A. detritus
- B. humus
- C. standing state
- D. standing crop

**Answer: D**



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**149.** Standing crop refers to:

- A. All the living forms in an area
- B. All the crop plants in an area
- C. All the photosynthetic living forms in an area

D. The amount of living matter in a component population of an ecosystem at any time

**Answer: D**



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**150.** Interlocking of food chains results in:

A. food link

B. food lock

C. food web

D. ecological pyramid

**Answer: C**



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**151.** Extinction of a species in a food chain is compensated by:

- A. food web
- B. food chain and decomposers
- C. ecological pyramid
- D. none of these

**Answer: A**



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**152.** In food web, hyaenas and vultures are:

- A. predators
- B. scavengers
- C. decomposers
- D. primary consumers

**Answer: B**

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**153.** Assertion (A) : A network of food chains existing together in an ecosystem is known as a food web.

Reason (R) : An animal-like kite cannot be a part of a food web.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false
- D. Both (A) and (R) are false

**Answer: C**

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**154.** Graphic representation of biomass relationship between the producer and consumer in an ecosystem is called:

- A. ecological system
- B. trophic levels
- C. ecological niche
- D. ecological pyramid

**Answer: D**



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**155.** Ecological pyramids were first devised by:

- A. Charles Elton
- B. R. Hesse
- C. R. A. Lindeman
- D. Justus von Liebig

**Answer: A**



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**156.** Tip of ecological pyramid is occupied by:

- A. herbivores
- B. carnivores
- C. producers
- D. none of these

**Answer: B**



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**157.** Which one of the following is not used for construction of ecological pyramids?

- A. Dry weight
- B. Fresh weight
- C. Rate of energy flow
- D. Number of individuals

**Answer: B**

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**158.** The relationship in an ecosystem can be depicted in:

- A. pyramid of energy
- B. pyramid of biomass
- C. pyramid of numbers
- D. all of these

**Answer: D**

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**159.** When the number of organisms at successive levels are plotted they assume the shape of a pyramid. This is called the pyramid of:

- A. Biomass
- B. Number
- C. Energy
- D. None of these

**Answer: B**



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**160.** The pyramid of numbers deals with the number of:

- A. species in a community
- B. subspecies in a community
- C. individuals in a community

D. individuals in a trophic level

**Answer: D**



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**161.** In ecological pyramid of numbers from base to apex, the number of carnivores:

A. increases

B. decreases

C. remains static

D. none of these

**Answer: A**



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**162.** In a pyramid of numbers in a grassland ecosystem, the large population is that of:

- A. producers
- B. herbivores
- C. primary consumers
- D. secondary consumers

**Answer: A**



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**163.** Pyramid of numbers is

- A. Always upright
- B. Always inverted
- C. Either upright or inverted
- D. Neither upright nor inverted



**Answer: C**



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**164.** Which of the following pyramid of numbers in ecology is not upright?

- A. Pond ecosystem
- B. Desert ecosystem
- C. Tree ecosystem
- D. Forest ecosystem

**Answer: C**



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**165.** The upright pyramid of number is absent in:

- A. lake
- B. pond
- C. forest
- D. grassland

**Answer: C**

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**166.** Which of the following is true in case of pond ecosystem?

- A. Pyramid of energy is always inverted
- B. Pyramid of biomass is always upright
- C. Pyramid of energy is always upright
- D. None of the above

**Answer: C**

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**167.** The pyramid of numbers of a parasitic food chain in a forest ecosystem is:

- A. always upright
- B. Always inverted
- C. mixture of inverted and upright
- D. sometimes inverted and sometimes upright

**Answer: B**



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**168.** In a food chain, the total amount of living material is depicted by:

- A. pyramid of biomass
- B. trophic levels
- C. pyramid of number

D. pyramid of energy

**Answer: A**



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**169.** Inverted pyramid is found in:

- A. energy pyramid of grassland
- B. biomass pyramid of grassland
- C. biomass pyramid of aquatic system
- D. pyramid of number of aquatic system

**Answer: C**



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**170.** In a lake ecosystem, pyramid of biomass is:

- A. inverted
- B. always upright
- C. sometimes upright
- D. upright and sometimes inverted

**Answer: A**

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**171.** This is an inverted pyramid:

- A. Pyramid of energy in a pond ecosystem
- B. Pyramid of biomass in a pond ecosystem
- C. Pyramid of biomass in a grassland ecosystem
- D. Pyramid of number in a grassland ecosystem

**Answer: B**

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172. An inverted pyramid of biomass can be found in which ecosystem?

A. Marine

B. Forest

C. Tundra

D. Grassland

**Answer: A**



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173. In a lake ecosystem, pyramid of biomass is:

A. upright

B. inverted

C. anything is possible

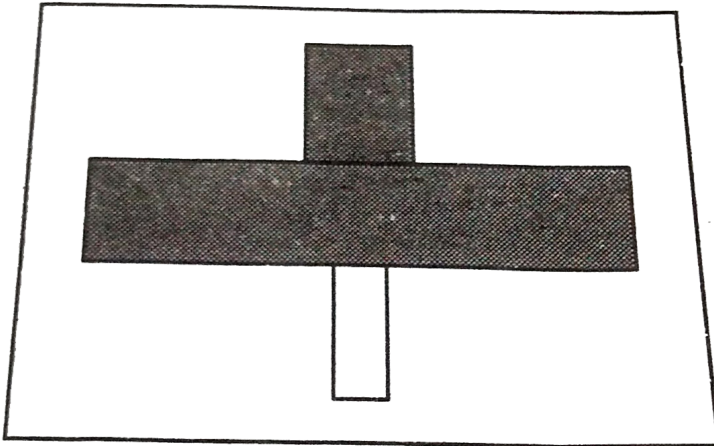
D. none is correct

Answer: B



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174. Given below is one of the types of ecological pyramids. This type represents:



- A. energy pyramid in a spring
- B. pyramid of biomass in a lake
- C. pyramid of numbers in a grassland

D. pyramid of biomass in a fallowland

**Answer: B**



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**175.** Which one of the following regarding ecological pyramid is not correct?

- A. In most ecosystem, the pyramid of numbers and biomass are upright
- B. In deep water ecosystem, the pyramid of biomass is upright
- C. In tree-dominated ecosystem, the pyramid of numbers is inverted
- D. The pyramid of energy expresses mainly the rate of food production

**Answer: B**



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176. The greatest biomass of autotrophs in the world's oceans is that of:

- A. free-floating micro-algae, cyanobacteria and nanoplankton
- B. benthic brown algae, coastal red algae and daphnids
- C. benthic diatoms and marine viruses
- D. sea grasses and slime moulds

**Answer: A**



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177. Which type of pyramid of energy is inverted?

- A. Tree
- B. Grassland
- C. Both of these
- D. None of these

**Answer: D**



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**178.** Which one of the following always have steeper slope?

- A. Pyramid of biomass
- B. Pyramid of energy
- C. Pyramid of number
- D. None of these

**Answer: B**



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**179.** Assertion (A) : Energy pyramid is slopping.

Reason (R) : The energy of one trophic level is lower than another level as we go up.

- A. Both (A) and (R ) are true and (R ) is the correct explanation of (A)
- B. Both (A) and (R ) are true but (R ) is not the correct explanation of (A)
- C. (A) is true statement but (R ) is false
- D. Both (A) and (R ) are false

**Answer: A**



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**180.** The pyramid of energy is always:

- A. inverted
- B. upright
- C. both upright and inverted
- D. inverted in forest ecosystem

**Answer: B**



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**181.** Pyramid of energy in a pond ecosystem is always:

- A. linear
- B. upright
- C. irregular
- D. inverted

**Answer: B**



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**182.** Which pyramid is always upright, can never be inverted?

- A. Pyramids of energy
- B. Pyramids of biomass
- C. Pyramids of number

## D. Pyramids of dry biomass

**Answer: A**



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**183.** The pyramid of energy is always upright for any ecosystem. This situation indicates the fact that:

- A. producers have the lowest energy conversion efficiency
- B. carnivores have a better energy conversion efficiency than herbivores
- C. energy conversion efficiency is the same in all trophic levels
- D. herbivores have a better energy conversion efficiency than carnivores

**Answer: D**



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184. The pyramid of energy in a forest ecosystem is:

- A. Always upright
- B. Always inverted
- C. both (a) and (b)
- D. none of these

**Answer: A**



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185. Pyramid of energy in a river ecosystem is:

- A. constant
- B. declining
- C. always upright
- D. always erect

**Answer: C**



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**186.** Which one of the following statements for pyramid of energy is incorrect whereas remaining three are correct?

- A. Its base is broad
- B. It is upright in shape
- C. It is inverted in shape
- D. It shows energy content of different trophic level organisms

**Answer: C**



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**187.** A progressive series of changes in plant and animal life of an area from initial colonization is known as:

- A. selection
- B. revolution
- C. specialization
- D. succession

**Answer: D**

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**188.** During the process of ecological succession, the changes that take place in communities are

- A. random
- B. very quick
- C. orderly and sequential
- D. not influenced by the physical environment.

**Answer: C**



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**189.** Primary succession occurs in:

- A. previously unoccupied area
- B. previously occupied area
- C. both of the above
- D. none of the above

**Answer: A**

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**190.** Which are the first organisms to colonize on a bare rock?

- A. Fungi
- B. Mosses
- C. Lichens

D. Diatoms

**Answer: C**



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**191.** In primary succession on rocks, the pioneer species are usually:

A. Algae

B. Fungi

C. Lichens

D. Bryophytes

**Answer: C**



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**192.** Lichen is the pioneer vegetation of which succession?

A. Lithosere

B. Xerosere

C. Hydrosere

D. Psammosere

**Answer: B**



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**193.** A place was rocky and barren but now, there is a green forest, the sequence of origin is:

A. lichen, Moss, herbs, shrubs

B. moss, lichen, herbs, shrubs

C. lichen, moss, shrubs, herbs

D. shrub, herbs, moss, lichen

**Answer: A**

194. The sequence of communities of primary succession in water is

- A. phytoplankton, sedges, free-floating hydrophytes, rooted hydrophytes, grasses and trees
- B. phytoplankton, free-floating hydrophytes, rooted hydrophytes, sedges, grasses and trees
- C. free-floating hydrophytes, sedges, phytoplankton, rooted hydrophytes, grasses and trees
- D. phytoplankton, rooted submerged hydrophytes, floating hydrophytes, reed swamp, sedges, meadow and trees

**Answer: D**

**195.** Which one of the following statements is correct for secondary succession?

A. It begins on a bare rock

B. It occurs on a deforested site

C. It follows primary succession

D. It is similar to primary succession except that it has relatively fast  
pace

**Answer: B**



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**196.** The final stable community in ecological succession is:

A. Sere

B. Climax

C. Pioneers

D. Carnivores

**Answer: B**



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**197.** Last stable community in succession which depends on climate is:

- A. seral community
- B. climax community
- C. both (a) and (b)
- D. none of these

**Answer: B**



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**198.** Climax community is in a state of

- A. equilibrium
- B. disorder
- C. non-equilibrium
- D. constant change.

**Answer: A**

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**199.** In a climax community:

- A. size of individual is small
- B. efficiency of energy use is low
- C. food chain and food web is complex
- D. ecological niches are few generalised compared to adjoining communities

**Answer: C**



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**200.** Regeneration of community is due to:

- A. camouflage
- B. climax community
- C. primary succession
- D. secondary succession

**Answer: B**



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**201.** An ecosystem which can be easily damaged but can recover after some time if damaging effect stops, will be having.

- A. High stability and Low resilience
- B. Low stability and Low resilience



C. High stability and High resilience

D. Low stability and High resilience

**Answer: D**



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**202.** Each couple should produce only two children which will help in

A. checking pollution

B. improving food web

C. stabilizing the ecosystem

D. increasing fertility of soil

**Answer: C**



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**203.** Cycling of elements in an ecosystem is called

Or

Which of the following cycle would be affected if decomposers of an ecosystem vanish

- A. chemical cycle
- B. geological cycle
- C. geochemical cycle
- D. biogeochemical cycle

**Answer: D**



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**204.** The natural cycle that circulates elements between the Earth and the environment is called:

- A. Nitrogen cycle

- B. Chemical cycle
- C. Biogeochemical cycle
- D. Biological cycle

**Answer: C**



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**205.** Cycling of elements in an ecosystem is called

Or

Which of the following cycle would be affected if decomposers of an ecosystem vanish

- A. Producer's cycle
- B. Consumer's cycle
- C. Decomposer's cycle
- D. Biogeochemical cycle

**Answer: D**



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**206.** Biogeochemical cycling means cycling of:

- A. water
- B. energy in an ecosystem
- C. nutrients in an ecosystem
- D. gases between plants and the atmosphere

**Answer: C**



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**207.** The reservoir for the gaseous type of biogeochemical cycle exists in

- A. stratosphere

B. atmosphere

C. ionosphere

D. lithosphere

**Answer: B**



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**208.** Among the following biogeochemical cycles, which one does not have losses due to respiration?

A. Sulphur

B. Nitrogen

C. Phosphorus

D. All of these

**Answer: D**



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**209.** The interchange of water between the Earth's surface and atmosphere is:

- A. Hydrologic cycle
- B. Mineral cycle
- C. Humidity cycle
- D. biogeochemical cycle

**Answer: A**



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**210.** Select the correct match:

- |                                |                |
|--------------------------------|----------------|
| 1 Sedimentary nutrient cycle   | Nitrogen cycle |
| 2 Pioneer species              | Lichens        |
| 3 secondary succession         | Burned forests |
| 4 Pyramid of biomass<br>in sea | Upright        |

A. 1, 2 and 4 only

B. 1 and 3 only

C. 2 and 3 only

D. 2 and 4 only

**Answer: C**



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**211.** Some of the nutrient cycles are labelled as below.

1. Sulphur cycle, Phosphorus cycle, 3. Carbon cycle and
4. Nitrogen cycle.

Of these, the sedimentary cycle is represented by:

A. 1 only

B. 2 only

C. 3 only

D. 1 and 2 only

**Answer: D**



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**212.** A sedimentary type of biogeochemical cycle is:

- A. Carbon cycle
- B. Sulphur cycle
- C. Nitrogen cycle
- D. Hydrologic cycle

**Answer: B**



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**213.** The presence of large amount of nitrogen in the atmosphere is due to:



- A. Nitrites
- B. Ammonia
- C. Decomposers
- D. Nitrogen cycle

**Answer: D**

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**214.** Which of the following play an important role in the maintenance of the biogeochemical cycles in the ecosystem?

- A. Producers
- B. Herbivores
- C. Consumers
- D. Decomposers

**Answer: D**

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215. Which one of the following is not a gaseous biogeochemical cycle in ecosystem?

- A. Oxygen cycle
- B. Carbon cycle
- C. Nitrogen cycle
- D. Phosphorus cycle

**Answer: D**

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216. Which of the following is the logical sequence of carbon cycle?

- A. Photosynthesis → Consumer → Decomposer
- B. Photosynthesis → Decomposer → Consumer

C. Consumer → Photosynthesis → Decomposer

D. Decomposer → Photosynthesis → Consumer

**Answer: A**



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**217.** The natural cycling of carbon between organisms and their environment is directly accomplished through:

A. photosynthesis and respiration

B. radiations of solar energy

C. nutrition and excretion

D. all of the above

**Answer: A**



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**218.** the main role of bacteria in the carbon cycle involves

- A. photosynthesis
- B. chemosynthesis
- C. assimilation of nitrogenous compounds
- D. digestion or breakdown of organic compounds

**Answer: D**



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**219.** Which one of the following is the sedimentary cycle?

- A. Carbon cycle
- B. Oxygen cycle
- C. Hydrogen cycle
- D. Phosphorus cycle

**Answer: D**



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**220.** In which of the following cycles, does the reservoir of the nutrient exist in material form?

- A. water cycle
- B. Carbon cycle
- C. Phosphorus cycle
- D. Nitrogen cycle

**Answer: C**



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**221.** Which of the following are reservoirs for phosphorus and nitrogen cycle respectively?

- A. consumers
- B. Bedrocks and Atmosphere
- C. Atmosphere and Bedrocks
- D. Atmosphere and Producers

**Answer: B**

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**222.** In the phosphorus cycle, weathering makes phosphate available first to:

- A. producers
- B. decomposers
- C. consumers
- D. none of these

**Answer: A**

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**223.** The species, though insignificant in number, determine the existence of many other species in a given ecosystem. Such species is known as:

- A. sacred species
- B. extinct species
- C. keystone species
- D. endemic species

**Answer: C**

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**224.** Name the term used to describe a single dominant species that dictates community structure:

- A. pioneer species

B. transitional species

C. indigenous species

D. keystone species

**Answer: D**



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**225.** The species of plants that play a vital role in controlling the relative abundance of other species in a community are called

A. edge species

B. link species

C. keystone species

D. pioneer species

**Answer: C**



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**226.** The concept of a keystone species' was first introduced by:

- A. Roy Clapham
- B. Arthur Tansley
- C. Charles Elton
- D. Robert T. Paine

**Answer: D**



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**227.** Keystone species in an ecosystem are those:

- A. contributing to ecosystem properties
- B. present in maximum number
- C. that are most frequent
- D. attaining large biomass

**Answer: A**



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**228.** Which of the following statements is not true?

- A. Keystone species adversely affect biodiversity.
- B. A keystone species is critical for the survival of other species in its community.
- C. If a keystone species is driven to extinction it is likely that other species will also disappear.
- D. Many animals depend on these keystone species for food, or other benefits that aid in their survival.

**Answer: A**



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**229.** Keystone species deserve protection because these

- A. have become rare due to over exploitation
- B. indicate presence of certain minerals in the soil
- C. play an important role in supporting other species
- D. are capable of surviving in harsh environmental conditions

**Answer: C**



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**230.** What is a keystone species?

- A. A dominant species that constitutes a large proportion of the biomass and which affects many other species
- B. A species which makes up only a small proportion of the total biomass of a community, yet has a huge impact on the community's organization and survival

C. A common species that has plenty of biomass, yet has a fairly low impact on the community's organization

D. A rare species that has minimal impact on the biomass and on other species in the community

**Answer: B**

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**231.** Area where two ecosystem overlap each other:

A. niche

B. ecotone

C. ecotype

D. edge line

**Answer: B**

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**232.** The boundary or transition between two or more communities which are sharply defined is called:

- A. Biome
- B. Ecotype
- C. Ecotone
- D. Thermocline

**Answer: C**



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**233.** Which of the following is an ecosystem service provided by a natural ecosystem?

- A. Pollutant absorption and reduction of the threat of global warming.
- B. Prevention of soil erosion

C. Cycling of nutrients

D. All of the above

**Answer: D**



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**234.** Identify the possible link "A" in the following food chain : Plant → insect → frog → "A" → eagle:

A. rabbit

B. wolf

C. cobra

D. parrot

**Answer: C**



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235. Given below is an imaginary pyramid of number



Which of the following could be a possibility regarding it ?

- A. Level PC is "insects" and level SC is "small insectivorous birds"
- B. Level PP is "phytoplanktons" in sea and "whale" on top level TC
- C. Level one PP is "pipal trees" and the level SC is "sheep"
- D. Level PC is "rats" and level SC is "cats"

**Answer: A**



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236. Which one of the following is not a function of an ecosystem?

- A. Energy flow
- B. Productivity
- C. Stratification

## D. Decomposition

**Answer: C**



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**237.** In a particular climatic condition, decomposition rate is slower if:

- A. detritus is rich in humus
- B. detritus is rich in sugars
- C. detritus is rich in nitrogen
- D. detritus is rich in water soluble substances

**Answer: D**



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**238.** An inverted pyramid of number and an inverted pyramid of biomass are respectively seen in:

- A. sea and tree ecosystem
- B. tree and sea ecosystem
- C. sea and grassland ecosystem
- D. tree and grassland ecosystem

**Answer: B**



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**239.** The biomass available for consumption to heterotrophs and the rate formation of new organic matter by consumers are defined as

- A. gross primary productivity and net primary productivity respectively
- B. net primary productivity and gross primary productivity respectively
- C. gross primary productivity and secondary productivity respectively

D. net primary productivity and secondary productivity respectively

**Answer: D**



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**240.** The rate of formation of new organic matter by rabbit in a grassland, is called.

- A. Net productivity
- B. Secondary productivity
- C. Net primary productivity
- D. Gross primary productivity

**Answer: B**



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**241.** The second stage of hydrosere is occupied by plants like

A. Salix

B. Azolla

C. Typha

D. Vallisneria

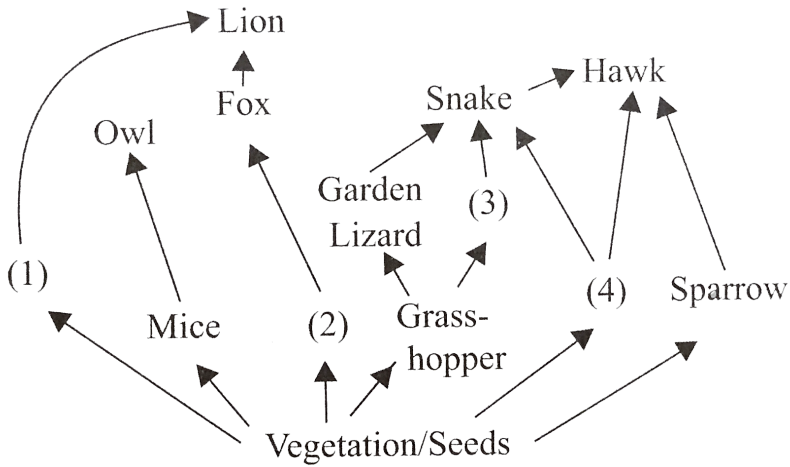
**Answer: D**



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**242.** Given food web contains some missing organisms, 1,2,3 and 4.

Identify these organisms and select the correct answer?



- A. (1) deer (2) rabbit (3) frog (4) rat
- B. (1) dog (2) squirrel (3) bat (4) deer
- C. (1) rat (2) dog (3) tortoise (4) crow
- D. (1) squirrel (2) cat (3) rat (4) pigeon

**Answer: A**

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**243.** Which of the following cannot be recycled in an ecosystem?

- A. Water

B. Energy

C. Oxygen

D. Nitrogen

**Answer: B**



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**244.** Which of the following relations is correct regarding GPP and NPP of an ecosystem ?

A.  $NPP = GPP - \text{Plant respiration}$

B.  $NPP = GPP + \text{Plant respiration}$

C.  $NPP = GPP + \text{Animal consumption}$

D.  $NPP = GPP - \text{Animal consumption}$

**Answer: A**



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**245.** Which one of the following has the largest population in a food chain?

- A. Producers
- B. decomposers
- C. Primary consumers
- D. Secondary consumers

**Answer: B**



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**246.** Natural reservoir of phosphorus is:

- A. Rock
- B. Fossils
- C. Sea water

## D. Animal bones

**Answer: A**



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**247.** Which one of the following processes during decomposition is correctly described?

- A. Humification - Leads to the accumulation of a dark coloured substance humus which undergoes microbial action at a very fast rate.
- B. Catabolism - Last step in the decomposition under fully anaerobic condition.
- C. Leaching - water soluble inorganic nutrients rise to the top layers of soil.
- D. Fragmentation - Carried out by organisms such as earthworm

**Answer: D**



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**248.** Secondary productivity is rate of formation of new organic matter by:

- A. parasite
- B. producer
- C. consumer
- D. decomposer

**Answer: C**



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**249.** The breakdown of detritus into smaller particles by earthworm is a process called



A. Leaching

B. Fragmentation

C. Humification

D. Catabolism

**Answer: B**



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**250.** The correct sequence of seral stages in hydrosere is:

A. plankton, submerged, floating, reed swamp, sedge meadow,  
woodland

B. plankton, floating, submerged, reed swamp, sedge meadow,  
woodland

C. plankton, submerged, floating, sedge meadow, reed swamp,  
woodland

D. plankton, submerged, floating, sedge meadow, woodland, reed  
swamp

**Answer: A**



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**251.** If 20 J of energy is trapped at producer level, then how much energy will be available to peacock as food in the following chain?

Plant → Mice → Snake → Peacock

A. 0.0002 J

B. 0.02 J

C. 0.002 J

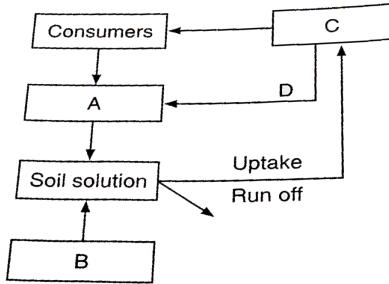
D. 0.2 J

**Answer: B**



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252. Given below is a simplified model of phosphorus cycling in a terrestrial ecosystem with four blanks (A-D). Identify the blanks.



	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(a)	Producers	Litter fall	Rock minerals	Detritus
(b)	Rock minerals	Detritus	Litter fall	Producers
(c)	Litter fall	Producers	Rock minerals	Detritus
(d)	Detritus	Rock minerals	Producers	Litter fall

A. A Producers B Litter fall C Rock minerals D Detritus

B. A Rock minerals B Detritus C Litter fall D Producers

C. A Litter fall B Producers C Rock minerals D Detritus

D. A Detritus B Rock minerals C Producers D Litter fall

**Answer: D**

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**253.** Which of the following statements about productivity is true?

- A. Primary productivity of all ecosystems is a constant.
- B. The annual net primary productivity of the whole of the biosphere is 17 billion tons (dry weight) of organic matter.
- C. Net primary productivity is the amount of biomass available for consumption by carnivores.
- D. Primary productivity is depends on plant species inhabiting in a particular area.

**Answer: D**

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254. According Robert Constanza, 50 % of the total cost for ecosystem services goes to:

- A. recreation
- B. soil formation
- C. nutrient cycling
- D. climate regulation

**Answer: B**



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255. The pioneer species in xerarch and hydrach succession, are respectively:

- A. lichens and sedges
- B. phytoplanktons and lichens
- C. lichens and phytoplanktons

D. sedges and phytoplanktons

**Answer: C**



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**256.** Which of the following statement(s) regarding energy flow is/are false?

- I. The detritus food chain begins with dead organic matter.
- II. In aquatic ecosystem, detritus food chain is the major conduit for energy flow.
- III. In terrestrial ecosystem a larger fraction of energy flows through grazing food chain.
- IV. Producers belong to the first trophic level of the food chain.

- A. I and II only
- B. I and IV only
- C. III and IV only
- D. II and III only

**Answer: D**



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**257.** Lindemann for the first time gave energy transfer law, which states that:

- A. only 20 % of the energy is transferred to each trophic level
- B. only 10 % of the energy is transferred to each trophic level
- C. only 30 % of the energy is transferred to each trophic level
- D. only 50 % of the energy is transferred to each trophic level

**Answer: B**



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**258.** Identify the incorrect statement from the following.

- A. Atmospheric inputs of phosphorous through rainfall are much smaller than carbon inputs.
- B. The reservoir pool for phosphorous cycle is earth's crust whereas atmosphere is the reservoir pool for carbon cycle.
- C. Gaseous exchanges of phosphorous between organism and environment are negligible.
- D. During carbon cycle and phosphorous cycle, there is very little respiratory release of carbon and phosphorous respectively.

**Answer: D**

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**259.** Identify the incorrect statement from the following:

- A. Pyramid of energy is mostly upright, but sometimes it may be inverted.



B. Pyramids of number and biomass may be either upright or inverted.

C. Pyramid of biomass in sea is generally inverted as the biomass of fish far exceeds that of phytoplanktons.

D. Food chains are generally short with few trophic levels as only 10% of the energy is transferred to each trophic level from the lower trophic level.

**Answer: A**



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**260.** Animals obtain all their carbon through:

A. air

B. soil

C. plants

D. water

**Answer: C**



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**261.** Gross primary productivity is the rate of production of \_\_\_\_\_ during photosynthesis.

- A. oxygen
- B. chlorophyll
- C. carbon dioxide
- D. organic matter

**Answer: D**



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**262.** The removal of 'keystone' species will affect the:

- A. producers
- B. ecosystem
- C. consumers
- D. decomposers

**Answer: B**

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**263.** Which of the following processes will be most adversely affected if microorganisms are removed from a forest ecosystem?

- A. Solar energy fixation and nutrient cycling
- B. Carbon assimilation and nitrogen fixation
- C. Decomposition of organic matter and photosynthesis
- D. Nitrogen fixation and decomposition of organic matter

**Answer: D**

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**264.** The mass of living material at a trophic level at a particular time is called:

- A. Standing crop
- B. Standing state
- C. Net primary productivity
- D. Gross primary productivity

**Answer: A**

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**265.** \_\_\_\_ is the rate of production of organic matter by consumers.

- A. Net productivity
- B. Secondary productivity

C. Net primary productivity

D. Gross primary productivity

**Answer: D**



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**266.** The first trophic level in an ecosystem consists of:

A. primary producers

B. primary consumers

C. secondary producers

D. secondary consumers

**Answer: A**



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**267.** Select the correct statement:

- A. Phosphorus cycle is an example of gaseous nutrient cycle.
- B. The pyramid of biomass in sea is generally inverted.
- C. By the process of humification, soluble inorganic nutrients go down into the soil horizon.
- D. A given organism may not occupy more than one trophic level simultaneously.

**Answer: B**



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**268.** The rate of biomass production and the rate of production of organic matter during photosynthesis are called respectively:

- A. gross primary productivity, gross secondary productivity
- B. net primary productivity, secondary productivity

C. net productivity, gross secondary productivity

D. productivity, gross primary productivity

**Answer: D**



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**269.** Pick out the correct option from (a) to (e).

A. Primary succession begins in areas where natural communities have been destroyed.

B. Hydrarch succession takes place in water.

C. The climax community is the community that is in near equilibrium with the immediate environment.

D. In newly cooled lava secondary succession occurs.

A. A and B are correct C and D are incorrect

B. A and D are correct, B and C are incorrect

C. B only is correct, A, C and D are incorrect

D. B and C are correct, A and D are incorrect

**Answer: D**



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**270.** The animal species controlling the ecosystem functioning is known as:

- A. edge species
- B. pioneer species
- C. keystone species
- D. umbrella species

**Answer: C**



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271. Match column I with column II:

Column I	Column II
P. Producer	i. Herbivores
Q. Primary consumer	ii. Green plants
R. Secondary consumer	iii. Saprotrophs
S. Decomposer	iv. Carnivores

- A. P-i, Q-ii, R-iii, S-iv
- B. P-ii, Q-i, R-iv, S-iii
- C. P-ii, Q-iv, R-iii, S-i
- D. P-iii, Q-ii, R-i, S-iv

**Answer: B**



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272. If energy produced at the level of the producers is 1000 J, the energy available for the secondary consumers is:

- A. 10 J

B. 1 J

C. 1000 J

D. 100 J

**Answer: A**



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**273.** For the sedimentary type of biogeochemical cycles the reservoir is:

A. atmosphere

B. water

C. earth's crust

D. living organisms

**Answer: C**



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274. If 30 J of energy is trapped at producer level, then how much energy will be available to peacock as food in the following chain?

Plant → Mice → Snake → Peacock

- A. 0.3 J
- B. 0.03 J
- C. 0.0003 J
- D. 0.003 J

**Answer: B**



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275. In an ecosystem, the biotic components herbivores are:

- A. photosynthetic
- B. chemosynthetic
- C. microconsumers

D. macroconsumers

**Answer: D**

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**276.** During ecological succession:

- A. the establishment of a new biotic community is very fast in its primary phase.
- B. the numbers and types of animals remain constant.
- C. the gradual and predictable change in species composition occurs in a given area.
- D. the changes lead to a community that is in near equilibrium with the environment and is called pioneer community.

**Answer: C**

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277. In which of the following both pairs have correct combination?

A.

Gaseous nutrient cycle Sedimentary nutrient cycle Carbon and S

B.

Gaseous nutrient cycle Sedimentary nutrient cycle Carbon and N

C.

Gaseous nutrient cycle Sedimentary nutrient cycle Nitrogen and

D.

Gaseous nutrient cycle Sedimentary nutrient cycle Sulphur and

**Answer: B**



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278. Most animals that live in deep oceanic waters are:

- A. detritivores
- B. primary consumers
- C. tertiary consumer
- D. secondary consumers

**Answer: A**

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**279.** Which stage comes first in xerarch succession?

- A. Moss
- B. Shrub
- C. Lichen
- D. Annual herb

**Answer: C**

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**280.** The term ecosystem was coined by:

A. A.G. Tansley

B. E.P. Odum

C. E. Haeckel

D. E. Warming

**Answer: A**



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**281.** Which of the following would appear as the pioneer organisms on bare rocks?

A. Mosses

B. Lichens

C. Liverworts

D. Green algae

**Answer: B**



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**282.** Which one of the following is a characteristic feature of cropland ecosystem?

- A. Absence of weeds
- B. Ecological succession
- C. Least genetic diversity
- D. Absence of soil organisms

**Answer: C**



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**283.** The primary producers of the deep-sea hydrothermal vent ecosystem are:

- A. Coral reefs
- B. Green algae
- C. Blue-green algae
- D. Chemosynthetic bacteria

**Answer: D**



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## Exemplar Problems

**1.** Decomposers like fungi and bacteria are:

- i. autotrophs
- ii. heterotrophs
- iii. saprotrophs
- iv. Chemo-autotrophs

Choose the correct answer:

A. i and iii

B. i and iv

C. i and ii

D. ii and iii

**Answer: D**



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2. The process of mineralisation by microorganisms helps in the release of

A. inorganic nutrients from humus

B. both organic and inorganic nutrients from detritus

C. organic nutrients from humus

D. inorganic nutrients from detritus and formation of humus.

**Answer: A**



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3. Productivity is the rate of production of biomass expressed in terms of:

*i.*  $(\text{kcal m}^{-3})\text{yr}^{-1}$

*ii.*  $\text{g}^{-2}\text{yr}^{-1}$

*iii.*  $\text{g}^{-1}\text{yr}^{-1}$

*iv.*  $(\text{kcal m}^{-2})\text{yr}^{-1}$

A. ii

B. iii

C. ii and iv

D. i and iii

**Answer: C**



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4. An inverted pyramid of biomass can be found in which ecosystem?

A. Forest

B. Marine

C. Grass land

D. Tundra

**Answer: B**



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5. Which of the following is not a producer?

A. Volvox

B. Nostoc

C. Agaricus

D. Spirogyra

**Answer: C**



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6. Which of the following ecosystems is most productive in terms of net primary production?

- A. Desert
- B. Oceans
- C. Estuaries
- D. Topical rain forests

**Answer: D**



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7. Pyramid of numbers is

- A. Always upright
- B. Always inverted
- C. Either upright or inverted
- D. Neither upright nor inverted

**Answer: C**



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**8.** Approximately how much of the solar energy that falls on the leaves of a plant is converted to chemical energy by photosynthesis?

A. 30 %

B. 50 %

C. 2 – 10 %

D. Less than 1 %

**Answer: C**



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**9.** Among the following where do you think the process of decomposition would be the fastest?

- A. Antarctic
- B. Alpine region
- C. Dry arid region
- D. Tropical rain forest

**Answer: D**



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**10.** How much of the net primary productivity of a terrestrial ecosystem is eaten and digested by herbivores?

- A. 1 %
- B. 10 %
- C. 40 %
- D. 90 %

**Answer: B**

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11. During the process of ecological succession, the changes that take place in communities are

- A. random
- B. very quick
- C. orderly and sequential
- D. Not influenced by the physical environment

**Answer: C**

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12. Climax community is in a state of

- A. equilibrium
- B. disorder



C. non-equilibrium

D. constant change.

**Answer: A**



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**13.** Among the following biogeochemical cycles, which one does not have losses due to respiration?

A. Sulphur

B. Nitrogen

C. Phosphorus

D. All of these

**Answer: D**



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14. The sequence of communities of primary succession in water is

- A. phytoplankton, sedges, free-floating hydrophytes, rooted hydrophytes, grasses and trees
- B. phytoplankton, free-floating hydrophytes, rooted hydrophytes, sedges, grasses and trees
- C. phytoplankton, rooted submerged hydrophytes, floating hydrophytes, reed swamp, sedges, meadow and trees.
- D. free-floating hydrophytes, sedges, phytoplankton, rooted hydrophytes, grasses and trees.

**Answer: C**



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15. The reservoir for the gaseous type of bio-geo chemical cycle exists in:

- A. stratosphere

B. atmosphere

C. ionosphere

D. lithosphere

**Answer: B**



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**16.** If the carbon atoms fixed by producers already have passed through three species, the trophic level of the last species would be

A. scavenger

B. tertiary producer

C. tertiary consumer

D. secondary consumer

**Answer: C**



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17. Which of the following type of ecosystem is expected in an area where evaporation exceeds precipitation, and mean annual rainfall is below 100mm:

- A. Desert
- B. Mangrove
- C. Grassland
- D. Shrubby forest

**Answer: A**



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18. The zone at the edge of a lake or ocean which is alternatively exposed to air and immersed in water is called.

- A. Lentic one

B. Pelagic zone

C. Littoral zone

D. Benthic zone

**Answer: C**



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**19. Edaphic factor refers to**

A. Soil

B. Water

C. Altitude

D. Relative humidity

**Answer: A**



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20. Which of the following is an ecosystem service provided by a natural ecosystem?

- A. Cycling of nutrients
- B. Prevention of soil erosion
- C. Pollutant absorption and reduction of the threat of global warming
- D. All of the above

**Answer: D**



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21. Which one of the following has the largest population in a food chain?

- A. Producers
- B. decomposers
- C. Primary consumers
- D. Secondary consumers

**Answer: B**



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**22.** The second trophic level of longer food chains in a lake is:

- A. Fishes
- B. Benthos
- C. Zooplankton
- D. Phytoplankton

**Answer: C**



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**23.** Secondary producers are:

- A. herbivores

B. Producers

C. Carnivores

D. None of these

**Answer: D**



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**24.** Percentage of photosynthetically active radiation (PAR) in the incident solar radiation is

A. 50 %

B. 100 %

C. 1 – 5 %

D. 2 – 10 %

**Answer: A**



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25. Plants are called as\_\_\_\_\_ because they fix carbon dioxide.

A. heterotrophs

B. autotrophs

C. saprotrophs

D. all of these

**Answer: B**



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26. In an ecosystem dominated by trees, the pyramid (of numbers) is\_\_\_ type.

A. upright

B. spindle shaped

C. Inverted

D. none of the above

**Answer: C**



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27. In aquatic ecosystem, the limiting factor for the productivity is:

A. light

B. rainfall

C. humidity

D. temperature

**Answer: A**



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28. Common detritivores in our ecosystem are:

- A. insect and bird
- B. algae and fungi
- C. bacteria and plant
- D. earthworm and snail

**Answer: D**

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**29.** The major reservoir of carbon on Earth is:

- A. rock
- B. ocean
- C. animal
- D. soil

**Answer: B**

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**30.** Consider the following statement with respect to ecosystems:

A. Two basic categories of ecosystems are pond and the grassland.

B. Forest, grassland and desert are some example of terrestrial ecosystems.

C. Crop fields and an aquarium may also be considered as natural ecosystems:

D. Pond, lake, wetland, river and estuary are some example of aquatic ecosystems.

Of the above statements:

A. B and D are correct

B. A and B are correct

C. A and C are correct

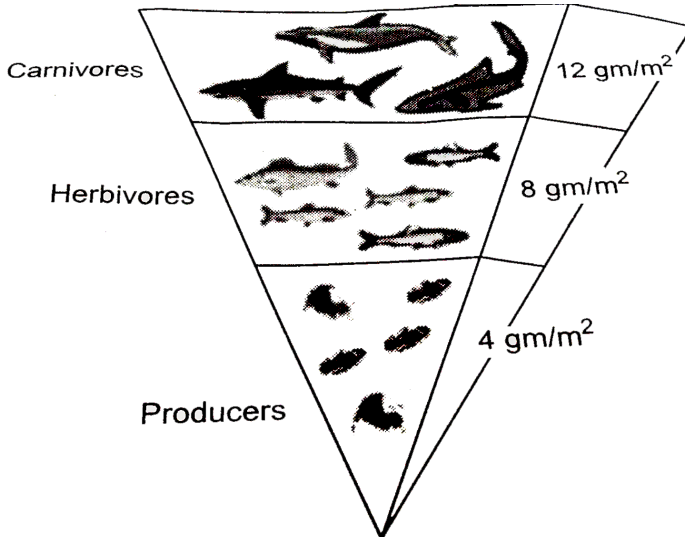
D. A and D are correct

**Answer: A**



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31. Which kind of ecological pyramid is represented by the figure given below:



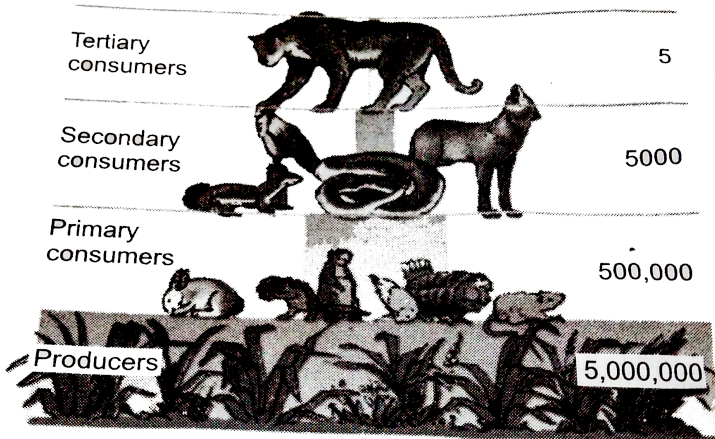
- A. Inverted pyramid of numbers
- B. Inverted pyramid of biomass
- C. Inverted pyramid of energy
- D. Upright pyramid of numbers

Answer: B



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32. Which kind of ecological pyramid is represented by the figure given below :



- A. Inverted pyramid of numbers
- B. Inverted pyramid of biomass
- C. Upright pyramid of energy
- D. Upright pyramid of numbers

Answer: D



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**33.** Which one of the following statements is incorrect?

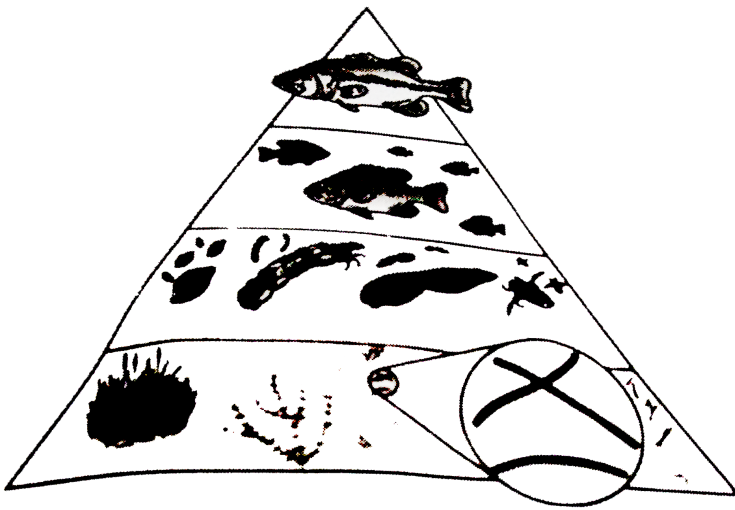
- A. Interaction of biotic and abiotic components results in a physical structure that is characteristic for each type of ecosystem.
- B. Horizontal distribution of different species occupying different levels is called stratification.
- C. The decomposers of a pond ecosystem are the fungi, bacteria and flagellates.
- D. The consumers of a pond ecosystem are represented by the zooplankton, the free swimming and bottom dwelling animals.

**Answer: B**



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**34.** Which kind of ecological pyramid is represented by the figure given below:



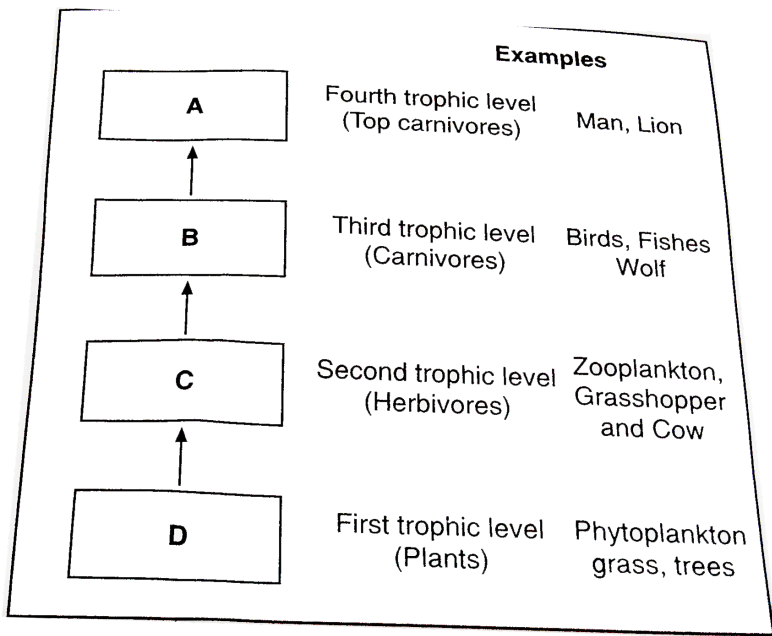
- A. Inverted pyramid of numbers in a forest ecosystem
- B. Upright pyramid of biomass in a pond ecosystem
- C. Upright pyramid of energy in an aquatic ecosystem
- D. Inverted pyramid of energy in a grassland ecosystem

**Answer: C**

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35. Diagrammatic representation of trophic levels in an ecosystem is given below. Identify A, B, C and D by selecting correct option:





A. A - Primary producer, B - Secondary consumer, C - Primary consumer,

D - Tertiary consumer

B. A - Primary consumer, B - Primary producer, C - Secondary consumer,

D - Tertiary consumer

C. A - Primary producer, B - Primary consumer, C - Secondary consumer,

D - Tertiary consumer

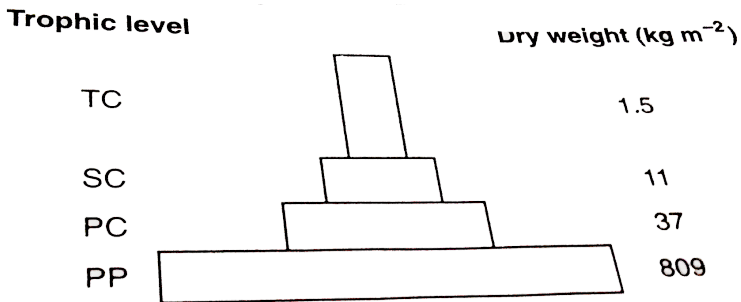
D. A - Tertiary consumer, B - secondary consumer, C - Primary consumer,

D - Primary producer

Answer: D

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36. The given ecological pyramid best represents:



- A. upright pyramid of numbers
- B. upright pyramid of biomass
- C. Inverted pyramid of energy
- D. upright pyramid of energy

Answer: B

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37. Which one of the following statements about productivity is wrong?

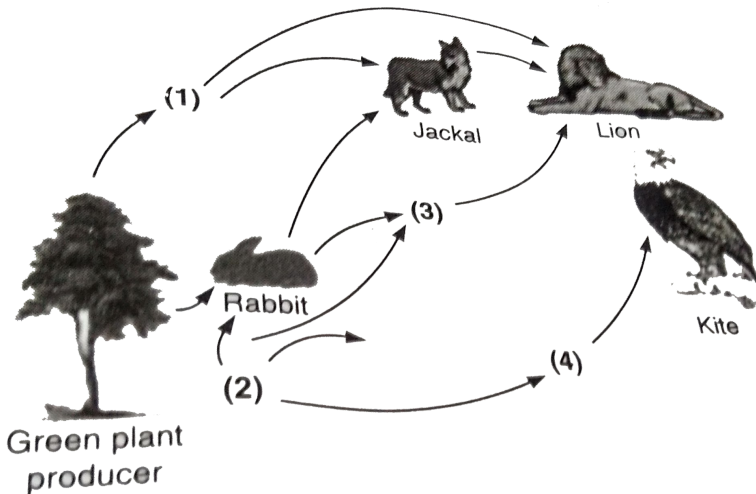
- A. Primary production is the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis.
- B. Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis.
- C. Secondary productivity is the rate of formation of new organic matter by consumers.
- D. Primary productivity depends on the animals species inhabiting a particular area.

**Answer: D**



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38. Identify the likely organisms (1), (2), (3) and (4) in the food web shown below:



- A. (1) mouse (2) goat (3) dog (4) earthworm
- B. (1) goat (2) mouse (3) wild cat (4) snake
- C. (1) hen (2) mouse (3) snake (4) tortoise
- D. (1) Garden lizard (2) pigeon (3) wild cat (4) cow

**Answer: B**



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**39.** Consider the following statements.

A. The movement of energy is unidirectional from the higher trophic level towards the lower trophic level.

B. Detritivores break down detritus into smaller particles by a process is called fragmentation.

C. Humification and mineralisation occur during decomposition in the soil.

D. Decomposition is largely an oxygen-releasing process.

Of the above statements:

A. B and D are correct

B. A and B are correct

C. A and D are correct

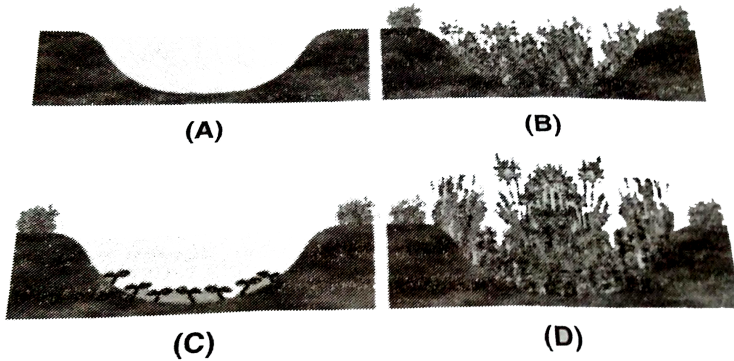
D. B and C are correct

**Answer: D**



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40. Diagrammatic representation first four stages of primary succession is given below. Correctly identify A, B, C and D:



A. A - Phytoplankton, B - Reed-swamp stage, C - Submerged plant stage, D - Marsh-meadow stage

B. A - Reed swamp stage, B - Phytoplankton, C - Submerged plant stage, D - Marsh-meadow stage,

C. A - Reed-swamp stage, B - Marsh-meadow stage, C - Reed-swamp stage, D - Submerged plant stage

D. A - Marsh-meadow stage, B - Phytoplankton, C - Reed-swamp stage,  
D - Submerged plant stage

**Answer: A**



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**41.** Which of the following statement/s regarding ecological pyramid is/are wrong?

I. In most ecosystem, all the pyramids, of number, of energy and biomass are upright.

II. Each trophic level has a certain mass of living material at a particular time called as the standing crop.

III. The pyramid of biomass in sea is generally upright because the biomass of fishes far lower that of phytoplankton.

IV. Pyramid of energy is always upright, can never be inverted.

V. Energy at a lower trophic level is always less than at a higher level.

A. II only

B. II and IV only

C. III and V only

D. I, II and IV only

**Answer: C**



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