SmartKalike

CBSE Class 12 · Biology

Ecosystem

10 most probable questions for Boards 2027

Q1. 1 mark · Multiple choice

The characteristic physical structure of an ecosystem results from the interaction of its: (1 mark)
(A) biotic and abiotic components
(B) producers only
(C) consumers only
(D) decomposers and consumers only

Answer

(A) biotic and abiotic components — their interaction results in the characteristic physical structure of each ecosystem.

Q2. 2 marks · Short answer

Define decomposition and name its raw material. State what kinds of remains make up this raw material. (2 marks)

Answer

Decomposition is the breakdown of complex organic matter into inorganic substances such as carbon dioxide, water and nutrients. Detritus is the raw material for decomposition and consists of dead plant remains such as leaves, bark and flowers, dead animal remains, and fecal matter.

Q3. 3 marks · Medium answer

Distinguish species composition from stratification. Also list the four functions through which ecosystem components operate as a unit. (3 marks)

Answer

1. Meaning — Species composition is identification and enumeration of plant and animal species; stratification is the vertical distribution of different species at different ecosystem levels.
2. Productivity — production of organic material by autotrophs.
3. Decomposition — breakdown and mineralisation of dead matter.
4. Energy flow — unidirectional movement toward higher trophic levels, with energy lost as heat.
5. Nutrient cycling — recycling of nutrients for reuse by autotrophs.

Q4. 5 marks · Multiple choice

Select the one correct set of statements about the pyramid of energy. This multiple-choice item is worth 5 marks.
I. It is always upright because energy is lost as heat at each trophic transfer.
II. It may be inverted when the biomass pyramid is inverted.
III. Each bar represents energy at a trophic level per unit area over a given time, or

annually.
IV. Primary producers convert about 1% of the sunlight energy available to them into net primary productivity.
V. It is always upright because energy increases at each successive trophic level.
(A) I, III and IV only
(B) I, II and IV only
(C) II, III and V only
(D) I, II, III and IV only

Answer

(A) I, III and IV only — energy is lost as heat at each trophic transfer, bars show energy per unit area over a given time or annually, and producers convert only 1% of available sunlight energy into NPP.

Q5. 1 mark · Multiple choice

Primary production is the amount of: (1 mark)
(A) biomass or organic matter produced by plants per unit area over time through photosynthesis
(B) organic matter formed by consumers per unit time
(C) energy lost as heat at each trophic level
(D) nutrients released from humus per unit time

Answer

(A) biomass or organic matter produced by plants per unit area over time through photosynthesis — primary production is the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis.

Q6. 2 marks · Short answer

How much of the PAR do plants capture? Explain how this small fraction of energy supports the living world through its flow from producers to consumers.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/biology/ecosystem

Q7. 5 marks · Long answer

(i) Explain the roles of primary, secondary and tertiary consumers in a food chain. (ii) Describe how the detritus food chain begins and how decomposers obtain nutrients from dead organic matter. (iii) Compare the major pathways of energy flow in aquatic and terrestrial ecosystems.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/biology/ecosystem

Q8. 1 mark · Multiple choice

Which statement correctly defines productivity in an ecosystem? (1 mark)
(A) The total number of species in an area
(B) The rate of biomass production, commonly expressed per unit area per year
(C) The amount of energy stored only in consumers

(D) The rate at which nutrients leave an ecosystem

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/biology/ecosystem

Q9. 2 marks · Short answer

Name the main producers in terrestrial and aquatic ecosystems. What happens to energy trapped by a producer when it is passed on or when the organism dies?

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Q10. 5 marks · Long answer

Name the two main structural features of an ecosystem. Then describe its four important functional components and explain primary productivity.

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