

Ecosystem — CBSE Pattern Test 2

Class 12 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 2 — CBSE Pattern (90 minutes, 40 marks)

Class 12 Biology · Ecosystem · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- The two components of an ecosystem are
 - biotic and abiotic
 - only biotic
 - only abiotic
 - producers only
- Energy flow in an ecosystem is
 - unidirectional
 - bidirectional
 - cyclic
 - random
- The three types of ecological pyramids are of
 - number, biomass and energy
 - number only
 - biomass only
 - energy only
- The first step of decomposition is
 - fragmentation
 - leaching
 - catabolism
 - humification
- The carbon cycle is a
 - gaseous cycle
 - sedimentary cycle
 - both
 - neither
- Stratification in an ecosystem refers to
 - vertical distribution of species
 - horizontal spread
 - population size
 - energy loss
- Most energy is lost at each trophic level as
 - heat

- (B) light
 - (C) sound
 - (D) biomass
8. Primary succession begins on
- (A) a bare area with no soil
 - (B) soil
 - (C) water only
 - (D) rock only
9. What is stratification?
10. What is the 10% law?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Name the two types of nutrient cycles.
12. What is NPP?
13. What is humification?
14. Give two examples of ecosystem services.

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Describe the different components of an ecosystem.
16. Explain the 10% law and its significance.
17. Describe the types of ecological pyramids.
18. Describe ecological succession and its types.

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe energy flow in an ecosystem. (b) Describe the steps of decomposition.
20. (a) Explain the gaseous and sedimentary nutrient cycles. (b) Explain ecosystem services with examples.

Answer Key (Marking Scheme)

- Q1 — (A) biotic and abiotic. Q2 — (A) unidirectional. Q3 — (A) number, biomass and energy. Q4 — (A) fragmentation. Q5 — (A) gaseous cycle. Q6 — (A) vertical distribution of species. Q7 — (A) heat. Q8 — (A) a bare area with no soil.
- Q9 — Stratification is the vertical distribution of different species at different levels.
- Q10 — About 10% of energy is transferred from one trophic level to the next.
- Q11 — Gaseous and sedimentary cycles.
- Q12 — NPP is the organic matter available to consumers after respiration loss.
- Q13 — Humification is the formation of humus (dark organic matter).
- Q14 — Purification of air and water; pollination.
- Q15 — Biotic (producers, consumers, decomposers) and abiotic components.
- Q16 — About 10% of energy transfers between trophic levels, so trophic levels are limited.
- Q17 — Number, biomass and energy pyramids.
- Q18 — Primary (bare area) and secondary (existing soil) succession.

Q19 — (a) Unidirectional flow with energy lost as heat. (b) Fragmentation → leaching → catabolism → humification → mineralisation.

Q20 — (a) Gaseous (carbon, nitrogen) and sedimentary (phosphorus). (b) Air/water purification and pollination.