

Evolution — CBSE Pattern Test 1

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

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 12 Biology · Evolution · 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 theory of biogenesis was proposed by
 - Pasteur
 - Darwin
 - Miller
 - Hugo de Vries
- The wings of a butterfly and a bird are
 - analogous organs
 - homologous organs
 - vestigial organs
 - connecting links
- The Hardy-Weinberg principle describes
 - constant allele frequencies
 - changing allele frequencies
 - mutation
 - speciation
- Darwin's finches are an example of
 - adaptive radiation
 - coevolution
 - genetic drift
 - convergent evolution
- The first human-like ancestor was
 - Homo habilis
 - Homo sapiens
 - Homo erectus
 - Neanderthal
- The Miller-Urey experiment synthesised
 - amino acids
 - carbohydrates
 - proteins
 - DNA
- Genetic drift is a change in allele frequency due to
 - chance

- (B) selection
 - (C) mutation
 - (D) migration
8. Allopatric speciation occurs due to
- (A) geographic separation
 - (B) no isolation
 - (C) gene flow
 - (D) mutation only
9. What is a fossil?
10. What is natural selection?

Section B — Short Answer I (4 × 2 = 8 marks)

11. Differentiate between homologous and analogous organs.
12. What is adaptive radiation?
13. What is gene flow?
14. What is coevolution?

Section C — Short Answer II (4 × 3 = 12 marks)

15. Describe the types of natural selection.
16. State the Hardy-Weinberg principle and its factors.
17. Explain the process of speciation.
18. Describe the evolution of humans.

Section D — Long Answers (2 × 5 = 10 marks)

19. (a) Describe the evidences of evolution. (b) Explain adaptive radiation with an example.
20. (a) Explain Darwin's theory of natural selection. (b) Describe the origin of life by chemical evolution.

Answer Key (Marking Scheme)

- Q1 — (A) Pasteur. Q2 — (A) analogous organs. Q3 — (A) constant allele frequencies. Q4 — (A) adaptive radiation. Q5 — (A) Homo habilis. Q6 — (A) amino acids. Q7 — (A) chance. Q8 — (A) geographic separation.
- Q9 — A fossil is a preserved remnant or impression of a past organism.
- Q10 — Natural selection is the differential survival and reproduction of the fittest.
- Q11 — Homologous: same structure, different function; analogous: different structure, same function.
- Q12 — Adaptive radiation is the diversification of one ancestral form into many forms.
- Q13 — Gene flow is the movement of alleles between populations by migration.
- Q14 — Coevolution is the mutual evolutionary influence of two species.
- Q15 — Stabilising, directional and disruptive selection.
- Q16 — $p^2 + 2pq + q^2 = 1$; affected by mutation, gene flow, drift, non-random mating and selection.
- Q17 — Speciation occurs through reproductive isolation of populations.
- Q18 — Dryopithecus → Ramapithecus → Australopithecus → Homo habilis → Homo erectus → Neanderthal → Homo sapiens.

Q19 — (a) Fossils, homologous/analogous organs, embryology, biochemistry. (b) Darwin's finches diversified into many beak types.

Q20 — (a) Overproduction, variation, struggle for existence and survival of the fittest. (b) Simple gases formed organic monomers and polymers in water.