



CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: Biology

Chapter Name : *Evolution* (Chapter : 6)

Total : 9 Marks (expected) [MCQ(1)-1 Mark, Assertion-Reason(1)-1 Mark, SA(1)-3 Marks, CBQ(1)-4 Marks]

Level - 2(Higher Order)

MCQ Type Questions:

- Adaptive radiation is best explained by:
(A) Convergent evolution (B) Divergent evolution (C) Parallel evolution (D) Artificial selection
[Hint: One ancestor → many species in different niches]
- Which pair represents analogous structures?
(A) Wings of bat & forelimb of human (B) Wings of bird & wings of butterfly
(C) Flipper of whale & arm of human (D) Thorns of *Bougainvillea* & tendrils of *Cucurbita*
[Hint: Same function, different origin]
- Hardy-Weinberg equilibrium is disturbed by all EXCEPT:
(A) Mutation (B) Genetic drift (C) Random mating (D) Natural selection
- The appearance of long neck in giraffe, according to Darwin, is due to:
(A) Inheritance of acquired characters (B) Mutation
(C) Use and disuse of organs (D) Natural selection
[Hint: Survival of favourable variations]
- Which fossil is known as a connecting link between reptiles and birds?
(A) *Archaeopteryx* (B) *Seymouria* (C) *Eusthenopteron* (D) *Ichthyostega*
- Genetic drift is more prominent in:
(A) Large populations (B) Random mating populations
(C) Small populations (D) Stable populations
[Hint: Chance factor dominates]
- Industrial melanism supports:
(A) Lamarckism (B) Mutation theory (C) Darwinism (D) Neutral theory
[Hint: Natural selection due to environment]
- Homologous structures arise due to:
(A) Same function (B) Same habitat (C) Same ancestry (D) Same mutation
[Hint: Evidence of divergent evolution]
- According to Hardy-Weinberg principle, the frequency of recessive genotype is:
(A) p^2 (B) $2pq$ (C) q^2 (D) $p + q$
[Hint: Square of recessive allele frequency]
- Which scientist proposed the theory of chemical evolution?
(A) Darwin (B) Lamarck (C) Oparin and Haldane (D) Miller
[Hint: Origin of life theory]

11. A population will not exist in Hardy-Weinberg equilibrium if:
- (A) There is no migration (B) The population is large
(C) Individuals mate selectively (D) There are no mutations
12. The chronological order of human evolution from early to the recent is :
- (A) *Ramapithecus-Homo habilis-Australopithecus-Homo erectus*
(B) *Australopithecus-Homo habilis-Ramapithecus-Homo erectus*
(C) *Australopithecus-Ramapithecus-Homo habilis-Homo erectus*
(D) *Ramapithecus-Australopithecus-Homo habilis-Homo erectus*

Assertion-Reason based questions

Directions: The questions 11 to 15 have two statements—Assertion (A) and Reason (R). Of the two statements, mark the correct answer from the options given below :

- A. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion
B. Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion
C. Assertion is true, but Reason is false
D. Assertion is false, but Reason is true

13. **Assertion:** Homologous organs indicate common ancestry.

Reason: They perform similar functions.

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

[Hint: Function \neq homology]

14. **Assertion:** Genetic drift can change allele frequency.

Reason: It operates strongly in small populations.

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

[Hint: Chance factor]

15. **Assertion:** Industrial melanism is an example of evolution.

Reason: Environmental change selects favourable traits.

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

[Hint: Natural selection]

16. **Assertion:** Hardy-Weinberg equilibrium shows evolution.

Reason: Allele frequencies change when equilibrium is disturbed.

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

[Hint: Equilibrium = no evolution]

17. **Assertion:** Adaptive radiation leads to speciation.

Reason: Species adapt to different ecological niches.

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

[Hint: Darwin's finches]

Very Short Answer Type Questions (1 mark)

18. What are coacervates?

[Hint: Experiments on origin of life]

19. Why is *Latimeria* called a living fossil?

[Hint: Primitive characters of *Latimeria*]

20. Give one example of speciation by abrupt mutation.

21. Why is reproductive isolation important for speciation?
[Hint: Variants cannot interbreed freely]
22. Man is considered to be most closely related to chimpanzee among the apes. Why?
[Hint: Resemblance in banding pattern of some chromosomes]

Short Answer Type Questions (3 marks)

23. Explain Lamarck's theory of evolution.
[Hint: Use and disuse, inheritance of acquired traits]
24. Name the first oxygenic photoautotrophic organism. What was the effect of evolved oxygen on atmospheric gases of reducing atmosphere of that period?
[Hint: Oxidation of simple compounds like methane and ammonia]
25. How did DDT become ineffective for mosquitoes?
[Hint: Peppered moth, pollution, selection]
26. Write factors affecting Hardy-Weinberg equilibrium.
[Hint: Mutation, migration, selection, drift]
27. Explain the role of mutations in evolution.
[Hint: Source of variation]

Long Answer Type Questions (5 marks)

28. Are humans also evolving? Justify your answer.
29. State and explain any three factors affecting allele frequency in populations
[Hint: Recombinations of genes, mutations, gene flow]
30. Explain Hardy-Weinberg principle with equation.
[Hint: $p^2 + 2pq + q^2 = 1$]
31. Explain adaptive radiation with example.
[Hint: Darwin's finches]
32. Two organisms in a desert show similar adaptive strategies. With the help of examples, describe the phenomenon
[Hint: Camels and kangaroo rats – conservation of water]

Case Based Questions

33. Excessive use of antibiotics has resulted in resistant bacterial strains.
- (a) Which evolutionary mechanism is involved?
- (b) Why do some bacteria survive antibiotics?
- (c) Name the process responsible for survival.
- Hints:**
- (a) Natural selection
- (b) Pre-existing variation
- (c) Survival of the fittest
34. Different species of finches have different beak shapes adapted to food sources.
- (a) Name the evolutionary phenomenon.
- (b) Which type of evolution is shown?
- (c) What does it prove about ancestry

35. Fossils found in sedimentary rocks show gradual changes over time.

- (a) What do fossils provide evidence for?
- (b) Which type of evolution is supported?
- (c) Name one fossil connecting two groups.
- (d) What does geological time scale show?

ANSWER

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|------|------|------|------|-------|-------|-------|-------|
| 1. B | 3. C | 5. A | 7. C | 9. C | 11. C | 13. A | 15. D |
| 2. B | 4. D | 6. C | 8. C | 10. C | 12. C | 14. A | 16. A |

