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 - 1

MCQ Type Questions:

1. According to Darwin, evolution is driven by
   Ⓐ Use and disuse of organs Ⓑ Sudden mutations
   Ⓒ Natural selection Ⓓ Genetic drift
   [**Hint:** Survival of the fittest]

2. The concept of inheritance of acquired characters was proposed by
   Ⓐ Darwin Ⓑ Lamarck Ⓒ Mendel Ⓓ De Vries
   [**Hint:** Theory of use and disuse]

3. The wings of birds and wings of insects are examples of
   Ⓐ Homologous organs Ⓑ Analogous organs Ⓒ Vestigial organs Ⓓ Rudimentary organs
   [**Hint:** Same function, different origin]

4. Which of the following is a vestigial organ in humans?
   Ⓐ Heart Ⓑ Appendix Ⓒ Kidney Ⓓ Lungs
   [**Hint:** Reduced and non-functional]

5. The study of fossils is known as
   Ⓐ Embryology Ⓑ Paleontology Ⓒ Taxonomy Ⓓ Morphology

6. Homologous organs indicate
   Ⓐ Similar function Ⓑ Common ancestry Ⓒ Same habitat Ⓓ Convergent evolution
   [**Hint:** Similar origin]

7. Evolution involving different species developing similar structures due to similar environments is called
   Ⓐ Divergent evolution Ⓑ Adaptive radiation Ⓒ Convergent evolution Ⓓ Parallel evolution
   [**Hint:** Analogous organs]

8. Industrial melanism in peppered moths is an example of
   Ⓐ Genetic drift Ⓑ Artificial selection Ⓒ Natural selection Ⓓ Mutation
   [**Hint:** Environment favors one type]

9. Which of the following provides the strongest evidence for evolution?
   Ⓐ Comparative anatomy Ⓑ Fossils
   Ⓒ Molecular biology Ⓓ All of these

10. The origin of life on Earth is believed to have occurred about
    Ⓐ 1 billion years ago Ⓑ 2 billion years ago Ⓒ 3.5 billion years ago Ⓓ 5 billion years ago
    [**Hint:** Primitive Earth conditions]

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

11. **Assertion (A):** Homologous organs support the theory of evolution.
Reason (R): Homologous organs have similar origin but perform different functions.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Common ancestry]

12. **Assertion (A):** Analogous organs do not support common ancestry.
Reason (R): Analogous organs have similar functions but different evolutionary origins.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Convergent evolution]

13. **Assertion (A):** Fossils provide direct evidence for evolution.
Reason (R): Fossils show the structure of organisms that lived in the past.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Ancient life forms]

14. **Assertion (A):** Industrial melanism in peppered moths supports natural selection.
Reason (R): Dark-colored moths were better camouflaged in polluted environments.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Survival advantage]

15. **Assertion (A):** According to Lamarck, acquired characters are inherited.
Reason (R): Characters developed during an organism's lifetime are passed to offspring.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Use and disuse theory]

Very Short Answer Type Questions (1 mark)

16. What is evolution?

17. Name the scientist who proposed the theory of natural selection.
[**Hint:** Author of Origin of Species]

18. What are homologous organs?
[**Hint:** Same origin, different function]

19. Define speciation.
[**Hint:** Formation of new species]

20. What is a vestigial organ?
[**Hint:** Reduced, non-functional organ]

Short Answer Type Questions (3 marks)

21. Differentiate between homologous and analogous organs.
[**Hint:** Origin vs function]

22. Explain Lamarck's theory of inheritance of acquired characters.

23. What is adaptive radiation? Give one example.
[**Hint:** Darwin's finches]

24. How do fossils provide evidence for evolution?
[**Hint:** Past life forms]

25. What is genetic drift?
[**Hint:** Chance change in gene frequency]

Long Answer Type Questions (5 marks)

26. Explain Darwin's theory of natural selection.
[**Hint:** Overproduction → struggle → survival of the fittest]

27. Describe evidences from comparative anatomy in support of evolution.
[**Hint:** Homologous, analogous, vestigial organs]

28. Explain the theory of chemical evolution of life.
[**Hint:** Oparin–Haldane theory]

29. Describe the mechanism of speciation.
[**Hint:** Isolation and variation]

30. Explain industrial melanism with reference to peppered moths.
[**Hint:** Environmental change]

Case Based Questions

31. During the Industrial Revolution in England, it was observed that the number of dark-coloured peppered moths increased in industrial areas, while light-coloured moths were common in non-industrial areas. This change was linked to pollution and natural selection.
(a) Which type of natural selection is illustrated in this case?
(b) Why did dark-coloured moths survive better in polluted areas?
(c) Name the scientist who explained this phenomenon experimentally.

Hints:
(a) Selection favouring one extreme phenotype
(b) Camouflage on soot-covered tree trunks
(c) British scientist who studied moth populations

32. The forelimbs of humans, whales, bats, and horses show the same basic structural plan but perform different functions such as grasping, swimming, flying, and running respectively.
(a) What type of structures are these?
(b) What kind of evolution do they indicate?
(c) What do these structures suggest about the origin of these organisms?

Hints:
(a) Structures with same origin but different functions
(b) Divergent evolution
(c) Common ancestry

33. It has been observed that some bacteria survive antibiotic treatment and multiply rapidly, making the antibiotic ineffective over time.
(a) Which evolutionary mechanism explains this phenomenon?
(b) Why do antibiotics fail to kill all bacteria in a population?
(c) What is the result of repeated use of the same antibiotic?

Hints:
(a) Survival of the fittest
(b) Pre-existing resistant variants
(c) Development of resistant bacterial strains

ANSWER

1.	©	3.	Ⓑ	5.	Ⓑ	7.	©	9.	Ⓓ	11.	Ⓐ	13.	Ⓐ	15.	Ⓐ
2.	Ⓑ	4.	Ⓑ	6.	Ⓑ	8.	©	10.	©	12.	Ⓐ	14.	Ⓐ		