

Board - CBSE

Class - 10

Topic - Heredity and evolution

1. What are fossils? What do they tell us about the process of evolution?
2. Why are human beings who look so different from each other in terms of size, colour, and looks said to belong to the same species?
3. In evolutionary terms, can we say which among bacteria, spiders, fish, and chimpanzees have a 'better body design' ? Why or why not?
4. A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants bearing white flowers. The progeny all bore violet flowers, but almost half of them are short. This suggests that the genetic make-up of the tall parent can be depicted as
 - (a) TTWW (b) TTww
 - (c) TtWW (d) TtWw
5. An example of homologous organs is
 - (a) our arm and a dog's foreleg.
 - (b) Our teeth and an elephant's tusk.
 - (c) Potato and runners of grass.
 - (d) All of the above.
6. In evolutionary terms, we have more in common with
 - (a) A Chinese schoolboy.
 - (b) A chimpanzee.
 - (c) A spider.
 - (d) A bacterium.
7. A study found that children with light-coloured eyes are likely to have parents with light-coloured eyes. On this basis, can we say anything about whether the light eye colour trait is dominant or recessive? Why or why not?
8. How are the areas of study - evolution, and classification— interlinked?
9. Explain the terms analogous and homologous organs with examples.
10. Outline a project which aims to find the dominant coat colour in dogs.
11. Explain the importance of fossils in deciding evolutionary relationships.
12. What evidence do we have for the origin of life from inanimate matter?

13. Explain how sexual reproduction gives rise to more viable variations than asexual reproduction. How does this affect the evolution of those organisms that reproduce sexually?
14. How is the equal genetic contribution of male and female parents ensured in the progeny?
15. Explain the terms: (i) Speciation (ii) Natural selection
16. Explain with examples how the following are pieces of evidence in favor of evolution in organisms. (i) Homologous organs (ii) Analogous organs (iii) Fossils
17. Give an example of body characteristics used to determine how close two species are in terms of evolution and explain it.
18. What are homologous organs? Can the wing of a butterfly and the wing of a bat be regarded as homologous? Why?
19. What is meant by the term speciation? List four factors that could lead to speciation.
20. A blue colour flower plant denoted by BB is crossbred with that of a white colour flower plant denoted by bb.
 - (a) State the colour of the flower you would expect in their F₁ generation plants.
 - (b) What must be the percentage of white flower plants in the F₂ generation if flowers of F₁ plants are self-pollinated?
 - (c) State the expected ratio of the genotypes BB and Bb in the F₂ progeny.
21. Distinguish between homologous organs and analogous organs. In which category; would you place the wings of a bird and wings of a bat? Justify your answer by giving a suitable reason.
22. Define the term 'evolution. "Evolution cannot be equated with progress". Justify this statement.
23. If we cross pure-bred tall (dominant) pea plants with pure-bred dwarf (recessive) pea plants, we will get pea plants of the F₁ generation. If we now self-cross the pea plant of the F₂ generation, then we obtain pea plants of the F₂ generation.
 - (a) What do the plants of the F₂ generation look like?
 - (b) State the ratio of tall plants to dwarf plants in the F₂ generation.
 - (c) State the type of plants not found in the F₂ generation but appeared in the F₂ generation, mentioning the reason for the same.

24. How are fossils formed? Describe, in brief, two methods of determining the age of fossils.
25. State the meaning of inherited traits and acquired traits. Which of the two is not passed on to the next generation? Explain with the help of an example.
26. Only variations that confer an advantage to an individual organism will survive in a population. Do you agree with this statement? Why or why not?
27. What is a gene?
28. What is meant by analogous organs? Taking a suitable example, explain how they support the theory of Organic Evolution.
29. What is a sex chromosome?
30. Define 'evolution'. Describe Darwin's theory of evolution.
31. "The sex of the children is determined by what they inherit from their father and not their mother." Justify.
32. Define variation in relation to a species. Why is variation beneficial to the species?
33. Describe briefly four ways in which individuals with a particular trait may increase in a population.
34. Distinguish between acquired and inherited traits by giving one example of each. Why are traits acquired during the lifetime of an individual not inherited?
35. The human beings who look so different from each other in terms of colour, size, and looks are said to belong to the same species. Why? Justify your answer.
36. Give one example of each of the characters that are inherited and the ones that are acquired in humans. Mention the difference between the inherited and the acquired characters.
37. Explain the mechanism of sex determination in humans.
Or
With the help of a flow chart explain in brief how the sex of a newborn is genetically determined in human beings. Which of the two parents, the mother or the father, is responsible for the determination of the sex of a child?
38. With the help of suitable examples explain natural selection.
39. How is the equal genetic contribution of male and female parents ensured in the progeny?
40. What evidence do we have for the origin of life from inanimate matter?

41. "An individual cannot pass on to its progeny the experiences of its lifetime." Justify the statement with the help of an example and also give a reason for the same.