

**Class: XII**  
**Subject: Biology**  
**Topic: Principles of inheritance and variation**  
**No. of Questions: 20**

- Q1. Which terms have been used for the hereditary units and by whom ?
- Q2. How can a dihybrid ratio be derived from monohybrid ratio in simple dominant-recessive crosses ?
- Q3. Define codominant and complementary genes.
- Q4. How do the back cross and test cross differ ?
- Q5. What is a test cross ? how does it differ from a reciprocal cross ?
- Q6. Under which condition, does the law of independent assortment hold good and why ?
- Q7. Cite a case of incomplete dominance. Which trait in such a case has no gene ?
- Q8. Why Mendel selected pea plant for his experiments ?
- Q9. Name the animal in which sex is determined by number of chromosomes. Who produced the first induced mutation ?
- Q10. How do the cross over and noncross over chromatids differ ? Give alternative terms for them also.
- Q11. Define linkage.
- Q12. The human male never passes on the gene for haemophilia to his son. Why ?
- Q13. A mother with blood group O has a foetus with blood group B. will there be any problems in the mother or foetus ? if so, specify the problems.
- Q14. A man with blood group A married a woman with B group. They have a son with AB group and a daughter with blood group O. work out the cross and show the possibility of such inheritance.

- Q15. The male fruit fly female fowl are heterogametic while the female fruit fly and the male fowl are homogametic. Why are they called so ?
- Q16. A plant of *antirrhinum majus* with red flowers was crossed with another plant of the same species with white flowers. The plants of the  $F_1$  generation bore pink flowers. Explain the pattern of inheritance with the help of a cross.
- Q17. A woman with blood group O married with a man with AB group. Show the possible blood groups of the progeny. List the alleles involved in this inheritance.
- Q18. Very briefly explain the following :
1. Alleles
  2. Dominant/recessive
  3. Homozygous/heterozygous
  4. Test cross
  5. Back cross
  6. Pleiotropy
  7. Multiple alleles
  8. Incomplete dominance
  9. Epistasis/hypostasis
  10. Genotype
  11. Linkage
  12. Sex-limited characters
  13. Sex-influenced traits
  14. Chromosomal aberrations
  15. Gene mutation.
- Q19. Do you think Mendel's laws of inheritance would have been different if the characters that be close were located on the same chromosome ?
- Q20. In our society a woman is often blamed for not bearing for not bearing a male child. Do you think it is right ? justify.