

Chapter – 4 | Principles of Inheritance and Variation

QUIZ
PART-03

1. Mendel's law of dominance is based on:

- A. Dihybrid cross B. Monohybrid cross
C. Test cross D. Mutation (B)

Explanation : Mendel explained the law of dominance through monohybrid crosses involving one pair of contrasting traits.

2. According to the law of dominance, factors are present in:

- A. Single form B. Triplets
C. Pairs D. Groups of four (C)

Explanation : Mendel proposed that hereditary factors (genes) occur in pairs.

3. The separation of alleles during gamete formation is explained by:

- A. Law of dominance
B. Law of segregation
C. Law of mutation
D. Law of linkage (B)

Explanation : Law of segregation states that members of a pair of alleles separate during gamete formation.

4. In incomplete dominance, the F_1 generation shows:

- A. A trait identical to one parent
B. A trait intermediate between both parents
C. Only recessive trait
D. No trait expression (B)

Explanation : In incomplete dominance, F_1 offspring show an intermediate phenotype not present in either parent.

5. Inheritance of flower colour in snapdragon is an example of:

- A. Complete dominance
B. Incomplete dominance
C. Co-dominance
D. Mutation (B)

Explanation : Snapdragon flower colour shows incomplete dominance where red and white flowers produce pink F_1 offspring.

6. In incomplete dominance of snapdragon, the F_2 phenotypic ratio is:

- A. 3 : 1 B. 1 : 2 : 1
C. 9 : 3 : 3 : 1 D. 1 : 1 (B)

Explanation : Red : Pink : White flowers appear in the ratio 1 : 2 : 1 in F_2 generation.

7. ABO blood group system in humans is an example of:

- A. Complete dominance only
B. Incomplete dominance
C. Co-dominance
D. Mutation (C)

Explanation : In ABO blood groups, I^A and I^B alleles express together, showing co-dominance.

8. The ABO blood group is controlled by the gene:

- A. T
B. R
C. I
D. W (C)

Explanation : The ABO blood group system is controlled by gene I having three alleles: I^A , I^B and i .

9. Which allele does not produce any sugar antigen in the ABO blood group system?

- A. I^A
B. I^B
C. i
D. Both I^A and I^B (C)

Explanation : The i allele does not produce any type of sugar antigen, unlike I^A and I^B .

10. When both I^A and I^B alleles are present together, RBCs contain:

- A. Only A type sugar
B. Only B type sugar
C. Both A and B type sugars
D. No sugar antigen (C)

Explanation : I^A and I^B both express their own sugar types, resulting in AB blood group due to co-dominance.