

Chapter – 4 | Principles of Inheritance and Variation

QUIZ
PART-06

1. Traits controlled by three or more genes are called:

A. Monogenic traits B. Polygenic traits
C. Linked traits D. Mutant traits (B)

Explanation : Polygenic traits are controlled by multiple genes and show continuous variation.

2. An example of polygenic inheritance in humans is:

A. Blood group
B. Skin colour
C. Eye colour only
D. Sex determination (B)

Explanation : Human skin colour is controlled by multiple genes (A, B and C) and shows polygenic inheritance.

3. In polygenic inheritance, the effect of each allele is:

A. Dominant only
B. Recessive only
C. Additive
D. Absent (C)

Explanation : Each allele contributes additively to the phenotype in polygenic inheritance.

4. The genotype responsible for the darkest skin colour in humans is:

A. aabbcc
B. AABBCC
C. AaBbCc
D. AAbbcc (B)

Explanation : AABBCC contains all dominant alleles responsible for maximum pigmentation.

5. A single gene producing multiple phenotypes is called:

A. Polygenic inheritance
B. Pleiotropy
C. Linkage
D. Codominance (B)

Explanation : Pleiotropy occurs when one gene influences multiple phenotypic traits.

6. Phenylketonuria in humans is caused due to mutation in the gene responsible for:

A. Insulin
B. Phenylalanine hydroxylase enzyme
C. Haemoglobin
D. Growth hormone (B)

Explanation : Phenylketonuria occurs due to mutation in the gene coding for phenylalanine hydroxylase (PAH).

7. The sex determination system in humans is:

A. XO type
B. ZW type
C. XY type
D. Haplo-diploid type (C)

Explanation : Humans follow the XY type of sex determination where males are XY and females are XX.

8. The special nuclear structure discovered by Henking during insect spermatogenesis was called:

A. Y-body B. X-body
C. Z-body D. Chromatid (B)

Explanation : Henking discovered a special nuclear structure called X-body, later identified as the X chromosome.

9. In birds, the type of sex determination is:

A. XY type
B. XO type
C. ZW type
D. XX type (C)

Explanation : Birds show ZW type sex determination, where females are heterogametic (ZW).

10. In honeybees, males develop from:

A. Fertilized eggs
B. Unfertilized eggs
C. Diploid eggs
D. Fusion of sperm and egg (B)

Explanation : Male honeybees (drones) develop from unfertilized eggs through parthenogenesis.