

Chapter – 4 | Principles of Inheritance and Variation

QUIZ
PART-09

1. Chromosomal disorders are caused due to:
- A. Change in protein structure only
 - B. Absence, excess, or abnormal arrangement of chromosomes
 - C. Mutation in RNA only
 - D. Environmental changes only (B)

Explanation : Chromosomal disorders occur due to abnormal chromosome number or arrangement, including absence or excess of chromosomes.

2. Gain or loss of a chromosome due to failure of chromatid segregation is called:
- A. Polyploidy
 - B. Aneuploidy
 - C. Mutation
 - D. Recombination (B)

Explanation : Aneuploidy occurs due to abnormal chromosome number caused by failure of chromosome/chromatid separation during cell division.

3. Down syndrome occurs due to:
- A. Loss of X chromosome
 - B. Extra copy of chromosome 21
 - C. Extra copy of X chromosome
 - D. Loss of chromosome 21 (B)

Explanation : Down syndrome is caused by trisomy of chromosome 21, meaning an extra copy of chromosome 21 is present.

4. Turner syndrome is caused due to:
- A. Extra X chromosome
 - B. Loss of one X chromosome
 - C. Extra chromosome 21
 - D. Extra Y chromosome (B)

Explanation : Turner syndrome occurs due to absence of one X chromosome, resulting in 45 chromosomes (XO).

5. Klinefelter syndrome has which chromosomal composition?
- A. 45 XO
 - B. 46 XX
 - C. 47 XXY
 - D. 47 XYY (C)

Explanation : Klinefelter syndrome occurs due to an extra X chromosome, producing a 47, XXY karyotype.

6. Polyploidy occurs due to:
- A. Loss of a single chromosome
 - B. Increase in a whole set of chromosomes
 - C. Mutation of one gene
 - D. Deletion of DNA segment (B)

Explanation : Polyploidy results from an increase in the complete set of chromosomes and is commonly found in plants.

7. A condition in which one chromosome is missing from a pair is called:
- A. Trisomy
 - B. Tetrasomy
 - C. Monosomy
 - D. Nullsomy (C)

Explanation : Monosomy is the absence of one chromosome from a homologous pair.

8. Down syndrome was discovered by:
- A. Morgan
 - B. Mendel
 - C. Langdon Down
 - D. Sutton (C)

Explanation : Langdon Down discovered Down syndrome in 1866.

9. A person with Turner syndrome has:
- A. 47 chromosomes (XXY)
 - B. 45 chromosomes (XO)
 - C. 46 chromosomes (XY)
 - D. 47 chromosomes (XXX) (B)

Explanation : Turner syndrome females have only one X chromosome, resulting in 45 chromosomes (XO).

10. Which of the following is a symptom of Klinefelter syndrome?
- A. Extra chromosome 21
 - B. Female characteristics in males and infertility
 - C. Loss of X chromosome
 - D. Short stature with XO condition (B)

Explanation : Klinefelter syndrome males show female characteristics such as gynecomastia and are generally infertile.