



مقدم من فريق أفق الطبي



Multiple-Choice Questions (MCQs) on Medical Genetics

1. 1. Which concept was first theorized by early Greek philosophers like Aristotle regarding heredity?
 - A. Mendelian inheritance
 - B. Genetic traits from both parents
 - C. Semen determines human characteristics
 - D. Chromosomes as carriers of traits

2. 2. What did Mendel's breeding experiments focus on?
 - A. Genetic mutations
 - B. Contrasting characters in pea plants
 - C. Reproduction in fruit flies
 - D. Chromosome abnormalities

3. 3. What term refers to an organism with identical genes for a trait?
 - A. Heterozygous
 - B. Homozygous
 - C. Hybrid
 - D. Dominant

4. 4. Which of the following is a principle established by Mendel's experiments?
 - A. Chromosomal crossover
 - B. Law of segregation
 - C. Genetic drift
 - D. Law of mutation

5. 5. Who independently proposed that chromosomes carry hereditary factors?
 - A. Watson and Crick
 - B. Mendel
 - C. Sutton and Boveri
 - D. Rosalind Franklin

6. 6. The structure of DNA was discovered in:

- A. 1865
- B. 1940
- C. 1953
- D. 1960

7. 7. What is the correct number of chromosomes in humans?

- A. 46
- B. 48
- C. 23
- D. 50

8. 8. What technique confirmed Watson and Crick's DNA model?

- A. Punnett square analysis
- B. X-ray crystallography
- C. Recombinant DNA sequencing
- D. Protein structure modeling

9. 9. What does the genetic code specify?

- A. Chromosomal arrangement
- B. Amino acid sequences in proteins
- C. Gene silencing
- D. RNA synthesis

10. 10. What was the first genetic disorder characterized at the molecular level?

- A. Cystic fibrosis
- B. Sickle-cell anemia
- C. Down syndrome
- D. Hemophilia

11. 11. Why is *Drosophila melanogaster* used in genetic studies?

- A. Large chromosomes in salivary glands
- B. High resistance to mutations
- C. Lack of Mendelian inheritance
- D. Short lifespan only

12. 12. How many chromosome pairs does *Drosophila melanogaster* have?

- A. 2
- B. 3
- C. 4
- D. 6

13. 13. What makes *Drosophila* chromosomes unique?

- A. Similarity to human chromosomes
- B. 100x larger size in salivary glands
- C. Rapid mutation rates
- D. Multicellular structure

14. 14. What happens during chromosome non-disjunction?

- A. Genes replicate incorrectly
- B. Chromosomes fail to separate during meiosis
- C. DNA fails to code for proteins
- D. Traits blend during inheritance

15. 15. What type of inheritance occurs with linked genes?

- A. Independent assortment
- B. Mutations
- C. Chromosomal linkage
- D. Polygenic traits

16. 16. What does 'heterozygous' mean in Mendelian genetics?

- A. Identical genes for a characteristic
- B. Different genes for a characteristic
- C. Absence of a dominant gene
- D. Presence of only one allele

17. 17. What does 'allelomorph' refer to in genetics?

- A. A dominant trait
- B. A type of chromosome
- C. Alternative forms of a gene (alleles)

D. A mutant gene

18. 18. The process of constructing a Punnett square helps determine:

- A. DNA mutations
- B. Genotypes of offspring
- C. Chromosomal disorders
- D. Genetic diseases

19. 19. Which discipline studies inherited traits affecting common adult disorders like cancer?

- A. Molecular biology
- B. Medical genetics
- C. Biochemistry
- D. Embryology

20. 20. Which principle explains how genes are inherited independently?

- A. Genetic linkage
- B. Law of independent assortment
- C. Chromosome non-disjunction
- D. Genetic imprinting

Answers:

- 1. C
- 2. B
- 3. B
- 4. B
- 5. C
- 6. C
- 7. A
- 8. B
- 9. B
- 10. B
- 11. A
- 12. C
- 13. B

14. B

15. C

16. B

17. C

18. B

19. B

20. B