

Genetics Fundamentals

Genetics · Practice Test · 20 Questions

1. What is the primary function of messenger RNA (mRNA)?

- A) To carry genetic information from DNA to ribosomes
- B) To synthesize proteins directly
- C) To store genetic information in the nucleus
- D) To transport amino acids to ribosomes

2. Which of the following is a characteristic of a recessive allele?

- A) It only expresses its trait when in homozygous form
- B) It always expresses its trait, even in heterozygous form
- C) It is always located on the X chromosome
- D) It can only be passed down from the mother

3. What is the process by which DNA makes a copy of itself?

- A) Replication
- B) Transcription
- C) Translation
- D) Mutation

4. A segment of DNA that codes for a functional product, such as a protein or RNA molecule, is called a:

- A) Gene
- B) Chromosome
- C) Allele
- D) Genome

5. In the DNA double helix, adenine (A) always pairs with which nucleotide?

- A) Thymine (T)
- B) Guanine (G)
- C) Cytosine (C)
- D) Uracil (U)

6. What is the term for the observable physical characteristics of an organism?

- A) Phenotype
- B) Genotype
- C) Karyotype
- D) Chromotype

7. Meiosis is a type of cell division that results in:

- A) Four daughter cells with half the number of chromosomes as the parent cell
- B) Two daughter cells with the same number of chromosomes as the parent cell
- C) Four daughter cells with the same number of chromosomes as the parent cell
- D) Two daughter cells with half the number of chromosomes as the parent cell

8. What is the genetic makeup of an individual, referring to the specific alleles they possess?

- A) Genotype
- B) Phenotype
- C) Karyotype
- D) Gene pool

9. Which nitrogenous base is found in RNA but not in DNA?

- A) Uracil
- B) Thymine
- C) Adenine
- D) Guanine

10. The complete set of genetic material present in a cell or organism is known as the:

- A) Genome
- B) Gene
- C) Chromosome
- D) Allele

11. When two different alleles for a gene are present in an individual, and both contribute to the phenotype, this is called:

- A) Codominance
- B) Incomplete dominance
- C) Dominance
- D) Epistasis

12. What are the building blocks of DNA and RNA?

- A) Nucleotides
- B) Amino acids
- C) Fatty acids
- D) Monosaccharides

13. The process of synthesizing proteins from the information encoded in mRNA is called:

- A) Translation
- B) Transcription
- C) Replication
- D) Duplication

14. What is the name for a permanent change in the DNA sequence?

- A) Mutation
- B) Recombination
- C) Segregation
- D) Independent assortment

15. In humans, the sex chromosomes that determine femaleness are:

- A) XX
- B) XY
- C) XO
- D) YY

16. A trait that is controlled by a gene located on the X chromosome is called:

- A) Sex-linked
- B) Autosomal
- C) Mitochondrial
- D) Y-linked

17. The unit of heredity that is transferred from a parent to offspring and determines some characteristic of the offspring is a:

- A) Gene
- B) Chromosome
- C) Allele
- D) Nucleotide

18. What is the specific region of DNA where replication begins called?

- A) Origin of replication
- B) Replication fork
- C) Telomere
- D) Centromere

19. The complete set of genes or genetic material present in a cell or organism is referred to as the:

- A) Genome
- B) Genotype
- C) Gene pool
- D) Chromosomal set

20. What are the two main types of nucleic acids found in living organisms?

- A) DNA and RNA
- B) Proteins and carbohydrates
- C) Lipids and nucleic acids
- D) Amino acids and nucleotides