

Genetics: Sex Determination, Sex-Linked Traits, and Mutations

Biology · Practice Test · 13 Questions

1. What is the term for the complete set of chromosomes in a diploid cell?

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

2. In humans, how many pairs of autosomes are present in a typical karyotype?

- A) 23
- B) 1
- C) 22
- D) 46

3. Which chromosome primarily determines male sex characteristics in humans?

- A) X chromosome
- B) Y chromosome
- C) Autosome 21
- D) Mitochondrial DNA

4. What is the probability of having a boy or a girl during conception?

- A) 25%
- B) 75%
- C) 50%
- D) 100%

5. Which of the following is an example of a sex-linked trait?

- A) Hair color
- B) Eye color
- C) Daltonism (color blindness)
- D) Height

6. Where are genes that determine sex-linked traits primarily located?

- A) Y Chromosome
- B) Autosomes
- C) X Chromosome
- D) Mitochondria

7. A woman with normal color vision whose father was colorblind marries a man with normal color vision. What is the probability that their son will be colorblind?

- A) 0%
- B) 25%
- C) 50%
- D) 100%

8. What is the term for a sudden, permanent change in genetic material?

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

9. Which of the following is an example of a mutagenic agent?

- A) Vitamin C
- B) Water
- C) Ultraviolet (UV) radiation
- D) Glucose

10. What type of mutation involves a change in a single nucleotide base in DNA?

- A) Chromosomal mutation
- B) Gene mutation
- C) Ploidy
- D) Translocation

11. What is a 'silent mutation'?

- A) A mutation that causes death
- B) A mutation with no observable effect
- C) A mutation that is always beneficial
- D) A mutation in non-coding DNA

12. What is the term for the ability of an organism to change its phenotype in response to environmental changes?

- A) Genotype
- B) Plasticity
- C) Mutation
- D) Recombination

13. What is the difference between continuous and discontinuous variation?

- A) Continuous is qualitative, discontinuous is quantitative
- B) Continuous is environmental, discontinuous is genetic
- C) Continuous is quantitative, discontinuous is qualitative
- D) Continuous is genetic, discontinuous is environmental