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

Biology · Answer Key · 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) Plasticy
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