

# BIOL-8 Practice Test 04

## Modules 8-9: Cell Division & Inheritance

**Instructions:** This practice test covers material from Modules 8 and 9. Answer all questions to the best of your ability.

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### Part A: Multiple Choice

#### Module 8: Cell Division

1. Which phase of the cell cycle is where DNA is replicated? A) G1 B) S Phase C) G2 D) Cytokinesis
2. The correct order of phases in mitosis is: A) Metaphase, Prophase, Anaphase, Telophase B) Prophase, Anaphase, Metaphase, Telophase C) Prophase, Metaphase, Anaphase, Telophase D) Telophase, Anaphase, Metaphase, Prophase
3. During which phase do chromosomes line up at the center (equator) of the cell? A) Prophase B) Metaphase C) Anaphase D) Telophase
4. The end product of mitosis is: A) Two genetically identical diploid cells B) Four genetically unique haploid cells C) Two unique diploid cells D) Four identical haploid cells
5. Meiosis occurs in: A) All body cells (somatic cells) B) Only germ cells (to produce gametes) C) Only bacteria D) Skin cells for repair
6. Crossing over, which increases genetic diversity, occurs during: A) Prophase of Mitosis B) Prophase I of Meiosis C) Metaphase II of Meiosis D) Cytokinesis
7. If a human skin cell has 46 chromosomes, how many chromosomes will a sperm cell have? A) 46 B) 92 C) 23 D) 12

8. Nondisjunction is the failure of chromosomes to separate, which can lead to: A) Cancer B) Down Syndrome (Trisomy 21) C) Identical twins D) Faster cell division

## Module 9: Inheritance

9. An alternate form of a gene is called a(n): A) Chromosome B) Allele C) Genotype D) Phenotype

10. If an individual has two identical alleles for a trait (e.g., **AA**), they are: A) Heterozygous B) Homozygous dominant C) Homozygous recessive D) Hemizygous

11. In a cross between a heterozygous tall plant (Tt) and a short plant (tt), what is the probability of having short offspring? A) 0% B) 25% C) 50% D) 100%

12. Which inheritance pattern results in an intermediate phenotype (e.g., Red x White = Pink)? A) Complete dominance B) Codominance C) Incomplete dominance D) X-linked inheritance

13. Blood type AB (genotype  $I^A I^B$ ) is an example of: A) Incomplete dominance B) Codominance C) Simple dominance D) Sex-linked inheritance

14. Traits controlled by genes on the X chromosome are called: A) Autosomal traits B) Sex-linked traits C) Polygenic traits D) Multiple alleles

15. Why are X-linked recessive disorders (like color blindness) more common in males? A) Males have two X chromosomes B) Males have only one X chromosome, so there is no dominant allele to mask the recessive one C) The Y chromosome carries the disorder D) Males have weaker immune systems

16. A chart that tracks a trait across generations in a family is called a: A) Karyotype B) Punnett Square C) Pedigree D) Genetic map

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## Part B: Fill in the Blank

17. The division of the cytoplasm at the end of cell division is called \_\_\_\_.

18. Mitosis produces cells for growth and repair, while meiosis produces \_\_\_\_.

19. Uncontrolled cell division is known as \_\_\_\_.
20. Gregor Mendel represents the "Father of \_\_\_\_."
21. The physical appearance of an organism is its \_\_\_\_, while its genetic makeup is its \_\_\_\_.
22. In a heterozygote, the allele that is masked (hidden) is called \_\_\_\_.
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## Part C: Short Answer

23. List three key differences between Mitosis and Meiosis.
24. Set up a Punnett square for a cross between two heterozygous parents (**Aa** x **Aa**). What are the Genotypic and Phenotypic ratios?
25. Explain what "Independent Assortment" means. When does it occur?

*End of Practice Test 04*