

# **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<sup>A</sup>I<sup>B</sup>) 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*