

BIOL-8 Practice Test 04

Module 8: Cell Division

Instructions: This practice test covers material from Module 8 only. Answer all questions to the best of your ability.

Part A: Multiple Choice

- 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

- 9.** During which phase of mitosis do sister chromatids separate and move to opposite poles? A) Prophase B) Metaphase C) Anaphase D) Telophase
- 10.** Homologous chromosomes are separated during: A) Anaphase of mitosis B) Anaphase I of meiosis C) Anaphase II of meiosis D) Prophase II of meiosis
- 11.** A cell that is diploid ($2n$) contains: A) Only one set of chromosomes B) Two sets of chromosomes (homologous pairs) C) Four sets of chromosomes D) No chromosomes
- 12.** Which is a purpose of mitosis but NOT of meiosis? A) Producing gametes B) Increasing genetic variation C) Growth and tissue repair D) Reducing chromosome number
- 13.** Interphase consists of which sub-phases? A) Prophase, Metaphase, Anaphase B) G1, S, G2 C) Meiosis I and Meiosis II D) Cytokinesis and karyokinesis
- 14.** After meiosis I is complete, each resulting cell is: A) Diploid with replicated chromosomes B) Haploid with replicated chromosomes (sister chromatids still joined) C) Haploid with single chromatids D) Tetraploid
- 15.** Independent assortment occurs during: A) Metaphase of mitosis B) Metaphase I of meiosis C) Anaphase II of meiosis D) Prophase of mitosis
- 16.** Uncontrolled cell division is known as: A) Apoptosis B) Cancer C) Meiosis D) Differentiation

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.** The structure where two sister chromatids are joined together is called the ____.
- 20.** The pairing of homologous chromosomes during Prophase I is called ___, and the structure formed is a ____.
- 21.** A cell with one set of chromosomes (such as a gamete) is described as ____.

Part C: Short Answer

- 22.** List three key differences between Mitosis and Meiosis.
- 23.** Describe what happens during each phase of mitosis (Prophase, Metaphase, Anaphase, Telophase).
- 24.** Explain what "crossing over" and "independent assortment" are. How do they increase genetic variation?
- 25.** What is nondisjunction? Describe one specific condition that can result from it and explain the chromosome abnormality involved.

End of Practice Test 04