

# 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.

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### 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
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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. 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 \_\_\_\_.

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## 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*