

General Biology I / Biology 1306

Self Quiz Ch 12 - Cell Cycle

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) The centromere is a region in which 1) \_\_\_\_\_
  - A) chromosomes are grouped during telophase.
  - B) chromatids remain attached to one another until anaphase.
  - C) metaphase chromosomes become aligned at the metaphase plate.
  - D) the nucleus is located prior to mitosis.
  - E) new spindle microtubules form at either end.
  
- 2) Starting with a fertilized egg (zygote), a series of five cell divisions would produce an early embryo with 2) \_\_\_\_\_  
how many cells?
  - A) 4
  - B) 32
  - C) 16
  - D) 64
  - E) 8
  
- 3) How do the daughter cells at the end of mitosis and cytokinesis compare with their parent cell when it 3) \_\_\_\_\_  
was in  $G_1$  of the cell cycle?
  - A) The daughter cells have half the number of chromosomes and half the amount of DNA.
  - B) The daughter cells have the same number of chromosomes and half the amount of DNA.
  - C) The daughter cells have the same number of chromosomes and twice the amount of DNA.
  - D) The daughter cells have the same number of chromosomes and the same amount of DNA.
  - E) The daughter cells have half the amount of cytoplasm and half the amount of DNA.
  
- 4) Which term describes centromeres uncoupling, sister chromatids separating, and the two new 4) \_\_\_\_\_  
chromosomes moving to opposite poles of the cell?
  - A) prometaphase
  - B) metaphase
  - C) anaphase
  - D) telophase
  - E) prophase
  
- 5) If a cell has 8 chromosomes at metaphase of mitosis, how many chromosomes will it have during 5) \_\_\_\_\_  
anaphase?
  - A) 2
  - B) 4
  - C) 16
  - D) 8
  - E) 1
  
- 6) Chromosomes first become visible during which phase of mitosis? 6) \_\_\_\_\_
  - A) prometaphase
  - B) metaphase
  - C) prophase
  - D) telophase
  - E) anaphase
  
- 7) The somatic cells derived from a single-celled zygote divide by which process? 7) \_\_\_\_\_
  - A) meiosis
  - B) replication
  - C) binary fission
  - D) mitosis
  - E) cytokinesis alone
  
- 8) During which phases of mitosis are chromosomes composed of two chromatids? 8) \_\_\_\_\_
  - A) from  $G_1$  of interphase through metaphase
  - B) from  $G_2$  of interphase through metaphase
  - C) from anaphase through telophase
  - D) from metaphase through telophase
  - E) from interphase through anaphase

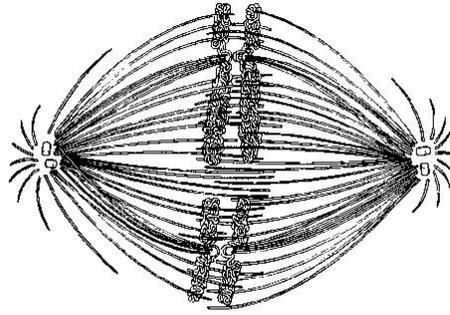


Figure 12.2

- 9) If the cell whose nuclear material is shown in Figure 12.2 continues toward completion of mitosis, which of the following events would occur next? 9) \_\_\_\_\_
- A) spindle fiber formation
  - B) synthesis of chromatids
  - C) cell membrane synthesis
  - D) nuclear envelope breakdown
  - E) formation of telophase nuclei
- 10) Cells that are in a nondividing state are in which phase? 10) \_\_\_\_\_
- A) S
  - B)  $G_0$
  - C) M
  - D)  $G_2$
  - E)  $G_1$
- 11) DNA is replicated at this time of the cell cycle: 11) \_\_\_\_\_
- A)  $G_2$
  - B) M
  - C)  $G_1$
  - D)  $G_0$
  - E) S
- 12) Nerve and muscle cells are in this phase: 12) \_\_\_\_\_
- A)  $G_1$
  - B) M
  - C)  $G_2$
  - D) S
  - E)  $G_0$
- 13) Through a microscope, you can see a cell plate beginning to develop across the middle of a cell and nuclei re-forming on either side of the cell plate. This cell is most likely 13) \_\_\_\_\_
- A) a bacterial cell dividing.
  - B) an animal cell in the process of cytokinesis.
  - C) a plant cell in metaphase.
  - D) a plant cell in the process of cytokinesis.
  - E) an animal cell in the S phase of the cell cycle.
- 14) Which of the following does *not* occur during mitosis? 14) \_\_\_\_\_
- A) condensation of the chromosomes
  - B) separation of the spindle poles
  - C) separation of sister chromatids
  - D) spindle formation
  - E) replication of the DNA
- 15) One difference between cancer cells and normal cells is that cancer cells 15) \_\_\_\_\_
- A) are arrested at the S phase of the cell cycle.
  - B) cannot function properly because they are affected by density-dependent inhibition.
  - C) are unable to synthesize DNA.
  - D) are always in the M phase of the cell cycle.
  - E) continue to divide even when they are tightly packed together.

- 1) B
- 2) B
- 3) D
- 4) C
- 5) C
- 6) C
- 7) D
- 8) B
- 9) E
- 10) B
- 11) E
- 12) E
- 13) D
- 14) E
- 15) E