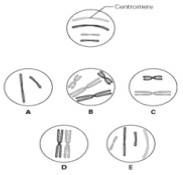
Name _____

Chapters 9 & 10: The Cell Cycle - Review

1) Starting with a fertilized egg (zygote), a series of five cell divisions would produce an early embryo with how many cells?
A) 4
B) 8
C) 16
D) 32
E) 64

2) If there are 20 chromatids in a cell, how many centromeres are there?
A) 10
B) 20
C) 30
D) 40
E) 80

Use the following information to answer the questions below.



The lettered circle in Figure 12.1 shows a diploid nucleus with four chromosomes. There are two pairs of homologous chromosomes, one long and the other short. One haploid set is symbolized as black and the other haploid set is gray. The chromosomes in the unlettered circle have not yet replicated. Choose the correct chromosomal conditions for the following stages.

3) at prometaphase of mitosis

4) one daughter nucleus at telophase of mitosis

5) A cell containing 92 chromatids at metaphase of mitosis would, at its completion, produce two nuclei containing how many chromosomes?
A) 12
B) 16
C) 23
D) 46
E) 92

6) All of the following occur during prophase of mitosis in animal cells *except*
A) the centrioles move toward opposite poles.
B) the nucleolus can no longer be seen.
C) the nuclear envelope disappears.
D) chromosomes are duplicated.
E) the spindle is organized.

7) How is the S phase of the cell cycle measured?
A) counting the number of cells produced per hour
B) determining the length of time during which DNA synthesis occurred in the cells
C) comparing the synthesis versus the breakdown of S protein
D) determining when the S chromosome is synthesized
E) stopping G_1 and measuring the number of picograms of DNA per cell

8) Cytokinesis usually, but not always, follows mitosis. If a cell completed mitosis but not cytokinesis, the result would be a cell with
A) a single large nucleus.
B) high concentrations of actin & myosin.
C) two abnormally small nuclei.
D) two nuclei.
E) two nuclei but with half the amount of DNA.

9) Taxol is an anticancer drug extracted from the Pacific yew tree. In animal cells, taxol disrupts microtubule formation by binding to microtubules and accelerating their assembly from the protein precursor, tubulin. Surprisingly, this stops mitosis. Specifically, taxol must affect
A) the fibers of the mitotic spindle.
B) anaphase.
C) formation of the centrioles.
D) chromatid assembly.
E) the S phase of the cell cycle.

10) Movement of the chromosomes during anaphase would be *most* affected by a drug that
A)reduces cyclin concentrations.
B) increases cyclin concentrations.
C) prevents elongation of microtubules.
D) prevents shortening of microtubules.
E) prevents attachment of the microtubules to the kinetochore.