CELL GROWTH & DIVISION REVIEW GUIDE

Name: _____ Period: _____

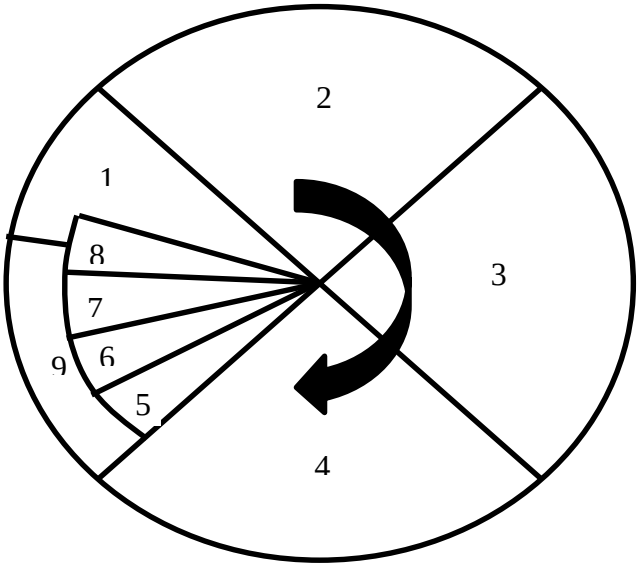
True and False: Mark 'T' or 'F'. If false correct the underlined word with the proper term(s).

a. A cell needs to stay small so it divides to decrease surface area/volume. _____
b. A cell's volume grows faster than its surface area. _____
c. Cells must reproduce because they eventually all die, and they need to be replaced. _____
d. Mitosis is the part of the cell cycle where the cell is in a "resting state", but it is really doing its normal work. _____
e. The cells made in mitosis are genetically different. _____
f. Sexual reproduction is how mitosis occurs. _____
g. There are some cells that cannot divide. _____
h. There are two main parts of the cell cycle: mitosis and interphase. _____
i. Interphase has three parts: G_3, S, and M. _____
j. A cell that has 10 chromosomes will have 5 chromosomes after mitosis. _____

Cell Cycle and Growth Matching: match the term to the description

A. Interphase B. G_2 Phase C. Cell Division D. G_1 Phase E. S Phase F. M Phase

_____ 1. The cytoplasm of the cell is being divided.
_____ 2. Chromosomes are replicated.
_____ 3. Which phase of the cell cycle is characterized by a non-dividing cell?
_____ 4. The period of cell growth and development between mitotic divisions.
_____ 5. What is the phase where cytokinesis occurs?
_____ 6. What phase of the cell cycle is 2?
_____ 7. What phase of the cell cycle is 3?
_____ 8. What phase of the cell cycle is 4?
_____ 9. Numbers 1 and 9 make up what phase of the cell cycle?
_____ 10. What do numbers 2, 3, and 4 make up?



Cell Division Matching: match the term to the description

A. Prophase C. Telophase E. Anaphase G. Chromatid I. Mitosis K. Cell plate
B. Interphase D. Metaphase F. Centromere H. Cytokinesis J. Spindle fiber

_____ 1. The sister chromatids are moving apart.
_____ 2. A new nuclear membrane is forming.
_____ 3. The chromosomes become invisible.
_____ 4. The nuclear membrane begins to fade from view.
_____ 5. The chromosomes are moving towards the poles.
_____ 6. Chromatids line up along the middle of the cell.
_____ 7. The spindle is formed.
_____ 8. Chromosomes are not visible.
_____ 9. The reverse of prophase.
_____ 10. What is the phase where chromatin condenses to form chromosomes?
_____ 11. Structure that connects two chromatids.
_____ 12. A chromosome pair connected by a centromere, what is each individual chromosome called?
_____ 13. What are the two parts of cell division?
_____ 14. What structure forms in prophase along which the chromosomes move?
_____ 15. Which phase of mitosis is the last phase that chromatids are together?
_____ 16. What structure is produced when protein fibers radiate from centrioles?
_____ 17. What forms across the center of a plant cell near the end of telophase?

Answer the following questions.

1. What is the longest phase of the cell cycle? _____
2. What 2 structures are connected to spindle fibers? _____
3. How many daughter cells are created from mitosis and cytokinesis? _____
4. If a human cell has 46 chromosomes, how many chromosomes will be in each daughter cell? _____
5. What structure holds the individual chromatids together? _____
6. What regulates the timing of the cell cycle? _____

<u>On the line above each of the pictures shown below, label the phases of cell division using these letters</u>:

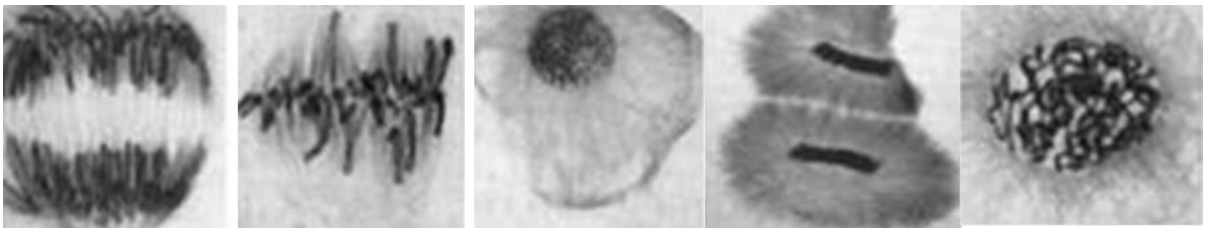
A. anaphase B. interphase C. metaphase D. prophase E. telophase

<u>Now write a number on each line after the comma to include the descriptions</u>:

1) normal cell function, nucleus/ nucleolus visible,
2) chromatin condenses into chromosomes, nucleus (nuclear membrane/envelope) breaks down, chromosomes attach to spindle after spindle forms,
3) chromosomes move to the middle of the cell (equator),
4) chromosomes move apart, away from equator toward poles,
5) two nuclei form, cell completes cytokinesis at the end of this phase

Letter, number

_____,_____ _____,_____ _____,_____ _____,_____ _____,_____



Controls on Cell Division: *If the statement is false, change the underlined word or words to make the statement true.*

_____ **1.** Cells tend to <u>continue</u> dividing when they come into contact with other cells.

_____ **2.** Cell division <u>speeds up</u> when the healing process nears completion.

_____ **3.** Proteins called <u>growth factors</u> regulate the timing of the cell cycle in eukaryotic cells.

_____ **4.** If chromosomes have not attached to spindle fibers during metaphase, an <u>internal</u> regulatory protein will prevent the cell from entering anaphase.

_____ **5.** Growth factors are external regulatory proteins that <u>slow down</u> the cell cycle.

_____ **6.** Once apoptosis is triggered, a cell proceeds to <u>self-destruct</u>.

Stem Cells and Development: answer the following questions on/in the blank.

_____ **7.** Which is an example of a totipotent cell? **A.** blastocyst **B.** lymphocyte **C.** fertilized egg

_____ **8.** Adult stem cells are best described as **A.** multipotent. **B.** pluripotent. **C.** totipotent.

9. _ _____ and growth factors are examples of regulatory proteins that control the cell cycle.

10. _____ is the controlled series of steps that lead to cell death.

11. The 1st few cells that form a(n) embryo are said to be _____ because they can become any type of cell.

Review Topics for Photosynthesis & Cellular Respiration: Labeling diagrams, where does oxygen come from, where does Carbon in our body come from, ATP to ADP cycle

– These topics will be reviewed on the test… STUDY!!!