Name:

Chapter 10 Unit Exam

**Multiple Choice:** Choose the correct answer from the choices provided. **BE SURE TO MARK THE CORRECT LETTER ON YOUR SCANTRON!!!**

1. In which phase do spindle fibers first appear?
2. Metaphase
3. Anaphase
4. Telophase
5. Prophase
6. The correct order of the cell cycle is….
7. S-phase, G1-phase, G2-phase, M-phase
8. G1-phase, G2-phase, S-phase, M-phase
9. M-phase, G1-phase, S-phase, G2-phase
10. G1-phase, S-phase, G2-phase, M-phase
11. Calculate the surface area to volume ratio from the following, surface area measurements 3x3x6, volume measurements 3x3x3.
12. 54:27
13. 3:4
14. 1:1
15. 2:1
16. Daughter cells result after which of the following occurs…
17. Cells fuse together to make one large cell
18. One large cell splits apart into two separate cells which are genetically the same
19. One large cell splits apart into two separate cells that are not similar
20. All cells start off as daughter cells
21. Before cell division can take place what essential step happens first?
22. Replication of DNA
23. Chromosomes split apart
24. Nucleus is visible
25. Cytokinesis occurs
26. If the volume of the cell increases more than the surface area this will cause the SA:Volume to…
27. Increase
28. Decrease
29. Stay the same
30. This ratio has no affect on the cell
31. The most time is spent in which stage (think back to the onion root tip lab)…
32. Telophase
33. Metaphase
34. Prophase
35. Anaphase
36. G1-phase and G2-phase are when cells go through…
37. Mitosis
38. Cytokinesis
39. Extensive growth
40. Chromosome duplication
41. Cancer cells arise from….
42. Regulated cell growth
43. Uncontrolled cell growth
44. Mediation
45. Proteins
46. The following happen(s) during S-phase….
47. Chromosome replication
48. Synthesis of DNA
49. Separation of cells
50. Both a and b
51. During mitosis chromosomes split apart into…
52. Chromes
53. Chromatids
54. Molecules
55. DNA

**Matching:** Match the appropriate word with its definition. Each word will only be used one time

1. Phase that starts mitosis E A. Metaphase
2. Two tiny structures located in the B. Telophase

cytoplasm near the nuclear envelope AD

1. Made up of DNA AB C. Surface Area:Volume
2. Division of the cytoplasm AC D. Anaphase
3. Phase that follows prophase A E. Prophase
4. Inverse Relationship C AB. Chromosomes
5. Last phase of mitosis B AC. Cytokinesis
6. Middle phase D AD. Centrioles

**Essay**

1. In class we discussed two limitations that are experienced during cell growth. What are these two limitations? How does the cell make adjustments to the limitations? Be sure to include at least 3 supporting facts to explain these limitations.

Limitations: the larger the cell becomes more stress is placed on the DNA, makes it difficult to move nutrients in and wastes out

Examples can be used as an analogy such as the city example present in the book or points made in the lecture

1. A. How do cyclins regulate cell growth?

Cyclins are proteins that regulate the cell cycle by controlling the timing of the cell cycle. There are other types of regulators present in the cell as well

B. Compare cancer cells to normal cells.

- explain how they are not controlled by regulators

- explain how they change the surface area:volume

- explain how rapid growth is harmful to the body

C. Name three interesting facts we discussed about cancer in class

1. defect in the p53 gene

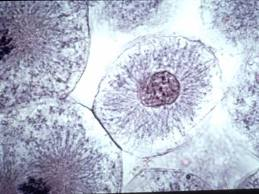
2. masses of cancer cells are called tumors

3. cancer cells can break away from tumors and spread to other parts of the body

4. cancer is caused by carcinogens

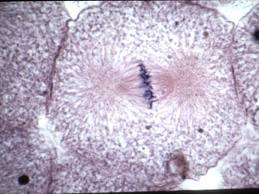
5. the size of a tumor determines the stage of cancer and the course of treatment

1. The following pictures represent the four phases of mitosis. Correctly label each phase and give two supporting facts as why you labeled it as so.

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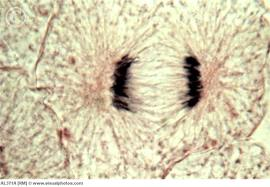
Prophase

1. Chromosomes become visible
2. Centrioles also become visible
3. Nucleolus disappears/ break down of nuclear envelope
4. Spindle fibers appear and begin to attach to chromosomes



Metaphase

1. Chromosomes line up across center of the cell
2. Microtubules connect to the centromeres of the chromosomes



Anaphase

1. Sister chromatids split at the centromeres
2. Separate to opposite poles of the cell
3. Spindle fibers begin to shrink



Telophase

1. Chromosomes which used to be recognizable are now distorted into tangled masses
2. Nuclear envelope begins to re-form around the clusters of chromosomes
3. Spindles begin to break apart
4. Nucleolus begins to appear