Biology 122 – Test Review Correction (Chapters 1 & 2)

Chapter 1 Review (Mitosis)

Multiple Choice:

#1. D #2. C #3. B #4. C #5. C #6. A #7. B #8. B #9. A #10. A

Open Answer:

#11. Mitosis: In prophase, the nucleus disappears and the centrioles separate. In metaphase, the chromosomes line up and the spindle fibers attach to the centromeres. In anaphase, the chromosomes separate. In telophase, the nucleus reappears and the spindle disintegrates.

Cytokinesis: The cell’s cytoplasm is separated and the cells divide.

#14. An increase in volume means a smaller relative surface area, which hinders growth.

#17. Interphase: In G1 – the cell grows. In S phase – chromosomes are replicated. In G2 – the organelles necessary for mitosis are synthesized.

#19. Prophase – Metaphase – Anaphase – Telophase. See #11.

#20. The new cell will have the same number of chromosomes as the parent cell.

#23. Cyclins controls the rate of cell division and exist in higher numbers when a cell is about to divide.

#24. If cells don’t divide enough, the body can’t grow or heal. If cells divide too fast, the cells develops cancer.

#25. Cancerous cells do not have or do not respond to their regulators and they divide too quickly. They often have a defect in gene p53.

#29(b). When 2 sister chromatids are attached at the centromere, they are exact copies of each other. This in important because each new cell needs the same DNA.

Chapter 2 (Meiosis)

#1. Homologous chromosomes are a pair containing the same categories of information. One comes from the female parent, the other from the male parent.

#2. a) 2n

b) n = number of chromosomes.

#3. a) 8

b) 4

#4. a) 46

b) 23

#5. Meiosis reduces the number of chromosomes by half while dividing to create new cells.

#6. True.

#7. 4

#8. Crossing over results in a unique set of DNA being provided to each gamete.

#9. A) sperm cells

b) egg cells.

c) polar bodies (p. 278)