WEEK 7 EXTRA CREDIT ASSIGNMENT #5 (Muscle Physiology)

Obtain the CD Rom titled Interactive Physiology from Reggie and load it into the computer. Put on your headphones. (The program should self-start). Click on the LAUNCH button. Click on START. Click on MUSCULAR. Select NEUROMUSCULARE JUNCTION. View the presentation and answer the following questions on this handout.

1. Skeletal muscles contract as a result of impulses from ______________________ ______________________.

2. A Neuromuscular Junction is the place where a __________________________ neuron stimulates a _______________________________ cell.

3. Name the connective tissue that insulates each skeletal muscle cell.

___________________

4. The folded region of the sarcolemma is called the __________________________

___________________

5. During the resting membrane potential, the inside of the motor neuron carries a net ____________ charge and the outside carries a net ____________charge.

6. What type of ion enters the axon terminal? ______________________________

7. _________________ vesicles then fuse with the membrane of the axon terminal.

8. Name the neurotransmitter contained within these vesicles.

_____________________

9. This neurotransmitter then binds to _________________ sites of chemically regulated ion channels on the motor _________________

10. Ion channels then open, resulting in an influx of _________________ ions and an efflux of _________________ ions.
11. This ion exchange causes a local _______________________________ of the motor end plate.

12. The action potential that results causes a release of ________________ ions from the terminal cisternae of the sarcoplasmic reticulum.

After viewing the Presentation Summary, click on **TOPIC MENU** to the left.

Click on **SLIDING FILAMENT THEORY**. View the presentation and answer the following questions.

13. Name the five molecules and the ion involved in the Sliding Filament Theory.
   
   a. _____________________________________________________________
   
   b. _____________________________________________________________
   
   c. _____________________________________________________________
   
   d. _____________________________________________________________
   
   e. _____________________________________________________________
   
   f. _____________________________________________________________

14. In the unstimulated muscle, which molecule covers the binding sites on actin?

   _____________________________________________________________

15. Tropomyosin strands are dragged off the binding sites when ________________ ions bind to ______________________________________

16. List the six steps of cross bridge cycling.
   
   a. _____________________________________________________________
   
   b. _____________________________________________________________
   
   c. _____________________________________________________________
   
   d. _____________________________________________________________
   
   e. _____________________________________________________________
   
   f. _____________________________________________________________

17. During contraction, are all cross bridges bound to actin at the same time?_______

Click on “Close Book” to exit The Family Scrapbook. Click on “Quit” to exit program.