

Due: Monday Oct 31

1. What is a cell membrane composed of? How thick is it? Why is it important to biomedical instrumentation?
2. What three ions play the largest role in setting the electrical environment of an excitable cell?
3. Why is a membrane in resting state referred to as “polarized”? What state refers to the increase in membrane potential during an action potential? What state refers to the decrease following an action potential?
4. Briefly describe the difference between the “absolute refractory period” and the “relative refractory period” of an action potential.
5. In biomedical measurements, what does “volume conductor” refer to and why is it important?
6. Briefly describe (don’t just list) the components of spinal nervous system reflex arc in terms that make sense to you.
7. Where are action potentials in the heart initiated? Action potentials in what part of the heart are responsible for the main peak in the ECG signal?
8. Which part of the brain controls instinctive responses? Which part initiates motor functions and holds memory and thought processes?
9. Briefly describe the following biomedical measurement systems in terms that make sense to you:
 - a. ECG
 - b. EEG
 - c. EMG
 - d. ENG
 - e. ERG
10. Search *You Tube* for educational videos related to biomedical instrumentation. Locate a video that teaches you something interesting (and relevant to ECE445). Briefly describe what you saw that was interesting and list the URL of the video. If you find anything you really feel should be incorporated into class lectures, please email the info to Dr. Mason.