

Exam 4 12/6/06 Bio 321

Name _____ lab _____

Directions: Unless otherwise noted, use standard English and well-organized sentences and paragraphs to respond to the statements or questions. Note point values.

1. Describe the anatomical and chemical design of the sympathetic chain and the innervation of effectors. (15)

2. What is the anatomical, chemical, and physiologic relationship of the adrenal gland to the sympathetic system? How is the adrenal gland related to neurohormonal events and the fight or flight response. (15)

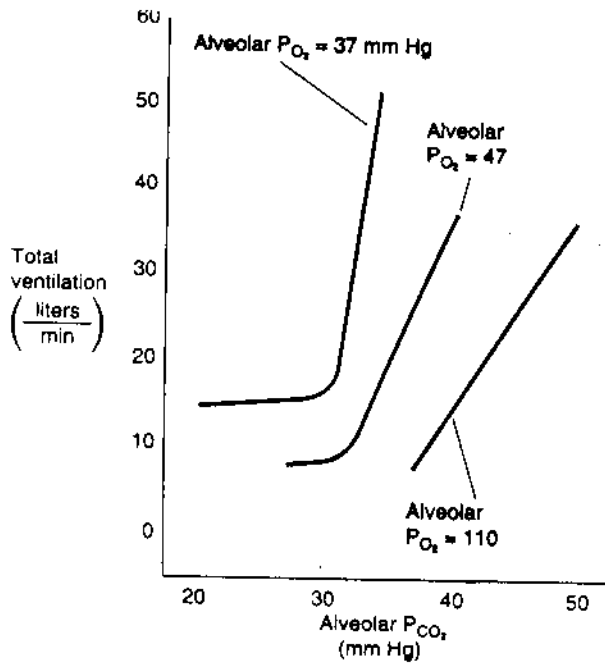
3. By example, demonstrate the cooperative and antagonistic roles of the parasympathetic and sympathetic nervous system. How is this possible anatomically? (15)

4. Draw and label a graph with a normal human oxygen dissociation curve. Draw in a curve shifted to the left and one to the right of that normal curve--clearly label these effects. Choose one of those effects and in 1-3 sentences give the physiological reasoning for the response. (10)

5. Describe the multifaceted role of hemoglobin in respiration and gas carrying capacity. How does one gas affect Hb's ability to carry another gas? (15)

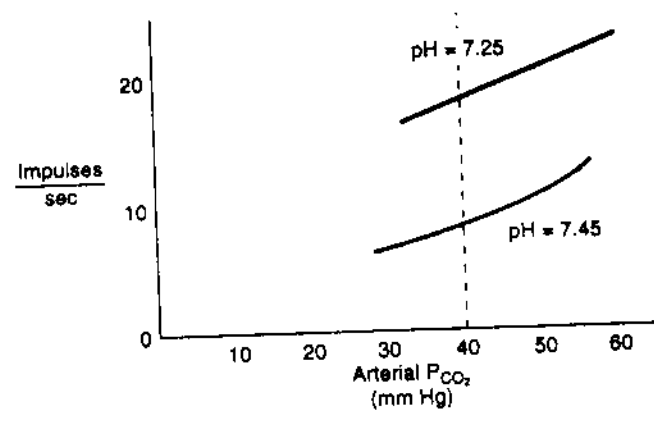
6. Calculate the pressure of oxygen in the alveolus of a 34 year old who has just climbed to the top of the Beartooth pass at 11,000 ft and a barometric pressure of 603 mmHg-- *ignore the effect of dead air space*. What would the oxygen pressure be at sea level in that same alveolus? How do these differences affect gas movement? (10)

7. Use the graphs to explain the anatomical and physiological basis of carbon dioxide on respiration. Use chemoreceptors in your discussion of the feedback cycle. Think both broadly and with detail to integrate topics from the respiratory, nervous, and muscular systems. *Due to the flux of data and studies, refer to the "respiratory center" not a VRG or DRG or inspiratory or expiratory center for our purposes on this exam on this date...* (20)



#7

A



B