Names: _____

Working in groups of two answer the following questions – we prefer that you do not work alone, as the discussion component of the exercise will help you understand the material. Each question is worth five points (45 total).

1. Systolic blood pressure significantly increases following exercise – this is reflected by an increase in MAP during exercise.

a. Outline the physiological mechanisms that lead to this increase.

b. Why is the systolic pressure increase greater during heavy exercise than during light exercise?

2. The following questions refer to changes in pulse pressure occurring during exercise.

a. Why does pulse pressure increase during heavy exercise? Outline physiological mechanisms involved.

b. Hypothesize why you don't see this increase in pulse pressure during light exercise.

3. The following questions refer to the respiratory data from your experiment.

a. Why do you see an increase in respiratory rate and tidal volume during heavy and light exercise? Outline the physiological mechanisms that explain this and address why these increases are more pronounced during heavy exercise.

b. During recovery, minute ventilation quickly drops back to control levels. Why does this happen?

d. During exercise minute ventilation is increased. In relative terms what accounts for this increase more – respiratory rate or tidal volume? Why is this significant to body needs?

c. Ventilation is caused by spontaneous, rhythmic discharge of a pool of neurons in the inspiratory center (IC_1) of the medulla that have motor neuron connections to inspiratory muscles. How can you explain an increase in respiratory rate and an increase in tidal volume solely on the basis of the pattern of firing of this neuronal pool?

4. During exercise cardiac output and minute ventilation increase. Why is it important that these adaptations occur simultaneously?