Directions: In the space provided use Standard English and grammatically correct sentences and paragraphs (unless otherwise noted) to respond to the statement or question. Note point values.

1. Draw and label a ventricular cardiac action potential on a millivolt axis. Use phrases to note the ionic events during the different parts of the electrical event. On a second labeled graph drawn below the first, draw in the mechanical event caused by the action potential. (5,5 pts)

2. Use a diagram to display the important pressures involved in ultrafiltration at the capillary bed. BRIEFLY describe normal healthy capillary exchange. (5,5)

If a person had liver problems and was vastly deficient in plasma proteins, how would capillary exchange be affected? What clinical problem would this cause for the person? (5)
3. Define, and then describe how "preload" and "afterload" affect stroke volume and cardiac output. (15)

4. Draw and label a normal electrocardiogram. What does each wave form indicate?—use phrases at the appropriate part of the ECG. (10)
5. You are standing, closely packed, with a bunch of friends in a sauna. Why do you get dizzy and almost faint? But luckily, before you faint, your short term blood pressure control mechanisms kick into play. Tie all the appropriate concepts together and discuss the anatomy (control centers and neurons) and physiology (function, interactions, etc) of this scenario. (15)

If you did faint, how could that fainting be considered a protective effect? (5)

6. Blood flows differently on the arterial versus the venous side of the cardiovascular system. Why? What are important factors affecting blood flow that contribute to this difference? (10)
7. Identify, with sentences (use anatomical and physiological details), four of the following: (5pts \( \times 4 = 20 \) pts)

a) The pericardium

b) Common pathway of clotting

c) Histology of cardiac muscle

d) The conduction and nodal system