

I. 請選七題作答，每題10分，共70分

1. Draw a diagram of the pressure changes in the left ventricle and aorta throughout the cardiac cycle. Show when the valves open and close, when the heart sounds occur, and the pattern of ventricular ejection.
2. Draw and label a normal electrocardiogram (ECG). Relate the P, QRS, and T waves to the ventricular action potential.
3. Describe the role of blood volume in the long-term regulation of arterial pressure.
4. Describe the sequence of events by which an action potential in a motor neuron produces an action potential in the plasma membrane of a skeletal muscle fiber.
5. Describe the three major functions of ATP in skeletal muscle contraction.
6. Discuss differences between neurotransmitters and neuromodulators.
7. Describe the functions of the endothelial cells and the Sertoli cells.
8. Describe the effects of estrogen and progesterone on the endometrium, cervical mucus, and myometrium.
9. List the exocrine secretions and functions of the following gastrointestinal organs: stomach, pancreas, liver and small intestine.

II. Define the following terms briefly: (每小題5分，共30分)

- a) Excitation-contraction coupling
- b) G protein
- c) Baroreceptor reflexes
- d) Endothelium-derived relaxing factor (EDRF)
- f) Long-term potentiation (LTP)
- g) Gap junction