

Heart and Lung

Problem Set A: Cardiovascular Topics



This study guide will go over big points covered in lectures pertaining to the cardiovascular system.

1. Draw a diagram with trendlines showing changes in pressure, velocity, and cross-sectional area throughout the vascular system. In addition, draw the wall anatomies comparing veins to arteries.

2. Define the following terms:
 - a. Systole
 - b. Diastole
 - c. Preload
 - d. Afterload
 - e. Total peripheral resistance
 - f. Central venous pressure
 - g. Cardiac output
 - h. Stroke volume
 - i. Ejection fraction

3. The following questions pertain to compliance:
 - a. Define compliance.
 - b. What does high compliance suggest?
 - c. What types of vessels have greater compliance? What is their purpose?
 - d. What are the age-related changes to compliance?
 - e. What is the effect of chronic hypertension on arterial vessels?

4. Give two examples of effects that elastic properties have on blood vessels.

5. Regarding the electrical activity of the heart, define and differentiate automaticity and rhythmicity.

12. Define the following terms:

- a. Arrhythmia-
- b. Bradycardia-
- c. Tachycardia- heart beats too fast
- d. Atrial fibrillation-
- e. Ventricular fibrillation-

13. Describe all the steps of the cardiac cycle. Correlate each step with chamber contractions, valve openings, pressures, heart sounds, and the part of the EKG.

14. Draw a graph with systolic and diastolic trendlines pertaining to the Frank-Starling Law.

15. Compare active and reactive hyperemia.

16. What is the Bohr effect? Draw the oxygen binding curves for myoglobin and hemoglobin.