Chapter 13 – Cardiovascular System – the Heart

Outline:
Heart location
Pericardium
  Fibrous and serous pericardium
  Pericarditis
Layers of heart wall
  Endocardium, myocardium, epicardium
  Differences between skeletal and cardiac muscle
External & internal heart anatomy
  Heart chambers, valves, and blood vessels
  Fibrous skeleton
    Functions
  Pulmonary and systemic circuits
    Circuit of blood flow through the heart
  Coronary circulation
    Anastomoses, collateral circuits
    Coronary Artery Disease
Cells of the myocardium
  Automorphic cells
    SA node, AV node, bundle of His, bundle branches, Purkinje fibers
  Electrocardiogram (ECG)
    P wave, QRS complex, T wave
Cardiac Cycle
Heart sounds
  S1 & S2

Objectives
1. Know basic heart anatomy (chambers and valves).
2. What is the pericardium? Identify the layers associated with the pericardium?
3. Know the circuit of blood flow through the heart.
4. Describe the different types of cells present in the myocardium.
5. Where are the automorphic cells located? What is the function of each population of cells? Describe the spread of electrical activity through the heart.
6. Why is the SA node considered the pacemaker of the heart?
7. How do the heart valves promote blood flow in one direction?
8. Describe the structure/operation of the AV valves.
9. Describe the structure/operation of the semilunar valves.
10. What is the importance of intercalated discs in the myocardium?
11. How is cardiac muscle cell organization similar / different to skeletal and smooth muscle?
12. What is the main function of the heart?
13. What is an ECG? What does “ECG” stand for?
14. What is the cardiac cycle? What do the terms systole and diastole mean? What type of muscular activity is the result of depolarization or repolarization of the heart chambers? How does the ECG relate to the cardiac cycle?
15. Distinguish between S1 and S2. When do these sounds occur?
16. What is coronary artery disease? What are the risk factors? What is atherosclerosis?
17. What are the differences between the left and right heart pumps? What is the systemic circulation? Pulmonary circulation? Which carries deoxygenated blood? Oxygenated blood?
18. What is the fibrous skeleton? What are the functions of the fibrous skeleton?
19. What are anastomoses? What is their purpose?