Chapter 23: Cardiovascular System

23.1, 23.2 Basic Terms
1. Know terms capillaries, arteries, veins, closed circulatory, open circulatory, atrium, ventricle, arterioles, capillary beds.
2. Describe how particles diffuse into/out of capillaries and into/out of cells. Are cells in direct contact with capillaries? Why does it make sense that exchange of materials such as gas, nutrients or waste products occur in the capillaries as opposed to the other blood vessels?

23.4 Mammalian Cardiovascular System
1. Know the layout of the mammalian heart, especially figure 23.4A and 23.4B.
2. What is the pathway blood takes as it enters the heart via the vena cava and leaves through the aorta?

23.5 Structure and Function of Blood Vessels
1. How does the structure of arteries, veins and capillaries fit their respective functions? Describe the structure and function of each type of blood vessel.

23.6 Cardiac Cycle
1. What happens to the heart during diastole? What happens during systole? How long does each phase take?
2. What is cardiac output?
3. What makes the “lub-dupp, lub-dupp” noise as our heart beats?

23.7 Pacemaker
1. How is the tempo of the heart regulated? Explain how the pacemaker works and which tissues are involved.
2. What is an ECG and how does it record our heartbeat?
3. What is an artificial pacemaker? Where is it embedded in patients?
4. How is the brain involved in regulating heartbeat?
5. A slight decrease in blood pH causes the pacemaker to speed up. What is the function of this control mechanism?

23.8 Heart attack
1. What happens during a heart attack? How do heart attacks occur?

23.9 Blood Pressure
1. What is blood pressure? What is a pulse? Where is the pressure highest? Why do you feel your pulse only in your arteries?
2. What is the relationship between blood pressure and velocity of blood flow?
3. What happens to pressure and velocity to the blood as it travels from the artery to the veins? Why?
4. How does blood travel from the veins in our legs back to the heart?
23.10 Measuring Blood Pressure
1. How is blood pressure measured? What does the reading 120/70 mean? What is the typical blood pressure range of a normal person?
2. What causes low blood pressure? Hypertension? What are the dangers of each condition?

23.11 Smooth muscle controlling the distribution of blood
1. What percentage of the capillaries in your body have blood flowing through them?
2. What are two mechanisms that control blood distribution? Describe each mechanism.
3. Going for a vigorous swim right after eating a heavy meal is probably more likely to cause indigestion than cramping of the muscle. Explain.

23.13 Blood plasma
1. What are the components of plasma? What are the major functions of each constituent?
2. What are the cellular components of blood? What are the major functions of each constituent?

23.14 Red blood cells
1. Describe the structure and function of red blood cells. Be sure to describe the major characteristics of red blood cells.
2. Where are red blood cells made? How is the production of red blood cell controlled? Explain.
3. What is the life span of red blood cells?

23.15 White blood cells
1. What are the five types of white blood cells? Explain each of their functions.

23.16 Blood clots
1. How are blood clots formed? Go through the steps and be sure to include the names of each component.