Study Guide # 4

Human Anatomy

**Cardiovascular System: The Heart**

1. Describe the Pulmonary and Systemic circuits of the heart and how they differ.
2. Outline chambers and vessels of the circuits in the order that blood flows through them.
3. Trace all important structures of the heart a RBC would encounter during one circulatory cycle.
4. Describe the 4 valves of the heart and their functions. What are some disorders of heart valves?
5. Where is the fibrous skeleton of the heart and what are the main roles of the fibroskeleton?
6. Name the important anatomical structures on the external surface of the heart and their roles.
7. Discuss the most common congenital heart defects described in class, and their consequences.
8. Outline the anatomy and functions of the fetal circulation in utero during gestation.
9. Describe how the fetal heart and circulation change from in-utero at the moment of birth.
10. Discuss the anatomy of the electrical conduction system of the heart and how it functions.
11. What are the functions and locations of the SA node, AV nodes; AV Bundle (of His); L&R Bundle branches; and the Purkinje fibers? What is an ECG? What are the basic patterns of an ECG?
12. Discuss intrinsic control of heart activity, and influences of the nervous and endocrine systems.
13. Compare parasympathetic and sympathetic divisions of the ANS with regard to heart activity.

**Cardiovascular System: Blood and Blood Vessels**

1. Describe blood and compare plasma to the formed elements in terms of content and function.
2. List and describe all blood cells and their general role. Define hematocrit and anemia.
3. Histologically and anatomically, describe an *artery, arteriole, capillary, venule* and a *vein*.
4. Discuss the 3 types of capillary beds, where they are located and their specific functions.
5. Define a “Portal System” in the body. What are the specific examples found in the body?
6. What is arteriolosclerosis and atherosclerosis? A thrombus and an embolus? Aneurysm?
7. Compare and contrast the arterial and venous systems of the systemic circuit.
8. Why are there 2 sets of veins (deep and superficial) in the systemic circuit, what is the purpose?
9. Know the names, locations and structures supplied by the major arteries of the systemic circuit.
10. What are the 3 branches of arteries arising from the aortic arch? Outline the areas they supply.
11. Which organs do the major arterial branches from the descending abdominal aorta supply?
12. Describe the major arterial vessels that arise after the end of the aorta, all the way to the feet.
13. Know the names, locations and structures drained by the major veins of the systemic circuit.

**The Lymphatic System**

1. What are the functions of the lymphatic system? Give a general outline of lymphatic anatomy.
2. Outline lymphoid tissue. Where are the lymph nodes? Where are the tonsils? Thymus? Spleen?
3. Compare encapsulated and un-encapsulated lymphoid tissue and their roles in the body.
4. What is edema and how can it arise, and why can it become harmful?