**15. The Blood homework questions**

Name and date submitted (3 pts):

Instructions: Create space in the document below and respond to all questions. Turn in your completed work by the due date.

(50 questions, 100 points, average 2 points per question)

Overview

1. Cardiovascular System: cardio = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, vascular = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The cardiovascular system consists of three interrelated components
3. The branch of science concerned with blood is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Functions and Properties of Blood

1. State the three functions of blood
2. Temperature of blood in humans is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ⁰C
3. pH of blood in humans ranges from \_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_
4. Volume of blood: Male \_\_\_\_\_\_\_\_\_\_\_liters; Female \_\_\_\_\_\_\_\_\_\_\_\_\_\_ liters
5. Blood plasma is about \_\_\_\_\_\_\_\_\_\_\_ % water and \_\_\_\_\_\_\_\_\_\_\_\_% solutes
6. The 3 main plasma proteins found in blood plasma are
   1. A
   2. G
   3. F
7. Table 19.1 Plasma proteins
   1. These transport several steroids and fatty acids \_\_\_\_\_\_\_\_\_\_\_
   2. These contain antibodies that help attack viruses and bacteria \_\_\_\_\_\_\_\_\_\_\_\_
   3. These play an essential role in blood clotting \_\_\_\_\_\_\_\_\_\_\_\_
8. The “formed elements” of blood include three principal components
   1. R
   2. W
   3. P
9. Define what is meant by ‘hematocrit’
10. A hematocrit of ‘40’ indicates what?

Formation of Blood Cells

1. Most formed elements of the blood last only \_\_\_\_\_\_\_\_\_\_\_
2. The process by which your blood cells develop is called H\_\_\_\_\_\_\_\_\_\_\_
3. After birth and throughout your lifetime, the primary site of blood cell development is the Red\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Clinical Connection window: Two methods of obtaining a sample of your bone marrow

Red Blood Cells

1. Red Blood Cells (RBCs) are called Erythrocytes: erythro = \_\_\_\_\_\_\_\_\_\_\_\_, cyte = \_\_\_\_\_\_\_\_\_\_\_\_
2. The oxygen carrying protein in RBCs is called \_\_\_\_\_\_\_\_\_\_\_
3. What is the diameter in µm of an RBC ?
4. Each RBC contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hemoglobin molecules
5. Each hemoglobin molecule can bind to \_\_\_\_\_\_ oxygen molecules
6. RBCs live only about \_\_\_\_\_\_\_\_ days
7. The production of RBCs in the red bone marrow is called E\_\_\_\_\_\_\_\_\_\_\_\_
8. The condition where too-little oxygen enters the blood is known as h\_\_\_\_\_\_\_\_\_\_\_\_

White Blood Cells

1. White Blood Cells (WBCs) are called L\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Table 19.3:

1. What is the approximate size in µm of WBCs? State a range \_\_\_\_\_\_\_\_\_\_\_
2. State the function of Neutrophils
3. State the function of Eosinophils
4. State the function of Basophils
5. State the function of Lymphocytes
6. State the function of Monocytes

Platelets

1. Platelets are called T\_\_\_\_\_\_\_\_\_\_
2. They are formed when huge cells called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ splinter into 2000-3000 fragments
3. What is the diameter of a platelet in µm? State a range \_\_\_\_\_\_\_\_\_\_\_\_\_
4. Table 19.3: How do platelets stop bleeding? Explain…
5. Clinical Connection window: What tests are usually included in a complete blood count (CBC)?

Hemostasis

1. Clinical Connection windows
   1. Anticoagulants: Heparin and Warfarin (Coumadin) – Choose one, do Internet research, and explain how it works
   2. Aspirin: do Internet research and explain how it reduces the risk of heart attacks (do your own research, don’t just copy the book’s description)

Blood Groups and Blood Types

1. The surface of your Red Blood Cells (RBCs) contain special antigens called A\_\_\_\_\_\_\_\_\_\_\_
2. ABO Blood Group:
   1. If your RBCs have antigen ‘A’, you have \_\_\_\_\_\_\_\_\_\_\_ blood.
   2. If your RBCs have antigen ‘B’, you have \_\_\_\_\_\_\_\_\_\_\_ blood.
   3. If your RBCs have ‘A’ and ‘B’ antigens, you have \_\_\_\_\_\_\_\_\_\_\_ blood.
   4. If your RBC’s have neither ‘A’ nor ‘B’, you have \_\_\_\_\_\_\_\_\_\_\_\_ blood.
3. Your blood plasma contains antibodies called A\_\_\_\_\_\_\_\_\_\_\_.
4. The antibody that reacts with antigen ‘A’ is called \_\_\_\_\_\_\_\_\_\_\_
5. The antibody that reacts with antigen ‘B’ is called \_\_\_\_\_\_\_\_\_\_\_\_\_
6. If a blood transfusion goes wrong (donor’s blood is incompatible), the antibodies contained in your blood plasma (discussed in the 3 questions above) bind to the donated RBCs and cause them to clump together – a process known as A\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. This clumping process (above) is your immune system’s way of immobilizing the foreign (donated) RBC’s, which it thinks are invading your body. Your immune response causes the foreign RBC’s to leak and rupture, a process called H\_\_\_\_\_\_\_\_\_\_\_\_
8. To avoid blood-type mismatches, lab technicians perform ABO blood typing.
   1. If the RBCs agglutinate (clump) when mixed only with anti-A serum, the blood is type \_\_\_\_\_
   2. If the RBCs agglutinate (clump) when mixed only with anti-B serum, the blood is type \_\_\_\_\_
   3. If the RBCs agglutinate (clump) when mixed with anti-A serum AND anti-B serum, the blood is type \_\_\_\_\_
   4. If the RBCs do not agglutinate (clump) when mixed with either serum, the blood is type \_\_\_\_\_
9. (Disorders window) Anemia: what are the symptoms and causes of this condition?
10. (Disorders window) Sickle-Cell Disease: what are the symptoms and causes of this condition?
11. (Disorders window) Hemophilia: what are the symptoms and causes of this condition?
12. (Disorders window) Leukemia: what are the symptoms and causes of this condition?