1. What is the blood volume of an average-size adult male? 5-6 liters, an average adult female? 4-5 liters

2. What determines whether blood is bright red or dull brick red? The more oxygen it has, the brighter the red is.

3. Use key to identify cell types or blood elements that fit statements
   
   **F. Neutrophil** - 1. Most numerous leukocyte
   
   **D. Basophil, C. Eosinophil and neutrophil** 2. Granulocytes
   
   **A. Red blood cells** 3. Also called an erythrocyte, anucleate formed element
   
   **Neutrophil, Monocyte and eosinophil** 4. Phagocytic leukocytes
   
   **Monocytes, Lymphocytes** 5. Agranulocytes
   
   **Megakaryocyte** - 6. Precursor cell of platelets
   
   7. Cell fragments
   
   **Eosinophil** 8. Involved in destroying parasitic worms
   
   **Basophil** 9. Releases histamine, promotes inflammation
   
   **Lymphocyte** 10. Produces antibodies
   
   **Red blood cells** 11. Transport oxygen
   
   **Plasma** 12. Primary water, noncellular, the fluid matrix of blood
   
   **Monocyte** 13. Exits a blood vessel to develop into a macrophage
**Neutrophil, basophil, lymphocyte, monocytes, eosinophil** 14. The types of white blood cells

4. Define formed elements- **cells and cell fragments suspended in the plasma**

   List the formed elements present in the blood- erythrocytes, leukocytes and platelets

5. Describe the consistency and color of plasma you observed in the laboratory. **Plasma can be slippery with a yellow tone.**

6. What is the average life span of a red blood cell? How does its anucleate condition affect this life span?

   The average life span of a red blood cell is about 115 days (4 months). Its anucleate condition affect the life span because they are unable to produce or repair damage.

7. Identify the Leukocytes shown in the photomicrographs below


8. Correctly identify the blood pathologies described in column A by matching them with selections rom column B

   Abnormal increase in the number of WBCS - **Leukocytosis**

   Abnormal increase in the number of RBCS- **Polycythemia**

   Condition of too few RBCS or of RBCS with hemoglobin deficiencies- **Anemia**

   Abnormal decrease in the number of WBCS- **Leukopenia**

<table>
<thead>
<tr>
<th>Test</th>
<th>Student test result</th>
<th>Normal Values</th>
<th>High Values</th>
<th>Low Values</th>
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</thead>
<tbody>
<tr>
<td>Total WBC count</td>
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<td></td>
</tr>
<tr>
<td>Total RBC count</td>
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<tr>
<td>Hematocrit</td>
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<tr>
<td>Hemoglobin Determination</td>
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</table>
10. Why is a differential WBC count more valuable than a total WBC count when trying to determine the specific source of pathology? The percentage of each WBC could be determined by the differential.

11. Discuss the effect of each of the following factors on RBC count. Consult an appropriate reference as necessary, and explain your reasoning.

Long term effect of athletic training - Increase in red blood cell count, because athletes need an effective oxygen delivery to muscles when they are working.

A permanent move from sea level to high altitude area - Increase in red blood cell count. The air is thinner at high altitudes and contains less oxygen. This causes the body to produce more RBCS, so that the same amount of oxygen can be picked up and transported by the blood.

12. Define hematocrit - The proportion, by volume of the blood that consists of red blood cells.

13. If you had a high hematocrit, would you expect your hemoglobin determination to be high or low. High, because the higher the red blood cell volume, the higher the hemoglobin determination.

14. What is anticoagulant? A medicine that helps prevent blood clots

Name two types used in conducting the hematologic tests. EDTA and Heparin

What is the body natural anticoagulant? Heparin

15. If your blood agglutinates with Anti- A but not Anti- B sera, your ABO blood type would be AB
To what ABO blood groups could you donate blood? **AB**

From which ABO donor could you receive blood **A, B, AB, O**

Which ABO blood type is most common? **O**. Least common? **AB**

16. What blood type is theoretically considered the universal donor? **O**- because it has not antigen.

17. Assume the blood of two patients has been typed for the ABO blood type.

On the basis of these results, Mr. Adams has type **O** blood, and Mr. Calhoon has type **A**.

18. Explain why an Rh- negative person does not have a transfusion reaction on the first exposure to Rh- positive blood but does have a reaction the second exposure. After the first exposure the body starts to produce antibodies, after a second exposure the antibody attacks the Rh- positive blood.

19. Record your observations of the five demonstrations slides viewed- Did not observe any slides due to class being online.

20. Provide the normal, or at least desirable, range for plasma cholesterol concentration

   **130-200 mg/100 ml**

21. Plasmapheresis is a procedure in which blood is removed, its plasma is separated from the formed elements, and the formed elements are returned to the patient or donor. Kidney transplants usually require that the donor and recipient have the same blood type. If plasmapheresis is administered to the patient before and after the transplant surgery, rejection of the kidney is unlikely to occur. Explain why plasmapheresis removes the soluble components in the blood that can trigger rejection reaction.
22. Bleeding disorders are usually a result of thrombocytopenia, a deficiency of platelets.

Considering the mechanism of hemostasis, explain why thrombocytopenia could lead to
abnormal bleeding. *When your blood has too few platelets, mild to serious bleeding can occur.*