NAME _____

LAB TIME/DATE _____

REVIEW SHEET EXERCISE 29

Blood

Composition of Blood

1. What is the blood volume of an average-size adult male? _____ liters An average adult female? _____ liters

2. What determines whether blood is bright red or a dull brick-red? _____

_____

3. Use the key to identify the cell type(s) or blood elements that fit the following descriptive statements.

Key: a. red blood cell
b. megakaryocyte
c. eosinophil
d. basophil
e. monocyte
f. neutrophil
g. lymphocyte
h. formed elements
i. plasma

_____ 1. most numerous leukocyte

_____, _____, and _____ 2. granulocytes (3)

_____ 3. also called an erythrocyte; anucleate formed element

_____, _____ 4. actively phagocytic leukocytes

_____, _____ 5. agranulocytes

_____ 6. ancestral cell of platelets

_____ 7. (a) through (g) are all examples of these

_____ 8. number rises during parasite infections

_____ 9. releases histamine; promotes inflammation

_____ 10. many formed in lymphoid tissue

_____ 11. transports oxygen

_____ 12. primarily water, noncellular; the fluid matrix of blood

_____ 13. increases in number during prolonged infections

_____, _____, _____,

_____, _____ 14. the five types of white blood cells

4. List four classes of nutrients normally found in plasma. _____,

_____, _____, and _____

Name two gases. _____ and _____

Name three ions. _____, _____, and _____

5. Describe the consistency and color of the plasma you observed in the laboratory. _____

_____

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

_____

_____

_____

7. From memory, describe the structural characteristics of each of the following blood cell types as accurately as possible, and note the percentage of each in the total white blood cell population.

eosinophils: _____

_____

neutrophils: _____

_____

lymphocytes: _____

_____

basophils: _____

_____

monocytes: _____

_____

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

Column A		Column B
_____	1. abnormal increase in the number of WBCs	a. anemia
_____	2. abnormal increase in the number of RBCs	b. leukocytosis
_____	3. condition of too few RBCs or of RBCs with hemoglobin deficiencies	c. leukopenia
_____	4. abnormal decrease in the number of WBCs	d. polycythemia

Hematologic Tests

9. Broadly speaking, why are hematologic studies of blood so important in the diagnosis of disease?

10. In the chart below, record information from the blood tests you read about or conducted. Complete the chart by recording values for healthy male adults and indicating the significance of high or low values for each test.

Test	Student test results	Normal values (healthy male adults)	Significance	
			High values	Low values
Total WBC count	No data			
Total RBC count	No data			
Hematocrit				
Hemoglobin determination				
Bleeding time	No data			
Coagulation time				

11. Why is a differential WBC count more valuable than a total WBC count when trying to pin down the specific source of pathology? _____

12. What name is given to the process of RBC production? _____

What hormone acts as a stimulus for this process? _____

Why might patients with kidney disease suffer from anemia? _____

How can such patients be treated? _____

13. 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 (for example, running 4 to 5 miles per day over a period of six to nine months):

a permanent move from sea level to a high-altitude area: _____

_____

_____

14. Define *hematocrit.* _____

15. If you had a high hematocrit, would you expect your hemoglobin determination to be high or low? _____

Why? _____

_____

16. What is an anticoagulant? _____

Name two anticoagulants used in conducting the hematologic tests. _____

and _____

What is the body's natural anticoagulant? _____

17. If your blood clumped with both anti-A and anti-B sera, your ABO blood type would be _____

To what ABO blood groups could you give blood? _____

From which ABO donor types could you receive blood? _____

Which ABO blood type is most common? _____ Least common? _____

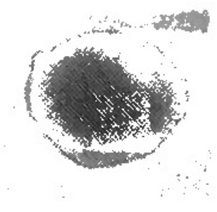
18. What blood type is theoretically considered the universal donor? _____ Why? _____

_____

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

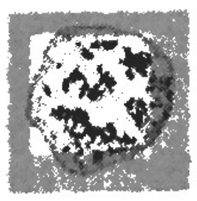
Typing results
Mr. Adams:

Blood drop and anti-A serum

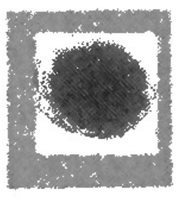


Blood drop and anti-B serum

Typing results
Mr. Calhoon:



Blood drop and anti-A serum



Blood drop and anti-B serum

On the basis of these results, Mr. Adams has type _____ blood, and Mr. Calhoon has type _____ blood.