

Blood  
Chapter Study Guide (C18)  
W2020 Semester

1. What is the function of blood?
2. What is the structure of blood?
3. What is blood's tissue type? What criteria is used for this classification?
4. What term is used to describe blood's matrix?
5. What is the difference between blood plasma and blood serum? Significance?
6. What are the seven “formed elements” of blood? (Make detailed flash cards from power-point slides for extra half bonus point)
7. What are three important plasma proteins? Where are these proteins produced? What are their functions?
8. What is hematocrit? Benchmark?
9. What is the “buffy coat”? It's volume?
10. What happens to blood's viscosity as the hematocrit increases? Significance?
11. What are the blood benchmarks for these items: pH, hematocrit, RBC number per ml, WBC number per ml.
12. What are platelets? Where are they formed? How? Primary function? Another name? Where are 40% of the platelets stored in your body? Significance?
13. Where are erythrocytes (RBC) formed? What are their function? Are they cells (expalin)? How long do they circulate in the blood?
14. Where are WBC formed (i.e. their origin or “place fo birth”)?
15. What are the two types of leukocytes (WBC)? What specific types of WBCs are in each catagroy?
16. What WBC must migrate to the thymus in order to become functional? Significance?
17. What WBC will stay in red bone marrow to complete their development?

18. After WBC complete their maturation, where do WBC go (i.e. deployed to)?
19. What are neutrophils? Function? Significance?
20. What are eosinophils? Function? Significance?
21. What are basophils? What do the granules in basophils contain?
22. After a basophil leaves the blood and enters the interstitial space, what do we call this cell? What do these cells attach to after they enter the interstitial space?
23. What is the mast cell function? What do mast cells acquire to make these cells functional?
24. What are B cells? What do B cells become after they are activated by foreign antigen? What do these transformed cells produce?
25. What is a monocyte? What do we call a monocyte after they emigrate into the interstitial space? What functions do these cell types perform?
26. What is the osmolarity of blood? Significance? What component of blood has the greatest influence on the blood's osmolarity?
27. What happens if the blood osmolarity is too high? Low?
28. Where within the blood vessel system does osmolarity have its greatest effect on our physiology? Significance?
29. What is hemopoiesis?
30. Where does hemopoiesis take place during fetal development?
31. Where does hemopoiesis take place in adult life?
32. What is the name of the stem cell responsible for hemopoiesis?
33. What is the primary function of the RBC?
34. How long does it take to make a new RBC? Are fully mature RBC alive?
35. What is the diameter of a RBC? What is the diameter of a capillary? How do RBC pass through a continuous capillary?
36. What two cytoskeletal proteins play a key role in the life cycle of a RBC? Significance?

37. How long do RBC circulate in the blood?
38. Where is the graveyard for RBC? Why do RBC rupture in the “graveyard”?
39. What cell “recycles” the components of the ruptured RBC? What happens to the different components of the recycled RBC?
40. What is erythropoietin? What organ secretes erythropoietin? How is erythropoiesis regulated?
41. What are the immature RBCs called as they enter the blood? What cytoplasmic organelle persist during this phase?
42. What are the three critical nutrients required for RBC production?
43. What is pernicious anemia?
44. What is hemoglobin? Form and function?
45. Why does hemoglobin need iron?
46. How does oxygen react differently to fetal and maternal hemoglobin? Significance?
47. What molecular structure within hemoglobin holds the iron atom?
48. How is the heme from hemoglobin eliminated from the body? Potential problem if not eliminated?
49. Do bacteria need iron to grow? Do we have large amounts of unbound iron in our bodies? How do bacteria create unbound iron in our bodies?
50. What is carbonic anhydrase? Location? Significant chemical equation?
51. What is the chloride shift? Significance?
52. What is hypoxia?
53. What is hypoxemia?
54. What is polycythemia? Primary vs secondary?
55. How will polycythemia affect blood viscosity?
56. What is anemia? Explain different types: hemorrhagic, hemolytic, iron deficiency, pernicious, and sickle cell.

57. Explain why erythropoiesis can not reverse hypoxia if it is caused by emphysema? What is the long term significance?
58. What data is provided in a complete blood count report?
59. What is leukopoiesis?
60. What is leukopenia?
61. What is leukocytosis?
62. What is another name for a platelet?
63. What is thrombopenia? Thrombocytosis?
64. What is hemostasis?
65. What role do platelets play in hemostasis? What are the three critical events?
66. Where are 40% of the platelets stored in the body? Significance?
67. What is prostacyclin? Where is it found?
68. What are the two mechanisms that may activate blood clotting? Which mechanism is faster?
69. What is fibrinogen? How is it converted to fibrin? Significance?
70. What is clot retraction? How long after starting hemostasis will clot retraction occur?
71. What is platelet derived growth factor? Significance?
72. What is fibrinolysis?
73. What is a thrombus? Thrombosis?
74. What is an embolism?
75. What is ischemia?
76. What is an infarction?

77. RBC are classified by the type of antigen on their plasma membrane. One RCB classification system is the ABO. What determines the cell type when using this system?
78. When you were growing up your Grandmother called you "sweet". Why was your Grandmother's right? What is this cellular component called?
79. What is the difference between an agglutinin and an agglutinin? Another name for these objects?
80. In the ABO system, what is the most common blood type? The rarest blood type?
81. What blood type is the universal donor?
82. What blood type is the universal recipient?
83. What occurs if you mismatch blood in a blood transfusion?
84. How many RBC can a single agglutinin bind at one time?
85. What is the Rh factor?
86. What is different in how agglutinins (the antibodies) are managed in the ABO and Rh systems?
87. What is RhoGam?
88. Are anti-D agglutinins present at birth? Explain. When do they form? What two conditions may cause agglutinins to form?
89. What is the hemolytic disease of the newborn?