

The Blood - C19 Study Guide (HL)
Tortora / Derrickson

1. What is the distinction between the cardiovascular system and the circulatory system?
2. What is the structure of blood?
3. What are the three primary functions of blood?
4. What type of tissue is blood? Why?
5. What term describes the matrix of blood?
6. What are the “formed elements” of blood?
7. What are the “seven” formed elements of blood?
8. What are the three main plasma proteins? Their functions? Where are these proteins produced?
9. What is plasma called when fibrinogen is removed?
10. What is hematocrit? It's benchmark number? Major component? Significance?
11. What is the “buffy coat”? It's contribution to the hematocrit?
12. What are the reference benchmarks as described in class for these blood items: pH, hematocrit, RBC concentration, platelet concentration, WBC concentration.
13. What are platelets? Where are they formed? How? Function? Other name?
14. What are erythrocytes? Where are they formed? How long do they circulate in blood? Primary function?
15. How are WBC classified? (two major groups)
16. Where do WBC spend most of their “life” following their formation?
17. What are neutrophils? Function & Significance?
18. What are eosinophils? Function & Significance?
19. What are basophils? How do basophils “change” when they enter the tissue spaces? What do we call basophils after they enter the interstitial space? Their function & significance?

20. What is a monocyte? What do we call a monocyte after they emigrate into the interstitial space? Function of each cell state?
21. What is viscosity?
22. How is blood viscosity influenced by blood hematocrit? Significance?
23. What contributes the most to the viscosity of blood?
24. What is the osmolarity of blood? Significance? What component of blood plays a major role in determining blood osmolarity?
25. What happens when blood osmolarity is too high or too low? Where within the circulatory system is this most significant?
26. What is hemopoiesis?
27. Where does hemopoiesis take place during fetal development?
28. Where does hemopoiesis take place in adult life?
29. What is the name of the stem cell responsible for hemopoiesis?
30. What is the primary function of the RBC?
31. What is the diameter of a RBC? What is the diameter of a capillary? How do RBC pass through a continuous capillary?
32. What two cytoskeletal proteins play a key role in the life cycle of a RBC? Significance?
33. How long will a RBC circulate in the blood? Where is the graveyard for RBC? Why there?
34. What cell will “recycles” ruptured RBC in the spleen?
35. What is erythropoietin? What is the homeostatic mechanism which regulates erythropoiesis?
36. How long does it take to produce a new RBC?
37. What are immature RBCs called and what cytoplasmic organelle persist during this phase?
38. What is hemoglobin? Form and function?

39. What is the difference between fetal and adult hemoglobin? Significance?
40. What are the three critical nutrients required for RBC production?
41. How is the heme from hemoglobin eliminated from the body?
42. Why is iron important and how is it managed by the human body?
43. Where is carbonic anhydrase located within the blood? Function?
44. What is the chloride shift? Importance?
45. What is hypoxia? What is hypoxemia?
46. What is polycythemia? Primary vs secondary?
47. How will polycythemia affect blood viscosity and heart function?
48. What is anemia? Different forms: hemorrhagic, hemolytic, iron deficiency, pernicious, and sickle cell.
49. Explain why hypoxia caused by emphysema can not be reversed by erythropoiesis.
50. How many WBC are in a microliter of blood? Significance?
51. Where are leukocytes born? After they circulate in the blood where do they go? Functions?
52. What type of information is contained in a complete blood count report?
53. What is leukopoiesis?
54. What is leukopenia? Leukocytosis?
55. What is another name for a platelet?
56. What is thrombopenia? Thrombocytosis?
57. What is hemolysis? Conditions that may cause hemolysis?
58. What is hemostasis?
59. What role do platelets play in hemostasis?

60. What are the seven functions of platelets?
61. Where are 40% of the platelets stored in the body? Significance?
62. What are the three stages of hemostasis?
63. What is prostacyclin? Where is it found?
64. What are the two different mechanisms that can activate hemostasis? Which mechanism is faster?
65. What is fibrinogen? How is it converted to fibrin? Significance?
66. What is clot retraction? When does this occur?
67. What is platelet derived growth factor?
68. What is fibrinolysis?
69. What is a thrombus? Thrombosis?
70. What is an embolism?
71. What is ischemia? Infarction?
72. How are red blood cells assigned a blood type? Use these terms to explain this question: antigen (agglutinogen) and antibody (agglutinin)
73. Why is it true that you are sugar coated?
74. What is agglutination? Is this dangerous? Why?
75. In the ABO system what is the most common blood type? The rarest blood type?
76. What blood type is the universal donor?
77. What blood type is the universal recipient?
78. What is the danger if you mismatch blood during a blood transfusion?
79. How many RBC can a single agglutinin bind at one time?
80. What is the Rh factor?
81. How are the agglutinins managed differently in the ABO and Rh system?

82. What is RhoGam?
83. Are anti-D agglutinins ever present at birth? When do they form? Two conditions which may cause agglutinins to form?
84. What is the hemolytic disease of the newborn?

Hot List Questions: (Remember – all of the Chapter Study Guide Questions are important. So it would benefit you if you understand all the questions but make sure you have a working knowledge of the “hot list questions”.)

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