Blood Lecture Test Questions – Set 1

1. Consider these three components of blood--whole blood, plasma, and serum--which statement is most correct:
   a. serum contains red and white blood cells
   b. whole blood has no clotting factors
   c. plasma does not contain serum
   d. clotting factors are found in plasma
   e. serum is the plasma, with only the clotting factors remaining

2. Blood proteins function in:
   a. coagulation
   b. viscosity
   c. immunity
   d. colloid osmotic pressure
   e. all of the above

3. Plasma mostly consists of:
   a. water
   b. organic nutrients
   c. albumins
   d. globulins
   e. mineral ions

4. The function of globulins:
   a. contribute to blood viscosity
   b. contribute to colloid osmotic pressure
   c. immunity, as antibodies
   d. a role in determining blood type
   e. all of the above

5. Blood serum is:
   a. another term for plasma
   b. an artificial blood substitute, used for emergency transfusions
   c. blood minus the formed elements and clotting substances
   d. primarily the clotting substances prothrombin and fibrinogen
   e. none of the above

6. The main component of blood plasma is:
   a. water
   b. inorganic ions
   c. albumins
   d. globulins
   e. platelets

7. Which of the following is not a function of globulins:
   a. increase blood viscosity
   b. colloid osmotic pressure
c. immunity, as antibodies
d. oxygen transport
e. blood types

8. Blood cells are termed "formed elements" by some authorities, due to the disputed status of:
a. thrombocytes
b. erythrocytes
c. monocytes
d. lymphocytes
e. basophils

9. Blood is responsible for transporting:
a. organic nutrients
b. respiratory gases
c. metabolic wastes
d. hormones
e. all of the above

10. The most abundant component of the body's fluid environment:
a. blood
b. tissue fluid
c. intracellular fluid
d. serous fluids
e. liver secretions

11. Of the following, the least abundant body fluid component is:
a. blood
b. cerebrospinal fluid
c. intracellular
d. extracellular
e. tissue fluid

12. Which of the following is not a blood function:
a. transport of nutrients and other substances
b. maintenance of fluid environment
c. body temperature maintenance
d. body regulatory system in the same context as nervous and endocrine
e. immunity

13. The function of blood is:
a. transport
b. fluid environment maintenance
c. body temperature regulation
d. immunity
e. all of the above
14. Blood acquires its red color from:
   a. fibrin  
   b. hemoglobin  
   c. erythropoietin  
   d. gamma globulin  
   e. communism

15. Hemoglobin is confined within the red blood cells because:
   a. it is a convenient carrier  
   b. it is a small enough molecule to pass through the capillary walls  
   c. it would upset the pH of the plasma  
   d. it destroys leukocytes  
   e. the iron would rust the vessel walls

16. Myeloid cells produce:
   a. erythrocytes  
   b. granular leukocytes  
   c. monocytes  
   d. platelets  
   e. all of the above

17. Erythrocytes have a limited life--they:
   a. live about 120 days  
   b. are destroyed by the liver and spleen  
   c. are partially reused (iron), with the remaining contents mostly excreted  
   d. are replaced from red bone marrow  
   e. all of the above

18. The rate of erythropoiesis is primarily determined by the:
   a. spleen  
   b. hemoglobin supply  
   c. oxygen content of the blood  
   d. plasma protein osmotic pressure  
   e. hypothalamus

19. Which of the following is not directly essential for erythropoiesis:
   a. iron  
   b. vitamin A  
   c. vitamin B\textsubscript{12}  
   d. copper  
   e. folic acid

20. Which of the following would cause polycythemia:
   a. hemorrhage
21. Which of the following would cause anemia:
   a. hemorrhage  
   b. hemolysis  
   c. low erythropoiesis  
   d. under-exercise  
   e. all of the above

22. Anemia is:
   a. high erythrocyte count  
   b. low erythrocyte count  
   c. high hemoglobin  
   d. low hemoglobin  
   e. low hemoglobin and/or low erythrocyte count

23. Before 5 years of age erythropoiesis occurs in each of the following, except:
   a. liver  
   b. spleen  
   c. lymph nodes  
   d. kidneys  
   e. red bone marrow

24. Red blood cells are released into the general circulation in what form:
   a. megakaryocyte  
   b. stem cell  
   c. mesenchymal cell  
   d. reticulocyte  
   e. myeloid cell

25. The nearly exclusive function of erythrocytes:
   a. control of immunity  
   b. phagocytosis  
   c. oxygen transport  
   d. antibody function  
   e. blood clotting

26. Which of the following RBC counts [per mm$^3$] would indicate polycythemia:
   a. 10 million  
   b. 5 million  
   c. 2 million  
   d. 500 thousand
27. Which of the following is not true of hemoglobin:
   a. gives blood its red color
   b. contains most of the body's copper
   c. transports O\(_2\)
   d. is a conjugated protein, consisting of 4 globin polypeptides and 4 heme units
   e. is the major component of erythrocytes

28. Which of the following is not true regarding erythrocytes:
   a. enucleated when mature
   b. most abundant formed elements
   c. hemoglobin carrier
   d. perform their functions out of the circulation
   e. higher count in men

29. The hematopoietic cell which will differentiate into an erythroblast:
   a. myeloid
   b. reticulocyte
   c. E-cell
   d. myeloblast
   e. thrombocyte

30. What would be the effect of a vitamin B\(_{12}\) deficiency:
   a. embolism
   b. leukocytosis
   c. anemia
   d. polycythemia
   e. leukopenia

31. Which of the following would not cause polycythemia:
   a. high altitude
   b. vitamin B\(_{12}\) deficiency
   c. emphysema
   d. asthma
   e. cardiac failure (long term)

32. The most important function of erythrocytes:
   a. blood clotting
   b. phagocytosis
   c. hemoglobin carrier
   d. control of immunity
   e. colloid osmotic pressure

33. Oxygen bonds with which of the following:
a. globin  
b. leukocytes  
c. iron of heme  
d. plasma globulins  
e. plasma albumins

34. Blood is thicker than water. [Oops--my cliché is showing!]

35. By volume most of plasma is water.

36. By volume most of plasma is protein.

37. Serum is blood plasma without any inorganic substances.

38. Blood serum is without the formed elements and clotting proteins.

39. Some authorities consider blood as being a unique tissue type.

40. The term formed elements is derived from the debated cellular status of leukocytes.

41. Polycythemia can result from hemorrhage or low erythropoiesis.

42. Anemia can result from hemorrhage or low erythropoiesis.

43. It is possible for someone to have insufficient hemoglobin with a normal hematocrit and red count.

44. Low hemoglobin will always indicate low hematocrit and red count as well.

45. Erythrocytes usually perform their essential functions out of the general blood circulation.

46. An erythrocyte is mostly composed of hemoglobin.

47. An erythrocyte lives for approximately 18 months.

48. An erythrocyte lives for approximately 120 days.
49. Hemoglobin stability and O₂ reaction reversibility are the responsibilities of heme.

50. Polycythemia can be caused by normal circumstances.

51. Hemoglobin, hematocrit and RBC count are usually lower in women than men.

52. Hemoglobin, hematocrit and RBC count are usually higher in women than men.

53. A normal hematocrit is about 42% for males.

54. A normal hematocrit is about 47% for males.

55. A normal red cell count is about 8 million/mm³ (national average) in males.

56. A normal red cell count is about 5.8 million/mm³ (national average) in males.

57. RBC counts are usually lower in men than women.