AN S215 Study Aids – Blood and its Functions

Composition of Blood

1. What are the components of the hematocrit?

2. What accounts for the color of blood and for the color of plasma?

3. A dog weights 10kg, has a PCV of 42%, and a plasma volume of 500 ml. What is its blood volume expressed as percent of body weight?

4. Why is venous blood more acidic than arterial blood?

5. If the blood pH is measured to be 7.1 and the H+ concentration has doubled, what is an approximate pH of that blood before the H+ increase? Has the blood become more alkaline or more acidic?

6. How are leukocytes classified? Where are the various cells produced? What do segmented and band cells refer to?

7. Which one of the leukocytes appears to have the longest life span?

8. Do erythrocytes or granulocytes have the longest life span?

9. How do the numbers of RBCs and WBCs compare?

10. Which WBC predominates in horse, dog, and cat? In pig, cow, sheep, and goat?

11. Define phagocytosis, pinocytosis and endocytosis.

12. Describe the movement of neutrophils from the circulation to sites of inflammation.

13. What is a principal function for each of the leukocytes?

14. What are plasma cells and magakaryocytes?

15. Differentiate between leukopenia, leukocytosis and leukemia?

16. What is meant by absolute numbers of leukocytes?

17. If there are 7 million RBCs in each microliter of cow blood, how many would there be in one milliliter?

18. What are advantages of a discoid RBC shape? What is tolerance to RBC shape change known as?

19. Which domestic animal has the largest RBC? The smallest?

20. What is the physiologic name for the production of ertythrocytes?

21. Where does RBC production occur during the postnatal, growth and adult periods?

22. Do reticulocytes normally appear in the circulation?

23. What substance controls the rate of erythropoiesis? Where is it produced?

24. How long does it take for new RBCs to enter the circulation after their formation begins?

25. What chemical atom associated with hemoglobin binds loosely and reversibly with oxygen? How many molecules of O_2 can be transported by one molecule of hemoglobin?

26. What is the valence of iron before and after its binding with oxygen?

27. What is methemoglobin, myoglobin and carbonmonoxyhemoglobin, and how do they differ from hemoglobin?

28. What is the average concentration of hemoglobin in the blood of domestic animals?

29. What cell accounts for removal of about 90% of aged RBCs? What are the organs where this occurs?

30. What is the name of the transport from of iron?

31. How can icterus (jaundice) occur during the degradation of hemoglobin?

32. How can hemoglobinemia and hemoglobinuria occur as a result of RBC destruction?

33. What are the normal limitations to iron absorption? Can iron toxicity occur as a result of excess ingestion and subsequent absorption?

34. Define anemia and polycythemia.