The student should be able to:

1. Describe the composition of whole blood and explain why it is considered a connective tissue.
2. List the three main functions of blood and give the eight examples covered in these three groups.
3. Name the two main components of blood.
4. Explain what is meant by “formed elements.
5. Explain what is meant by “plasma”
6. Describe a hematocrit.
7. List the three main layers of a hematocrit, describe the contents of those layers.
8. State the normal ratio (percentage) between erythrocytes and plasma.
9. State the normal pH range for blood.
10. Explain why blood may appear a bright red scarlet color or a deep burgundy red color.
11. State what blood’s normal temperature.
12. State the normal amount of blood in males & females.
13. State the percentage of water in plasma.
15. List the three basic proteins found in the plasma and tell where they are produced.
16. Tell what other solutes are found dissolved in the plasma.
17. List the three main “formed elements” found in blood.
18. Explain why white blood cells are sometimes considered the only formed elements that are true cells.
19. State the normal life span of most formed elements.
20. Give the scientific name of red blood cells.
21. Describe the structure, function and production of erythrocytes.
22. Describe the chemical make up of hemoglobin.

23. Describe the size and shape of an erythrocyte.

24. Explain the purpose of the bi-concaved shape of an erythrocyte.

25. State the range of the number of erythrocytes in a normal cubic mm of blood.

26. Describe the structural make up and name the components of a hemoglobin molecule.

27. How many iron atoms does a hemoglobin molecule have.

28. How many oxygen molecules (O₂) can be carried by a single hemoglobin molecule.

29. How many hemoglobin molecules are in a single erythrocyte.

30. Explain what hematopoiesis is.

31. Describe where hematopoiesis occurs.

32. What do hematocytoblasts (hematopoietic stem cells) produce.

33. How long does the average erythrocyte “live”.

34. What happens to the dead erythrocytes.

35. Briefly explain what anemia is.

36. Explain what can cause anemia.

37. Explain what causes sickle-cell anemia and describe the defect in the erythrocyte that occurs in sickle-cell anemia.

38. What is the scientific name of a white blood cell.

39. State what percentage of the blood volume is made up of leukocytes.

40. Give the normal WBC (white blood cell count) range.

41. Describe leucocttosis

42. Identify the two main groups of leucocytes.

43. Explain how granulocytes differ from agranulocytes.

44. Explain the role of Wright’s stain in differentiating granulocytes from agranulocytes.

45. Name the three granulocytes.
46. Describe the three granulocytes and describe their basic functions.

47. Name the two agranulocytes.

48. Describe the two agranulocytes and describe their basic functions.

49. Arrange the five leucocytes in order of their normal concentrations in the blood.

50. Define leukopoiesis.

51. Explain what stimulates the rate of production of a specific type of leukocyte.

52. Explain what a hemocytoblast is.

53. Define leucopenia.

54. Explain what a platelet is.

55. Describe the function of a platelet.

56. Explain what a hematocrit is.

57. Give the normal range for the hemoglobin concentration in blood.

58. Explain what a differential white blood cell count is.

59. Explain what a (CBC) complete blood cell count is.