

**MLAB 1101 - Introduction to Clinical Laboratory Science**  
**On-Line Course**  
**Unit #5 - Clinical Laboratory Testing Objectives**

**Unit #5A - Urinalysis**

1. Describe proper urine collection and preservation methods.
2. List causes of contamination in urine specimens.
3. State why preservatives are added to urine specimens.
4. Describe changes that occur in urine allowed to sit at room temperature.
5. List three abnormal urine colors and give a cause for each.
6. List two conditions that may affect transparency of urine.
7. Define what determines the specific gravity of urine.
8. Name the chemical tests routinely performed on urine.
9. Define the following terms: bilirubin, glomerular, glycosuria, ketonuria, pH, proteinuria, and urobilinogen.

**Unit #5B - Hematology**

10. Differentiate between serum and plasma and state the approximate percentage of each in a healthy person's blood.
11. List the formed elements of blood and state the function for each of the elements.
12. Discuss the preferred specimens for hematology tests.
13. Name the tests that are part of the complete blood count and describe the use of each.
14. List four categories of hematological disorders and, given a list of disorders, be able to apply the proper category to each.

**Unit #5C - Serology/Immunology**

15. Differentiate between natural resistance and acquired immunity.
16. State the three characteristics of specific immunity.
17. Name the major cells that bring about specific immunity.
18. Sketch and describe the structure of an immunoglobulin molecule.
19. Name the five immunoglobulin classes and state the characteristics of each.
20. Name and explain three categories of diseases involving the immune system.
21. Sketch the agglutination process and explain the principle.

22. Sketch of the precipitation process and explain the principle.
23. Explain the principles of enzyme immunoassays and radioimmunoassays.
24. Define *allergy, anamnestic response, antibody, antigen, autoimmune disease, immunocompromised, immunohematology, immunology, immunosuppression, seroconversion, serology, thymus, and titer.*

#### **Unit #5D - Clinical Chemistry**

25. List six body fluids that are tested in clinical chemistry.
26. Discuss the proper collection and handling of blood specimens for chemical analysis.
27. Discuss six blood collection problems that may interfere with test results.
28. Explain how the blood level of some chemical substances varies according to the time of day.
29. List 15 constituents commonly assayed in a chemistry profile.
30. Explain the significance or function of each of the constituents commonly included in a chemistry profile.
31. List the normal or reference values for each of the constituents usually measured in a chemistry profile.
32. Define acidosis, alanine aminotransferase (ALT), albumins, alkaline phosphatase (ALP or AP), alkalosis, anticoagulant, aspartate aminotransferase (AST), bilirubin, BUN, creatine kinase (CK), creatinine, diurnal, electrolytes, gamma glutamyl transferase (GGT), globulins, gout, homeostasis, hypercalcemia, hyperkalemia, hyperlipidemia, hypernatremia, hyperthyroidism, hypoalbuminemia, hypocalcemia, hypokalemia, hyponatremia, hypothyroidism, lactate dehydrogenase (LD or LDH), lipemic, lipids, plasma, serum, thyroxine, triglycerides, triiodothyronine, and uric acid.

#### **Unit #5E - Basic Clinical Microbiology**

33. List the fields of study included in microbiology.
34. Describe the organization of the microbiology department in small and large laboratories.
35. Discuss the differences in normal flora, pathogens, and opportunistic pathogens.
36. Explain how infection occurs.
37. Discuss the three basic shapes of bacteria.
38. Explain the importance of correct specimen collection.

39. Discuss six methods to aid in the identification of bacteria.
40. Discuss common diagnostic methods used in virology, mycology, and parasitology.

**Unit #5F - Basic Immunohematology (Blood Banking)**

41. Explain the purpose of the blood bank department.
42. Outline the procedure used to obtain donor blood units.
43. State the four possible components of blood units.
44. Name the four blood groups in the ABO system and the frequency of each in the United States.
45. Name the blood group antigens and antibodies present in each of the four groups.
46. Define "Universal Donor" and "Universal Recipient".
46. Explain forward and reverse grouping.
47. Explain the importance of the Rh blood group system.
48. Name the most important antigen in the Rh system.