PRACTICE SET
End Semester Examination, December-2025

Program: BMLT
Semester: III
Course: Biomedical Instrumentation
Course Code: 42ABMT 301

Course Outcomes	Description
CO1	Understand the knowledge about basic structure of the Laboratory, management and the administration.
CO2	Demonstrate the laboratory instruments and glass wares; and its role.
CO3	Learn the knowledge of laboratory duties, responsibilities and illustrate the common laboratory accidents.
CO4	Learn the different types of specimen collection, laboratory records, requisition and reporting of results.
CO5	Gain the knowledge about causing factors of laboratory accidents, first aid and National Health Program.

SECTION – A: (30 X 05 = 150)

1. Define Laboratory Management. **(Unit- I, CO1, LOT, Remember)**
2. Explain the principle of laboratory planning. **(Unit- I, CO1, LOT, Understand)**
3. List and describe different parts of a medical laboratory. **(Unit- I, CO1, LOT, Remember)**
4. How does administration affect the efficiency of laboratory work? **(Unit- I, CO1, LOT, Apply)**
5. Illustrate the basic terminology used in laboratory management. **(Unit- I, CO1, LOT, Understand)**
6. Discuss the importance of proper workflow in a medical laboratory. **(Unit- I, CO1, LOT, Understand)**
7. Describe the working principle of a Colorimeter. **(Unit- II, CO2, LOT, Remember)**
8. Differentiate between Spectrophotometer and Spectrofluorometer. **(Unit- II, CO2, HOT, Analyze)**
9. Explain the use and maintenance of pH meter. **(Unit- II, CO2, LOT, Understand)**
10. Write a short note on Glucometer and its application. **(Unit- II, CO2, LOT, Understand)**
11. How is laboratory glassware cleaned and labeled? **(Unit- II, CO2, LOT, Apply)**
12. Discuss the principle and operation of ELISA Reader. **(Unit- II, CO2, LOT, Understand)**
13. State the duties and responsibilities of a Medical Laboratory Technician. **(Unit- III, CO3, LOT, Remember)**
14. Explain the types of common laboratory accidents. **(Unit- III, CO3, LOT, Understand)**
15. Discuss the preventive measures for laboratory accidents. **(Unit- III, CO3, LOT, Understand)**
16. How does IKS (Indian Knowledge System) relate to laboratory responsibilities? **(Unit- III, CO3, HOT, Analyze)**
17. Illustrate the use of instruments in day-to-day laboratory practice. **(Unit- III, CO3, LOT, Apply)**
18. Write short notes on safety protocols in laboratory management. **(Unit- III, CO3, LOT, Apply)**
19. Define specimen collection and its importance. **(Unit- IV, CO4, LOT, Remember)**
20. Describe the process of receiving and dispatching laboratory specimens. **(Unit- IV, CO4, LOT, Remember)**

21. How are laboratory records maintained systematically? **(Unit- IV, CO4, LOT, Apply)**
22. Explain requisition and reporting system in clinical laboratories. **(Unit- IV, CO4, LOT, Understand)**
23. Discuss disposal techniques for laboratory specimens. **(Unit- IV, CO4, LOT, Understand)**
24. Illustrate the ethical considerations in specimen handling. **(Unit- IV, CO4, LOT, Apply)**
25. What are the major factors causing accidents in laboratories? **(Unit- V, CO5, LOT, Remember)**
26. Discuss the importance of First Aid in laboratory safety. **(Unit- V, CO5, LOT, Understand)**
27. Explain the composition and use of a First Aid kit. **(Unit- V, CO5, LOT, Understand)**
28. Analyze the objectives of any one National Health Program. **(Unit- V, CO5, HOT, Analyze)**
29. Describe the preventive measures to avoid lab accidents. **(Unit- V, CO5, LOT, Remember)**
30. Evaluate the role of awareness programs in reducing laboratory hazards. **(Unit- V, CO5, HOT, Evaluate)**

Section – B: (15 X 10 = 150)

31. Explain the components and structure of laboratory administration. **(Unit- I, CO1, LOT, Understand)**
32. Describe the planning and design of an ideal medical laboratory. **(Unit- I, CO1, LOT, Remember)**
33. Discuss the impact of management policies on laboratory performance. **(Unit- I, CO1, LOT, Understand)**
34. Elaborate the working principles of Biochemical Analyzer with a neat diagram. **(Unit- II, CO2, LOT, Apply)**
35. Compare different laboratory instruments used for quantitative analysis. **(Unit- II, CO2, HOT, Analyze)**
36. Explain methods of cleaning, maintenance, and calibration of glassware. **(Unit- II, CO2, LOT, Understand)**
37. Describe in detail the safety protocols and responsibilities of lab technicians. **(Unit- III, CO3, LOT, Remember)**
38. Evaluate the steps to be taken after a laboratory accident. **(Unit- III, CO3, HOT, Evaluate)**
39. Evaluate the significance of maintaining discipline and safety culture in laboratories. **(Unit- III, CO3, HOT, Evaluate)**
40. Explain the detailed procedure for specimen collection, labeling, and transportation. **(Unit- IV, CO1, LOT, Understand)**
41. Analyze the record-keeping system and its importance in quality assurance. **(Unit- IV, CO1, HOT, Analyze)**
42. Evaluate the reporting and requisition workflow in clinical laboratories. **(Unit- IV, CO1, HOT, Evaluate)**
43. Describe the preventive and corrective measures for laboratory hazards. **(Unit- V, CO1, LOT, Remember)**
44. Analyze the objectives and implementation strategies of National Health Programs. **(Unit- V, CO1, HOT, Analyze)**
45. Evaluate the effectiveness of training and awareness programs in laboratory safety. **(Unit- V, CO1, HOT, Evaluate)**

Section – C: (10 X 20 = 120)

46. Design an effective laboratory layout plan ensuring safety and efficiency. **(Unit- I, CO1, HOT, Create)**
47. Evaluate the challenges in laboratory management and propose possible solutions. **(Unit- I, CO1, HOT, Evaluate)**
48. Discuss in detail the principle, working, and maintenance of a spectrophotometer with diagram. **(Unit- II, CO2, LOT, Understand)**
49. Critically evaluate the role of automation in modern biomedical laboratories. **(Unit- II, CO2, HOT, Evaluate)**
50. Create a safety manual for laboratory technicians focusing on accident prevention. **(Unit- III, CO3, HOT, Create)**
51. Analyze the relationship between laboratory responsibilities and accident prevention measures. **(Unit- III, CO3, HOT, Analyze)**

52. Develop a standard operating procedure (SOP) for specimen collection and disposal. **(Unit- IV, CO4, HOT, Create)**
53. Critically evaluate the role of accurate record keeping in laboratory management. **(Unit- IV, CO4, HOT, Evaluate)**
54. Evaluate the significance of National Health Programs in improving laboratory safety and public health. **(Unit- V, CO5, HOT, Evaluate)**
55. Design an awareness campaign for prevention of laboratory accidents. **(Unit- V, CO5, HOT, Create)**

SummarySheet

COWise

CO	Q.No.	Marks
CO1	1,2,3,4,5,6,31,32,33,46,47	100
CO2	7,8,9,10,11,12,34,35,36,48,49	100
CO3	13,14,15,16,17,18,37,38,39,50,51	100
CO4	19,20,21,22,23,24,40,41,42,52,53	100
CO5	25,26,27,28,29,30,43,44,45,54,55	100
Total		**500**

UnitWise

Unit	Q.No.	Marks
Unit- I	1,2,3,4,5,6,31,32,33,46,47	100
Unit- II	7,8,9,10,11,12,34,35,36,48,49	100
Unit- III	13,14,15,16,17,18,37,38,39,50,51	100
Unit- IV	19,20,21,22,23,24,40,41,42,52,53	100
Unit- V	25,26,27,28,29,30,43,44,45,54,55	100
Total		**500**

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BTL	Q.No.	Marks
LOT	1,2,3,4,5,6,7,9,10,11,12,13,14,15,17,18,19,20,21,22,23,24,25, 26,27,29,31,32,33,34,36,37,40,43,48	230
HOT	8,16,28,30,35,38,39,41,42,44,45,46,47,49,50,51,52,53,54,55	270
Total		**500**

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Disclaimer: - This is a Practice Set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.