

# **Contents**

<i>Preface</i> .....	xiii
<i>Acknowledgement</i> .....	xv
1. First Aid in The Laboratory.....	1
2. Basic Concepts in Biochemistry Practical .....	3
3. Common Laboratory Glassware, Equipments, Biomedical Waste Management and .. Good Laboratory Practices.....	5
4. Preparation of Buffers and Measurement of pH Using pH Meter.....	21
5A. Study of Normal Urine (Analysis of Normal Inorganic Constituents of Urine).....	28
5B. Study of Normal Urine Demonstration of Urea, Uric Acid and Creatinine (Organic Constituents) in the Given Sample of Urine .....	35
6. Study of Pathological Constituents of Urine.....	40
7. Chromatography.....	48
8. Photoelectric Colorimeter and Spectrophotometer .....	56
9. Specimen Collection and Preanalytical Errors in Clinical Biochemistry Laboratory .....	64
10. Estimation of Serum Creatinine .....	72
11. Estimation of Serum Total Proteins and Albumin-Globulin ratio .....	77
12. Estimation of Serum Albumin and Albumin-Globulin .....	82
13. Estimation of Serum Cholesterol .....	87
14. Estimation of HDL Cholestrol .....	91
15. Estimation of Serum Triglycerides (Triacylglycerols).....	95
16. Estimation of Serum Calcium .....	101
17. Estimation of Serum Inorganic Phosphorus.....	106
18. Estimation of Serum Bilirubin .....	110
19. Estimation of Alanine Aminotransferase (ALT).....	116

20.	Estimation of Aspartate Aminotransferase (AST).....	120
21.	Estimation of Alkaline Phosphatase in Serum .....	124
22.	Analysis of Cerebrospinal Fluid.....	128
23.	Automation.....	132
24.	Quality Control.....	136
25.	Agarose Gel Electrophoresis .....	145
26.	Polyacrylamide Gel Electrophoresis (PAGE) .....	149
27.	Ion Selective Electrode (ISE) and Arterial Blood Gas Analysis (ABG) .....	156
28.	Enzyme-Linked Immunosorbent Assay (ELISA) .....	170
29.	DNA Isolation from Whole Blood .....	178
30.	Estimation of Blood Glucose .....	184
31.	Estimation of Blood Glucose by Glucometer .....	190
32.	Estimation of Blood Urea.....	195
33.	Glycemic Index (GI) .....	202
34.	Nutritional Importance of Fats .....	205
35.	Case Studies .....	211
36.	Objective Structured Practical Examination (OSPE) - Response Stations .....	249
37.	Objective Structured Practical Examination (OSPE) - Performance Stations .....	268
38.	Spotters.....	275