

Contents

Preface to the Third Edition

vii

Preface to the First Edition

ix

Section I: **Laboratory Instruments and Biosafety**

- | | |
|---|----|
| 1. Commonly Used Laboratory Apparatus and Equipment | 3 |
| 2. Safe Laboratory Practice and Waste Disposal | 23 |

Section II: **Qualitative Assessments**

- | | |
|--|----|
| 3. Analysis of Normal Urine for Its Constituents | 35 |
| 4. Analysis of Abnormal Constituents in the Urine and Their Clinical Correlation | 45 |

Section III: **Quantitative Analysis**

- | | |
|---|-----|
| 5. Colorimeter and Spectrophotometer: Principle and Their Functioning | 63 |
| 6. Estimation of Glucose in Serum and Other Biological Fluids | 70 |
| 7. Kidney Function Test: An Overview | 83 |
| 8. Estimation of Urea in Serum and Other Biological Fluids | 91 |
| 9. Estimation of Creatinine in Serum and Other Biological Fluids | 99 |
| 10. Estimation of Uric Acid in Serum | 108 |
| 11. Liver Function Test: An Overview | 114 |
| 12. Estimation of Bilirubin | 120 |
| 13. Estimation of AST/SGOT | 126 |
| 14. Estimation of SGPT (ALT) | 131 |
| 15. Estimation of ALP | 137 |
| 16. Estimation of Total Protein in Serum and Other Biological Fluids | 142 |
| 17. Estimation of Albumin in Serum and Calculation of A:G Ratio | 148 |
| 18. Estimation of Total Cholesterol | 153 |
| 19. Estimation of Triacylglycerol and HDL | 161 |
| 20. Estimation of Calcium | 165 |
| 21. Estimation of Phosphorus | 171 |

Section IV: **Organ Function Tests**

- | | |
|--|-----|
| 22. Thyroid, Pancreatic and Gastric Function Tests | 179 |
|--|-----|

Section V: Clinical Lab Patient's Report Interpretation (Chart Discussion/Spotter)

23. Enzyme as a Marker of Disease	191
24. Interpretation of Laboratory Result: Carbohydrate Metabolism	197
25. Interpretation of Laboratory Result: Oral Glucose Tolerance Test (OGTT)	203
26. Interpretation of Laboratory Result: Amino Acid Metabolism	213
27. Interpretation of Laboratory Result: Lipid Metabolism	219
28. Interpretation of Laboratory Result: Protein Metabolism	223
29. Interpretation of Laboratory Result: Purine Nucleotide Metabolism	230
30. Interpretation of Laboratory Result: Arterial Blood Gas (ABG) Analysis	234
31. Cerebrospinal Fluid (CSF)	241

Section VI: Vitamin and Mineral Deficiencies and Their Clinical Manifestation (Chart Discussion/Spotter)

32. Water-Soluble Vitamins	247
33. Fat-Soluble Vitamins	255
34. Minerals and Clinical Manifestation of Their Plasma Level Derangements	261

Section VII: Techniques

35. Electrophoresis	273
36. Chromatography	282
37. Reagent Preparation	291

<i>Index</i>	<i>297</i>
--------------	------------