# CONTENTS

## SECTION 1: BASICS OF PATHOLOGY


**1. Cell as a Structural Unit** **3**

**2. Cellular Activation** **39**

**3. Maintaining Cell Populations** **66**

**4. Extracellular Matrix** **80**

**5. Basics of Genetics** **92**


## SECTION 2: GENERAL PATHOLOGY


**6. Introduction to Pathology** **119**

**7. Cell Injury, Cell Death, Adaptation and Intracellular Accumulations** **130**

7.1 Cell Injury and Cell Death *130*

7.2 Adaptations of Cellular Growth and Differentiation, and Cellular Aging *192*

7.3 Intracellular Accumulations, Pathologic Calcification and Cellular Aging *200*

**8. Inflammation and Healing** **216**

8.1 Acute Inflammation *216*

8.2 Mediators of Inflammation *249*

8.3 Cells of Inflammation *268*

8.4 Morphological Types and Outcomes of Acute Inflammation *280*

8.5 Cell Adhesion Molecules *284*

8.6 Cytokines and Chemokines *291*

8.7 Chronic Inflammation and Systemic Effects of Inflammation *305*

8.8 Tissue Repair *324*

8.9 Stem Cells *342*

**9. Hemodynamic Disorders, Thromboembolism, and Shock** **347**

**10. Neoplasia** **402**

10.1 Nomenclature, General Characteristics of Neoplasms, and Epidemiology of Cancer *402*

10.2 Molecular Basis of Cancer: Role of Genetic and Epigenetic Alterations *423*

10.3 Cellular and Molecular Hallmarks of Cancer *441*

10.4 Damage and Repair of DNA and Genomic Instability *514*

10.5 Carcinogenic Agents *528*

10.6 Clinical Aspects and Laboratory Diagnosis of Cancer *546*

**11. Infections and Infestations** **577**

11.1 General Features of Microbial Pathogenesis *577*

11.2 Viral Infections *590*

11.3 Bacterial Diseases *628*

11.4 Rickettsial Infections *706*

11.5 Fungal Infections and Opportunistic Infections *710*

11.6 Parasitic Diseases *734*

11.7 Miscellaneous *796*

**12. Genetic Disorders and Molecular Diagnosis** **810**

12.1 Genetic Disorders *810*

12.2 Molecular Diagnosis *878*

**13. Diseases of Infancy and Childhood** **918**

**14. Environmental and Nutritional Diseases** **960**

**SECTION 3: IMMUNOPATHOLOGY**

**15. Normal Immune Response and Hypersensitivity** **1041**

**16. Autoimmune Diseases and Rejection of Tissue Transplants** **1087**

**17. Immunodeficiency Diseases and Amyloidosis** **1118**

***Index*** **1163**