

Contents

| | |
|---|-----|
| <i>Preface</i> | vii |
| 1 Structure and Function of Cell | 1 |
| 2 Body Water and Body Fluids: Internal Environment | 7 |
| 3 Membrane Transport | 10 |
| 4 Membrane Potentials | 14 |
| 5 Introduction to Blood and Plasma Proteins | 17 |
| 6 Red Blood Cells | 21 |
| 7 Hemoglobin | 25 |
| 8 White Blood Corpuscles | 29 |
| 9 Platelets | 32 |
| 10 Haemostasis | 35 |
| 11 Blood Groups | 38 |
| 12, 13 Immunity and Lymph | 42 |
| 14 Functional Anatomy of Heart and Cardiac Properties | 46 |
| 15 Electrocardiogram | 50 |
| 16 Cardiac Cycle and Cardiac Output | 57 |
| 17, 18 Dynamics of Blood Flow and BP Regulation | 63 |
| 19 Circulation Through Special Regions | 73 |
| 20 Cardiovascular Homeostasis in Health and Diseases | 77 |
| 21, 22 Ventilation and Pulmonary Functions | 81 |
| 23 Pulmonary Circulation | 90 |
| 24 Gas Exchange in Lung and Tissue | 95 |
| 25 Regulation of Respiration | 101 |
| 26 Respiratory Adjustment in Health and Disease | 107 |
| 27 Physiology of High Altitude and Deep Sea | 112 |
| 28 Functional Anatomy of Digestive System | 117 |
| 29 Salivary Secretion | 121 |

| | | |
|--------|---|-----|
| 30 | Gastric Secretion | 125 |
| 31 | Liver and Biliary System | 131 |
| 32 | Pancreas | 134 |
| 33 | Small and Large Intestine | 138 |
| 34 | Digestion and Absorption | 141 |
| 35 | Gastrointestinal Hormones | 145 |
| 36 | Functional Anatomy of Kidney | 149 |
| 37 | Glomerular Filtration Rate | 153 |
| 38 | Tubular Functions | 157 |
| 39 | Water Excretion | 162 |
| 40, 41 | Kidney Diseases and Micturition | 165 |
| 42 | Nerve Physiology | 171 |
| 43 | Neuromuscular Junction | 178 |
| 44 | Skeletal Muscle | 183 |
| 45 | Cardiac and Smooth Muscle | 191 |
| 46 | Synapses | 196 |
| 47 | Chemical Transmitters | 201 |
| 48 | Reflexes | 205 |
| 49 | Initiation of Impulse in Sensory System | 210 |
| 50 | Organization of CNS | 216 |
| 51 | Sensory Pathways | 221 |
| 52 | Motor Cortex and Descending Tracts | 228 |
| 53 | Cerebellum | 234 |
| 54 | Basal Ganglia | 239 |
| 55 | Regulation of Tone and Posture | 243 |
| 56 | Vestibular Apparatus | 246 |
| 57 | Autonomic Nervous System | 248 |
| 58 | Sleep and RAS | 251 |
| 59 | Hypothalamus | 255 |
| 60 | Limbic System | 261 |
| 61 | Higher Functions of Nervous System | 265 |
| 62 | Vision Physiology | 269 |
| 63 | Hearing | 281 |
| 64 | Smell and Taste | 287 |

| | | |
|----|-------------------------------------|-----|
| 65 | Energy Balance and Metabolism | 289 |
| 66 | Nutrition | 295 |
| 67 | Hormones Principles | 301 |
| 68 | Pancreas | 304 |
| 69 | Pituitary | 310 |
| 70 | Thyroid | 316 |
| 71 | Parathyroid | 324 |
| 72 | Adrenal Gland | 332 |
| 73 | Sexual Differentiation | 341 |
| 74 | Male Reproduction | 348 |
| 75 | Female Reproductive System | 355 |
| 76 | Pregnancy and Lactation | 364 |