CONTENTS

Unit 1: Introduction to Human Anatomy and Physiology **01-21**
1.1 Definition and Scope of Anatomy and Physiology
1.2 Branches of Anatomy
1.3 Levels of Structural Organization
1.4 Anatomical Terminology and Body Planes
1.5 Homeostasis and Feedback Mechanisms

Unit 2: Chemical and Cellular Organization **22--50**
2.1 Basic Chemical Concepts and Biomolecules
2.2 Structure and Function of the Cell
2.3 Cell Organelles and Their Functions
2.4 Cell Membrane Transport Mechanisms
2.5 Cell Cycle and Cell Division

Unit 3: Tissue Level Organization (Histology) **51-83**
3.1 Epithelial Tissue
3.2 Connective Tissue
3.3 Muscle Tissue
3.4 Nervous Tissue
3.5 Tissue Repair and Regeneration

Unit 4: Integumentary System **84-109**
4.1 Structure of Skin
4.2 Functions of the Integumentary System
4.3 Skin Appendages (Hair, Nails, Glands)
4.4 Clinical Aspects of Skin

Unit 5: Skeletal System **110-145**
5.1 Structure and Classification of Bones
5.2 Axial Skeleton
5.3 Appendicular Skeleton
5.4 Joints and Their Types
5.5 Bone Growth and Calcium Regulation

Unit 6: Muscular System **146-278**
6.1 Types of Muscles
6.2 Structure of Skeletal Muscle
6.3 Mechanism of Muscle Contraction

6.4 Neuromuscular Junction
6.5 Muscle Physiology

Unit 7: Nervous System and Special Senses **179-221**
7.1 Organization of the Nervous System
7.2 Structure and Function of Neurons
7.3 Central Nervous System
7.4 Peripheral Nervous System
7.5 Reflex Action
7.6 Special Senses (Vision, Hearing, Taste, Smell)

Unit 8: Endocrine System **222-252**
8.1 Hormones and Their Mechanisms
8.2 Major Endocrine Glands
8.3 Hormonal Regulation
8.4 Endocrine Disorders

Unit 9: Blood and Cardiovascular System **253-288**
9.1 Composition and Functions of Blood
9.2 Blood Cells and Hematopoiesis
9.3 Structure of the Heart
9.4 Cardiac Cycle
9.5 Blood Vessels and Circulation

Unit 10: Respiratory System **289-307**
10.1 Structure of Respiratory Organs
10.2 Mechanism of Breathing
10.3 Gas Exchange
10.4 Lung Volumes and Capacities

Unit 11: Digestive System **308-321**
11.1 Structure of Digestive Tract
11.2 Digestive Processes and Enzymes
11.3 Absorption and Metabolism

Unit 12: Urinary System **322-336**
12.1 Structure of the Kidney
12.2 Nephron and Its Functions
12.3 Mechanism of Urine Formation
12.4 Fluid and Electrolyte Balance

Unit 13: Reproductive System **337-350**
13.1 Male Reproductive System
13.2 Female Reproductive System
13.3 Gametogenesis
13.4 Hormonal Regulation of Reproduction

Unit 14: Integration and Applied Physiology **351-363**
14.1 Integration of Organ Systems
14.2 Exercise Physiology
14.3 Stress and Adaptation
14.4 Introduction to Pathophysiology