

BASIC MEDICAL SCIENCES

PART - I

ANATOMY

The depth of the subject will only be diagram and labeling of the diagram.

Week	Contents
1. Introduction	
2-3.	The study of human cell and functions of organelles, Nucleus, DNA helix, RNA, genetic code, Chromosomes. Cell Division Mitosis and Meiosis of cell
4-9.	BASIC TISSUES <ul style="list-style-type: none">- Different Types of tissues.- Connective tissues.- Epithelial tissues.- Muscle tissues.- Nervous tissues.- Blood tissues.
10-11.	The circulatory system- Structure of heart. Different chambers of heart, main arteries arising from the heart and main veins of the heart, branches of arch of aorta, Thoracic aorta, abdominal aorta, main vessels of upper and lower limbs.
12-13.	Lymphatic System
14-17.	The Gastro Intestinal Systems <ul style="list-style-type: none">- Mouth- Pharynx- Esophagus- Stomach- Small Intestine- Large Intestine- Accessory organs (Liver, Spleen, Pancreas & Gall Bladder)
18-20.	Respiratory System <ol style="list-style-type: none">1. Organs of respiration2. Upper respiratory tract3. Lower respiratory tract
21-22.	The Skin <ul style="list-style-type: none">- Epidermis- Dermis- Sebaceous glands- Nails

23-25. The Nervous System

1. CNS central nervous system
2. Peripheral Nervous System
 - Different parts of nervous system
 - Structure of cerebrum, mid brain, cerebellum, pons and medulla oblongata, spinal cord and
 - Autonomic nervous system

26-28. The Endo Crine Glands

Short description and position of:-

- Pituitary gland
- Thyroid gland
- Parathyroid gland
- Adrenal gland
- Hormones of Testis
- Prostate
- Ovaries
- Pancreas and Thymus

29-31. The urinary system

Structure of kidney, urethra, urinary bladder, prostate gland and ureter. Difference of right and left kidneys.

32-33. The Reproductive System

- Male reproductive system
- Female Reproductive System
- Different organs of male reproductive system, structure of testis, the scrotum, seminal vesicles, prostate gland, the penis and urethra.
- Different organs of females reproductive system, Mammary glands, Structure of ovaries, uterus, cervix and vagina,

34-35. The Skeleton

Different bones of skull. Bones of upper limbs, lower limbs, thorax, pelvis and vertebral column.

36-38. Structure of individual bones, scapula, humerus, radius, ulna, femur, tibia and hip bones, hands, foot, ribs, sternum, clavical, sacrum, thyroid, hyoid cricoid.

The Joints

5. All joints and their movements
6. Main muscles of body.

39-40. The Special Senses:

Brief anatomy of eye. Three coats of eye ball. Brief anatomy of ear Outer, middle and inner ear, nose- inner and outer, tounge, salivary glands, skin.

Recommended Books:

Foundations of anatomy and physiology by Kathleen J.W. Wilson.

PHYSIOLOGY

The physiology of the following topics will consist of brief description of the function of part of the body.

1-3. **The cell and its functions**

1. Structure and Functions of a human cell
 - The cytoplasm and its organelles
 - Comparison with animal cell
 - Functional system of the cell
2. Endocytosis & Phagocytosis
 - Ingestion and digestion by the cell
 - Functions/Structures of Golgi apparatus
3. Cell Division
 - Mitochondria and reticulum.
 - Cell reproduction.

4-9. **Tissues and fluids of body.**

10-11. **Cardiovascular system (Heart and circulation)**

- Description of Heart and vessels (arteries, vein, and capillaries)
- Cardiac cycle, diastole and systole
- Functions of atria and ventricles
- Functions of valves
- Heart pumping (work output of heart)
- Cardiac output, stroke volume etc.
- Heart sounds

Lymphatic system function

12-14. **Respiratory System**

- Basic mechanism of respiration
- Inspiration expiration mechanism
- Pulmonary capacities and pulmonary volumes
- Respiratory rate and tidal volume definitions
- Functions of respiratory pathways (Chemical & Neural Control)
- Artificial respiration, mouth breathing
- Transport of oxygen and carbon dioxide in the blood and body fluids

15-18. **Gastro intestinal tract.**

- Ingestion of food, mastication (Chewing)/ Digestion and Swallowing
- Functions of stomach
- Storage function, mixing of food

19-20. **Secretions of GIT**

- Saliva, Salivary glands functions of
- Saliva, Gastric Secretion, Functions of
- Pancreatic secretion, Bile secretion and its function

Secretions of the small intestine, secretion of large intestine, Digestion and absorption of food

21-25. Metabolism

Introduction to Fat and Protein Metabolism

Introduction to Carbohydrates Metabolism, Role of glucose in Carbohydrate metabolism, Transport of glucose in body tissue, Lipid metabolism transport of lipids in the blood.

Transport from the GIT, and fat deposits, Proteins metabolism, basic properties of protein, use of proteins for energy, Vitamins and their metabolic role.

27-28. Endocrine Glands.

Endocrine glands and their hormones

The pituitary hormones and their functions

The thyroid hormone, The adrenocortical hormones

Parathyroid hormones and their functions

29-32. Reproductive System.

Functions of the male reproductive organs

Functions of the female reproductive system

Testosterone and other male sex hormones

Pregnancy, lactation and female hormones

33-37. Special Senses

Introduction to Sensory organs and their function

The eye functions and elements of eye, Sclera, choroid retina, The eye as a camera, Sense of Hearing, tympanic membrane and external ear, middle ear and vesicles, Internal ear and its functions

Conduction of sound to the cochlea

The functions of Tongue and salivary glands.

The functions of nose and tonsils / Adenoids.

The functions of skin and its appendages

38-40. Nervous System

General design of nervous system types and parts of nervous system Functions of brain, cerebrum cerebellum spinal cord. Cranial nerves. Autonomic nervous system (Parts and functions)