

<b>CHOITHRAM COLLEGE OF PARAMEDICAL SCIENCES</b>		<b>CATEGORY: DOCUMENT</b>
<b>TITLE: ENTRANCE EXAMINATION SYLLABUS</b>	<b>NO.: EPS/DOC/AD/03</b>	<b>REV. NO. &amp; DATE: 00/01.04.2024</b>

## ENTRANCE EXAMINATION SYLLABUS

### **BPT Entrance Exam Syllabus**

#### I. **PHYSICS** (10 Marks)

The focus in Physics will be on foundational concepts relevant to understanding human movement, forces, and basic medical equipment.

1. Mechanics: Kinematics: Displacement, velocity, acceleration, types of motion (linear, rotational, )
2. Newton's Laws of Motion: Force, inertia, momentum, action-reaction.
3. Work, Energy, and Power: Potential and kinetic energy, conservation of energy.
4. Simple Machines: Levers (especially classes of levers in the human body), pulleys.
5. Friction: Types of friction, importance in movement and stability.
6. Properties of Matter:
7. Elasticity: Stress, strain, Young's modulus.
8. Fluid Mechanics (Basic): Pressure, buoyancy.
9. Heat & Thermodynamics (Basic): Temperature, heat transfer (conduction, convection, radiation).
10. Electricity & Magnetism (Basic): Basic circuits, Ohm's law, types of currents (DC, AC).

#### II. **CHEMISTRY** (10 Marks)

Chemistry concepts will focus on the fundamental building blocks and processes within the human body.

1. Basic Concepts:  
Atoms, Molecules, Ions.  
Chemical bonding (ionic, covalent).  
Acids, Bases, and Salts (pH scale, buffers). Basic part
2. Biomolecules:  
Carbohydrates: Structure and function (monosaccharides, disaccharides, polysaccharides).  
Proteins: Amino acids, peptide bonds, basic protein structure (primary, secondary, tertiary).  
Lipids: Fats, oils, phospholipids.  
Nucleic Acids (Basic): DNA, RNA (focus on their role as genetic material).  
Water: Properties of water, its role as a solvent.

#### III. **BIOLOGY** (20 Marks)

Biology will form the core of the test, with a strong emphasis on human anatomy, physiology, and health.

1. Cell Biology: Structure and function of animal cell organelles (nucleus, mitochondria, ER, Golgi, cytoplasm, cell membrane).
2. Tissues: Types of tissues (epithelial, connective, muscular, nervous) and their basic functions.

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3. Skeletal System:

Structure and function of bones (types of bones, bone markings – basic).

Types of joints (fibrous, cartilaginous, synovial – with examples).

Major bones of the axial and appendicular skeleton.

4. Muscular System:

Types of muscle tissue (skeletal, smooth, cardiac) and their characteristics.

Basic structure of a skeletal muscle (muscle fiber, myofibrils, sarcomere – basic understanding).

Muscle contraction (sliding filament theory – basic overview).

Major muscle groups and their primary actions (e.g., quadriceps, hamstrings, biceps, triceps – focus on large, easily identifiable groups). Relevance: Core of physical therapy, rehabilitation, exercise prescription.

5. Nervous System:

Basic structure and function of neurons.

Divisions of the nervous system (CNS, PNS, somatic, autonomic).

Basic understanding of reflexes.

Major parts of the brain (cerebrum, cerebellum, brainstem – very basic function).

6. Circulatory System:

Heart structure and function (basic).

Blood vessels (arteries, veins, capillaries – basic function).

Components of blood.

7. Respiratory System:

Structure and function of the lungs and airways (basic).

Mechanism of breathing.

8. Endocrine System (Basic):

Major endocrine glands (pituitary, thyroid, adrenal) and their general functions related to growth, metabolism, and stress.

9. Digestive System (Basic):

Overview of the digestive process, absorption.

10. Excretory System (Basic):

Kidney structure and function (basic).

11. Health and Disease (Basic Concepts):

Introduction to common diseases (e.g., diabetes, hypertension, arthritis – basic understanding of their impact on the body).

Concepts of inflammation and infection.

12. Basic principles of wound healing. Relevance: Understanding patient conditions, pathology.

**IV. GENERAL KNOWLEDGE**

Basic Health Awareness: General knowledge about healthy living, exercise, and injury prevention

Principal