

Saurashtra University



FACULTY OF MEDICINE

REVISED DEGREE OF BACHELOR OF PHYSIOTHERAPY (B.PHYSIO)

(w.e.f. Academic Year- 2012)

Regulation, Ordinance and syllabus for B. Physiotherapy

O.B. PHYSIO - 1

The academic year for undergraduate physiotherapy students shall Consists of two terms, VIZ.

- (1) The first term commencing on the 1st September and ending on the 28th February.
- (2) The second term commencing on the 1st March and ending on the 31st August. To derive maximum advantage out of this revised curriculum, the vacation period to the students, in one academic year should not exceed one month, (Preferably 15 days summer vacation and 15 Days Diwali vacation)

O.B. PHYSIO - 2

TRAINING PERIOD & TIME / PHASE DISTRIBUTION

- (1) For the degree of Bachelor of Physiotherapy. Every student shall undergo a period of certified study extending over 4 academic years divided in to 8 terms (i.e. of six months each) from the date of commencement of the study for the subjects comprising the physiotherapy curriculum to the date of completion of final B. Physio examination successfully and followed by six months compulsory rotating internship.
- (2) The Period of 4 Years is divided in 4 phases.

O.B. PHYSIO - 3

- (A) Passing in F.Y.B. Physiotherapy (Phase-I) is compulsory before proceeding to phase-II training. No student shall be permitted to join phase-II group of subjects until he/she has passed in all the Phase-I subjects.(as per O.B. Physio.7 (C))
- (B) Passing in Phase-II (S.Y.B. Physiotherapy) is compulsory before proceeding to Phase-III training. (as per O.B. Physio.7 (C))
- (C) Passing in Phase-III (T.Y.B. Physiotherapy) is compulsory before proceeding to Phase-IV training. (as per O.B. Physio.7 (C))
- (D) Passing in Final B. Physiotherapy examination is compulsory before proceeding to compulsory rotating Internship training.

O.B. PHYSIO - 4

- (1) **ESSENTIALITIES FOR QUALIFYING TO APPEAR IN UNIVERSITY EXAMINATIONS.**
Fresh appearing candidates before presenting themselves for the University examination shall have :-

- (A) Attended 75% of the total numbers of days in each term.
- (B) Attended 75% of the minimum prescribed teaching hours as per O.B. Physio-2 (Lectures and Practicals including clinics, seminars, group discussions, tutorials, demonstrations etc.) in concern subject.

N.B. : for definition of term refer O.B. Physio-1.

- (2) If a student is found appearing in the university examinations without fulfilling the conditions in O.B. Physio-3 (1) criteria, his/her university result of the concerned subject / subjects will be cancelled.

O.B. PHYSIO - 5

PASSING STANDARD

To pass any B. Physio examination a student must obtain at least 50% marks in the theory and 50% marks in practical examination, in each of the Subjects separately in concerned examination.

In Theory examination following subjects the candidate must obtain at least 50% marks in the paper to pass the subject, instead of each section separately.

1. Psychology & Sociology	In First Year
2. Pathology, Microbiology & Biochemistry	In Second Year
3. Medicine-I	In Second Year
4. Medicine-II	In Third Year
5. Surgery-I	In Second Year
6. Surgery-II	In Third Year

O.B. PHYSIO - 6

DEFINITION OF TRIAL

First trial is deemed to take place when the candidate is due to appear for the examination irrespective of his / her actual appearance, provided that non-appearance is not a result of medical reasons beyond his / her control. Similarly 2nd, 3rd, etc, trials relating to subsequent examination.

O.B. PHYSIO - 7

- (A) EXEMPTION :

Candidates who have passed in any of the subject / subjects may at their option be excused for appearing in that subject / subjects at a subsequent examination. But they should not be declared to have passed the whole examination until they have passed in all the subjects in the particular examination.

- (B) University examinations will be held twice during the year at the end of each term. Failure to pass the examination will not debar candidate from appearing at subsequent examination, on the submission of a new application and the payment of a fresh fee.

- (C) A candidate failing in any two of subject (two papers) in F. Y. , S. Y. and T. Y. B. Physiotherapy examination will be allowed to keep terms for next higher examination, but he will not be permitted to appear for the higher examination unless he has previously passed the lower examination provided further that the terms kept by him for the higher examination will be available to him for any further appearances at that examination.

O.B. PHYSIO - 8

(I) AWARDS AND PRIZES

The following shall be eligible for the university awards and prizes. Those who appear and pass the first, second, third and final B. Physio examination at their first attempt in a regular batch.

(II) DISTINCTION MARKS

The subject or subjects in which successful candidates may have distinguished themselves will be shown on the list. In order to obtain distinction in any subject, the candidates should pass the examination at the first attempt in all the subjects and obtain 75% of the total marks in the subject / subjects.

O.B. PHYSIO - 9

COMPULSORY ROTATING INTERNSHIP

In order to qualify for B. Physiotherapy degree every student after passing Final B. Physiotherapy examination shall do compulsory rotating Internship Training for a period of six months in an institution recognize by **SAURASHTRA UNIVERSITY** for the purpose.

R.B. PHYSIO - 1

PHASE - I (F.Y.B. PHYSIOTHERAPY) :

Consisting of 2 terms (First and second terms) university examination of F.Y.B. Physiotherapy shall be held at the end of second term .

SUBJECTS OF F.Y.B. PHYSIOTHERAPY

- (1) Human Anatomy
- (2) Human Physiology
- (3) Psychology & sociology
- (4) Fundamentals of Electrotherapeutics
- (5) Exercise Therapy - I & Massage Manipulation

Following are the minimum teaching hours for various subjects in phase-I

- | | |
|----------------------|---------------------------------|
| (1) Human Anatomy | 260 Hours Lectures & Practicals |
| (2) Human Physiology | 220 Hours Lectures & Practicals |

- | | | |
|-----|---|---------------------------------|
| (3) | Psychology | 40 Hours Lectures |
| (4) | Sociology | 40 Hours Lectures |
| (5) | Fund. of Electrotherapeutics | 40 Hours Lectures |
| (6) | Exercise Therapy-I
& Massage Manipulations | 150 Hours Lectures & Practicals |

PHASE - II (S.Y.B. PHYSIOTHERAPY)

Consists of 2 terms (Third and fourth terms) university examination of S.Y.B. Physiotherapy shall be held at the end of fourth term.

SUBJECTS OF S.Y.B. PHYSIOTHERAPY

- (1) Pathology, Microbiology & Biochemistry
- (2) Medicine - I
- (3) Surgery - I
- (4) Exercise therapy - II & Kinesiology
- (5) Electro therapy - I

Following are the minimum teaching hours for various subjects in phase-II

- | | | |
|------|-----------------------------|---------------------------------|
| (1) | Pathology & Microbiology | 100 Hours Lectures |
| (2) | Biochemistry | 40 Hours Lectures |
| (3) | General Medicine | 35 Hours Lectures |
| (4) | Pediatrics | 20 Hours Lectures |
| (5) | Skin & V.D. | 20 Hours Lectures |
| (6) | Plastic Surgery | 25 Hours Lectures |
| (7) | General Surgery | 25 Hours Lectures |
| (8) | E.N.T. | 10 Hours Lectures |
| (9) | Orthopaedics (Traumatology) | 40 Hours Lectures |
| (10) | Bio-Mechanics & Kinesiology | 80 Hours Lectures |
| (11) | Exercise Therapy - II | 150 Hours Lectures & Practicals |
| (12) | Electrotherapy - I | 150 Hours Lectures & Practicals |
| (13) | Radiology | 5 Hours |
| | Clinical | 500 Hours |

PHASE - III (T.Y.B. PHYSIOTHERAPY)

Consisting of 2 terms (Fifth & Sixth Terms). University examination of T.Y.B. Physiotherapy shall be held at the end of sixth term.

SUBJECTS OF T.Y.B. PHYSIOTHERAPY

- (1) Medicine - II
- (2) Surgery - II
- (3) Electrotherapy - II
- (4) Bio-statistics & research Methodology
- (5) Pharmacology.

Following are the minimum teaching hours for various subjects phase-III

(1) Neurology	40 Hours Lectures
(2) Obstetrics & Gynecology	40 Hours Lectures
(3) Orthopaedics (Non Traumatic conditions)	40 Hours Lectures
(4) Cardio Thoracic Surgery	30 Hours Lectures
(5) Pharmacology	40 Hours Lectures
(6) Psychiatry	30 Hours Lectures
(7) Ophthalmology	10 Hours Lectures
(8) Electrotherapy-II	150 Hours Lectures & Practicals
(9) Bio-statistics & Research Methodology	45 Hours Lectures
Clinical	500 Hours Lectures & Practicals.

PHASE - IV (FINAL B. PHYSIOTHERAPY)

Consisting of 2 terms (Seventh and Eight terms) University Examination of Final B. Physiotherapy shall be held at the end of eight term.

SUBJECTS OF FINAL B. PHYSIOTHERAPY

- (1) Physiotherapy in Neuromuscular Conditions
- (2) Physiotherapy in Cardio Pulmonary Conditions
- (3) Physiotherapy in General Medical and Surgical Conditions
- (4) Physiotherapy & Rehabilitation
- (5) Physiotherapy in Musculoskeletal Conditions.

Following are the minimum teaching hours for various subjects in Phase-IV.

- * (1) Physiotherapy in Neuromuscular Condition 120 Hours Lectures & Practical

- * (2) Physiotherapy in Cardio Pulmonary Conditions 120 Hours Lectures & Practical
- * (3) Physiotherapy in General Medical & Surgical Conditions 120 Hours Lectures & Practical
- (4) Physiotherapy & Rehabilitation 35 Hours Lectures
- * (5) Physiotherapy in Musculoskeletal Conditions 120 Hours Lectures & Practical
- (6) Ethics & administration Clinical 15 Hours Lectures
1100 Hours

* Teaching hours of these subjects should be distributed in phase II, III and IV.

FOLLOWING IS THE SYLLABUS OF VARIOUS SUBJECTS OF B. PHYSIOTHERAPY EXAMINATION.

(1) F.Y. PHYSIOTHERAPY.

(A) HUMAN ANATOMY - (260 Hours)

No.	Topics	Theory Hours	Practical Hours	Total Hours
1	GENERAL ANATOMY	8	4	12
	1/1 Introduction & anatomical terms			
	2/1 Skin, Superficial Fascia & deep fascia			
	3/1 CVS, Portal system, collateral circulation & arteries			
	4/1 Lymphatic system			
	5/1 Osteology			
	6/1 Myology			
	7/1 Syndesmology (joints)			
	8/1 Nervous system			
2	MYOLOGY, OSTEOLOGY AND ARTHROLOGY	50	100	150
	1/2 Fascia & muscles of scalp and face			
	2/2 Muscles of mastication			
	3/2 Temporomandibular joint			
	4/2 Muscles of orbit & related nerves			
	5/2 Superficial and lateral cervical muscle (platysma, trapezius, SCM)			
	6/2 Anterior triange of neck-suprahyoid & infrahyoid			
	7/2 Anterior and lateral vertebral muscles			
	8/2 Cervical plexus			

9/2	Cranial nerve (7 th & 8 th)			
10/2	Cranial nerve (9 th , 10 th , 11 th ^ 12 th)			
11/2	Suboccipital triangle & suboccipital muscles			
12/2	Joints of vertebral column to cranium			
13/2	Muscles of thorax and movement of respiration			
14/2	Joints of thorax including sternochondral & chondrocostal joints			
15/2	Muscles of abdomen			
16/2	Muscles of pelvis			
17/2	Muscles of perineum			
18/2	Vertebral joint			
19/2	Joints of pelvis (lumbosacral, sacrococcygeal, pubic symphysis)			
20/2	Deep muscles of back			
21/2	Muscles connecting upper limb to vertebral column with regional structures			
22/2	Scapular muscles including regional structures			
23/2	Muscles of arm			
24/2	Axilla and brachial plexus			
25/2	Joints of shoulder girdle			
26/2	Shoulder joint			
27/2	Anterior antebrachial muscles (front of forearm) with regional structure			
28/2	Posterior antebrachial muscles (back of forearm) with regional structures			
29/2	Elbow joint & cubital fossa			
30/2	Radioulnar joint (superior, middle and inferior)			
31/2	The retinacula, fasci and synovial sheath of wrist and hand			
32/2	Muscles of hand			
33/2	Radiocarpal / wrist joint			
34/2	Other joints of hand			
35/2	Muscles connecting lower limb to vertebral column with regional structures			
36/2	Muscles of iliac region(psoas muscle) and lumbar plexus			
37/2	Anterior femoral muscles (front of thigh) including regional structures			
38/2	Medial femoral muscles (adductor compartment) including regional structures			
39/2	Muscles of gluteal region including regional structures			
40/2	Posterior femoral muscles (back of thigh)			

		including regional structures			
	41/2	Hip joint			
	42/2	Anterior crural muscles including regional structures			
	43/2	Lateral crural muscles including regional structures			
	44/2	Posterior crural muscles including regional structures			
	45/2	Knee joint			
	46/2	Popliteal fossa			
	47/2	Muscles of foot			
	48/2	Tibiofibular joint (superior, middle and inferior)			
	49/2	Talocrural joint (ankle joint)			
	50/2	Joints of foot & Arches)			
3		NERVOUS SYSTEM	10	20	30
	1/3	Introduction to nervous system & meanings			
	2/3	Spinal cord & peripheral nerves and vertebral canal			
	3/3	Brain stem-1			
	4/3	Brain stem-2			
	5/3	Cerebellum			
	6/3	Diencephalon with basal ganglia			
	7/3	Limbic system with olfactory region			
	8/3	Cerebrum & functional areas			
	9/3	Spinal tracts & overview of CNS - I			
	10/3	Spinal tracts & overview of CNS - II			
4	1/4	RESPIRATORY SYSTEM	1	2	3
5	1/5	DIGESTIVE SYSTEM	1	2	3
6	1/6	URINARY SYSTEM	1	2	3
7	1/7	ENDOCRINE SYSTEM	1	2	3
8	1/8	REPRODUCTIVE SYSTEM	2	2	4
9	1/9	SPECIAL SENSORY ORGANS AND SENSATIONS	COVERED IN OTHER PLACES		
10	1/10	CARDIOVASCULAR SYSTEM (Heart & Vesseis)	1	2	3
11		HISTOLOGY	12	24	36
	1/11	Cell			
	2/11	Epithelia			
	3/11	Connective tissue(general)			
	4/11	Cartilage			
	5/11	Bone			
	6/11	Muscles			
	7/11	Nerves			
	8/11	Blood and phagocytic system			
	9/11	Lymph and lymphatic system			
	10/11	Blood Vessels			

	11/11	Skin and its appendages				
	12/11	Central nervous system				
12	GENERAL EMBRYOLOGY		13	COVERED IN SYSTEM	13	
	1/12	Spermatogenesis				
	2/12	Structure of Spermatozoon				
	3/12	Oogenesis				
	4/12	Ovarian follicle				
	5/12	Fertilization				
	6/12	Formation of germ layers				
	7/12	Placental development				
	8/12	Branchial arches				
	9/12	Development of skeletal system				
	10/12	Development of all type muscular system				
	11/12	Development of locomotor system				
	12/12	Development of nervous system-1				
	13/12	Development of nervous system-1				
TOTAL			100	160	260	

Note :-

1. Dissection of upper and lower limbs & back.
2. Identification of anterolateral abdominal wall, posterior abdominal wall & thoracic cage.
3. Anatomical position & description of all bones.
4. Surface marking in cadaver and living body.
5. Radiological examination of upper limb, lower limb & other special X-rays.
6. In BRAIN : identification of all parts and various sections at different levels.
7. In HISTOLOGY PRACTICAL : identification of basic tissues of body.

(B) HUMAN PHYSIOLOGY (220 Hours)

(The topics are distributed in to hours as following)

1. **General Physiology** **10 Hours**
2. **Blood** **15 Hours**
3. **Cardio Vascular System** **20 Hours**
4. **Digestive Systems** **10 hours**
5. **Respiratory System** **15 Hours**
6. **Nutrition** **05 Hours**
7. **Endocrines** **20 hours**
8. **Reproductive System** **10 Hours**
9. **Excretory System** **05 Hours**
10. **Nerve** **10 hours**

11. Muscle 10 Hours

12. Central Nervous System 30 Hours

13. Special Senses 10 Hours

General Physiology :

1. Cell Structure and organelle.
2. General Principles of Biophysics
3. Body Fluid compartments.

Blood :

1. Composition of blood, Plasma, protein formation and their function.
2. Structure, formation and functions of R.B.C.
3. Structure, formation and functions W.B.Cs. and Platelets.
4. Coagulation and its effects on bleeding, clotting time.
5. Blood groups and their significance, Rh. factor.
6. Reticulo Endothelial system, jaundice, structure and functions of spleen.
7. Haemoglobin and E.S.R.

Cardiovascular System:

1. Structure, properties of heart muscle and nerve supply of heart, Structure and function of arteries, arterioles, capillaries and veins.
2. Cardiac cycle and heart sounds.
3. Cardiac output measurement, factors affecting.
4. Heart rate and its regulation, cardio vascular reflexes.
5. Blood pressure, its regulations and physiological variations.
6. Peripheral resistance, Factors controlling, Role in B.P.
7. Haemorrhage.
8. Changes in muscular exercise.

Respiratory System:

1. Mechanism of respiration, Intra-pleural and intra pulmonary pressure.
2. Lung volumes and capacities.
3. O₂ and CO₂ carriage and their exchange in tissues and lungs.
4. Nervous chemical regulation of respiration - Respiratory Centres. Respiratory states - anoxia, asphyxia, Cyanosis, Acclimatization.

Digestive System:

1. General outline and salivary digestion
2. Gastric secretion and its mechanism of secretion and functions.
3. Digestion, absorption and metabolism of proteins.
4. Structure, Secretions and Functions of Livers.

Nutrition:

1. Digestion, absorption and metabolism of carbohydrates.
2. Digestion, absorption and metabolism of fats.
3. Digestion, absorption and metabolism of proteins.
4. Vitamins, sources, functions and resources.
5. Balanced diet in different age groups and occupation.

Endocrines:

1. Anterior Pituitary.
2. Posterior Pituitary and parathyroid.
3. Thyroid.
4. Adrenal Cortex.
5. Adrenal Medulla, thymus.
6. Pancreas and Blood sugar regulation.

Reproductive System:

1. Sex determination and development, puberty,
2. Male sex hormones and their functions, spermatogenesis.
3. Female sex hormones and formation of urine, G.F.R. and Tubular functions.
4. Pregnancy, functions of placenta and lactation.

Excretory System:

1. Gross and minute structure of kidney and features of renal circulation.
2. Mechanism of formation of urine, G.F.R. and Tubular function.
3. Renal function tests.
4. Physiology of micturition.

Neuro Muscular Physiology:

Muscle And Nerve :

1. Structure of neurones, membrane potential and generation of action potential.
2. Nerve impulse conduction, saltatory conduction.
3. Nerve muscular junction and drugs acting on it - Myasthenia.
4. Degeneration and regeneration in peripheral nerves. Wallerian degeneration of electrotonus and pflagers law.

Muscle:

1. Type of muscles and their gross structure, stimulus, chronaxie, strength duration curve.
2. Structure of Sarcomere - basis of muscle contraction, Starlings law, changes during muscle contraction.
3. Electrical - Biphasic and monophasic action potentials.
4. Chemical, Thermal and Physical changes, isometric and isotonic contraction.
5. Motor units and its properties, clonus, tetanus, all or none law, beneficial effect.
6. Nature of voluntary contraction, fatigue.

Nervous System:

1. Types and properties of receptors, types of sensations
2. Structure of synapses, reflex arc and its properties, occlusion, summation, subminimal fringe etc.
3. Tracts of spinal cord.
4. Descending tracts, Pyramidal and Extrapyrmidal.
5. Hemisection and complete section of spinal cord. Upper and lower motor neurone paralysis.
6. Cerebral cortex, areas and functions - E.E.G.
7. Structure - connections and function of cerebellum.
8. Basal ganglia and thalamus, connections and functions.
9. Reticular formation, tone, posture and equilibrium.
10. Autonomic Nervous system.

Special Senses:

1. Broad features of eye, errors of refraction, lesions of visual pathways.
2. Speech and its disorders.
3. Ear and vestibular apparatus.

Practical & Demonstrations: (50 Hours)

<u>Titles</u>		
1	Nerve Muscle physiology Gastrocnemius Muscle-Sciatic Nerve Prep. Action Potential etc. Effect of Temperature on S.M.C Effect of Load on Skeletal Muscle Contraction	1 Practical
2	Cardio-Vascular System Graph BP Radial Pulse Spirometry/Respiratory Efficiency Test	2 Practical 1 Practical 1 Practical 1 Practical
3	Instruments	2 Practical
4	Recording Body Temperature	1 Practical
5	Haematology Total red Cell Count Total White Blood Count Cells in Peripheral blood film Differential WBC count Absolute count, arneth count Blood grouping Bleeding time/Clotting Time, Blood , PCV, ESR	1 Practical 1 Practical 1 Practical 1 Practical 1 Practical 1 Practical 1 Practical
6	Central Nervous System Examination of Sensory Functions Examination of Motor Functions Examination of Reflexes Cranial Nerves I,III,IV,V,VI Cranial Nerve II Cranial Nerves VII,VIII,IX,X,XI,XII	1 Practical 1 Practical 1 Practical 1 Practical 1 Practical 1 Practical
		22 Practical

(C) PSYCHOLOGY & SOCIOLOGY

(1) PSYCHOLOGY (40 Hours)

Reference should be made whenever appropriate to the therapist's relationship with the patient and with his professional colleagues. Emphasis should be laid on the effects of disease on the patient's behaviour.

(The following underlined topics are must to know)

1. **Biological foundations** of behaviour, hereditary, environment and logical basis for development, developmental psychology (child).
2. **Learned and unlearned behaviour** : Simple learning and conditioning, social learning.
3. **Thinking and Intelligence** : Learning and problem solving, development of conceptual thinking in children. Communication, language and thinking, Measurement of intelligence, influences on intelligence, extent and consequence of individual difference.
4. **Perception** : Sensory basis of perception, attention and perception, observer error.
5. **Memory** : Phases of memory, short term storage, memory and perception thinking etc. Forgetting testimony and recall of events, memory and ageing.
6. **Motivation and Emotions** : Approaches to motivations, emotional development, influence of early experience. Family and social influences on motivation and behaviour.
7. **Personality** : nature of personality structure and dynamics, dimensional, psycho analytical and constitutional theories of personality, measurement of personality, culture and personality patterns.
8. **Attitude** : Nature of attitudes and beliefs including prejudice, group influences on attitudes, attitude change, doctor - patient expectations and attitudes, prejudice formation and reduction.
9. **Interpersonal Behaviour** : Experimental analysis on social interaction, studies of the interview situation, behaviour in formal and informal groups, group norms and roles. Leadership in formal and informal groups, group morale, Behaviour therapy, behaviour modification techniques, token economy.
10. **Social Psychology** : nature and scope of social psychology, social interaction, psychological groups and their classification, socialization of the individual, social control (social hereditis) - moves, customs, fashion, propaganda and its techniques.
11. **Tests**. Weschler scales, Stanford-Binet Intelligence scale, Bender and Gestalt - other projective test, Anxiety scale.

(2) SOCIOLOGY (40 Hours)

The subject will introduce the student to the basic sociological concepts, principles and social processes, social institutions in relation to the individual family and community and the various social factors affecting the family in rural and urban communities.

Introduction :

1. Meaning - Definition and scope of sociology.
2. Its relation with anthropology, psychology, social psychology and ethics.
3. Methods of sociology - Case study, social survey, questionnaire interview and opinion poll methods.
4. Importance of its study with special reference to health care professionals.

Social factors in Health and disease :

1. The meaning of social factors , The role of social factors in health and illness.

Socialization :

1. Meaning and nature of socialization
2. Primary, secondary and anticipatory socialization
3. Agencies of socialization.

Social Groups :

1. Concepts of social groups influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation settings.

Family :

1. The family
2. Meaning and definition
3. Functions
4. Types
5. Changing family patterns
6. Influence of family on the individuals health, family and nutrition, the effects of sickness on family and psychosomatic disease and their importance to physiotherapy.

Community :

1. Rural community - Meaning and features - Health hazards of ruralities.
2. Urban community - Meaning and features -Health hazards of urbanities.

Culture and Health :

1. Concept of culture
2. Culture and behaviour.
3. Cultural meaning of sickness.
4. Culture and health Disorders.

Social Change :

1. Meaning of social changes.
2. Factors of social change.
3. Human adaptation and social change.
4. Social change and stress.
5. Social change and deviance.
6. Social change and health programme.
7. The role of social planning in the improvement of health and in rehabilitation.

Social Problems of Disabled :

Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems.

1. Population explosion.
2. Poverty and unemployment.
3. Beggary.
4. Juvenile delinquency.
5. Prostitution.
6. Alcoholism.
7. Problems of women in employment.

Social Security :

Social security and social legislation in relation to disabled.

Social Worker :

Meaning of social work. The role of a medical social worker.

(D) Fundamentals of Electrotherapeutics (40 Hours)

(The following underlined topics are must to know)

1. Main Supply: Production of Electricity, Types, Distribution, Earthing, Types of Plugs & Switches. Fuse.
2. Shock: Types (Electric Shock, Earth Shock), Definition, Severity, Effects, Causes and Precautions.
3. Static Electricity: Theories of Electricity, Production of Electric Charge, Characteristic of Charged body, Potential and Capacity, Potential Difference.
4. Current Electricity : EMF Resistance, Intensity, Ohm's Law, DC and AC resistance in Series / Parallel, Devices for regulating Intensity (Types, Construction and working of Rheostat), Electric energy and power, Thermal Effects of Electric (Joule 's Law).
5. Condenser: Principles, Capacity (Measurement and factors determining), Types and Construction, Electric field, Charging and discharging of the condenser, Duration of discharge through inductance, capacitive reactance and uses of condenser.
6. DC: Sources-Cell and rectified AC
Rectification of AC: Thermionic Valves (Diode and Triodes) Metal rectifier, Types of rectification (Half and full wave – Voltage halving and Westinghouse Bridge)
Smoothing Circuit.
Semi Conductors: Types, semiconductor diodes & Transistors.
7. Magnetism: Nature, Type, Molecular Theory of Magnetism, Property of Magnet, Magnetic Effect of Electric Current, Electromagnets, Milliampere meter & Voltmeter (Construction and working), Meters for measuring Ac.
8. Electro Magnetic Induction:
Principles (Faraday's/Lenz's law), Production.
Direction of Induced EMF, Strength of induced EMF, Types (Self and Mutual) and inductive reactance. Eddy Currents.
Dynamo Transformers (Functions, Types, Constrictions),
Choke coil (Types and functions).
9. Electrical Skin Resistance: Electrode Used, electrode Gels
10. Electromagnetic Spectrum:
Electromagnetic Radiation:
Laws Governing EMR, Laws of Reflection, Refraction, Absorption, Attenuation, Cosine law, Inverse square law. Grothus law etc.
11. Physiology of Pain.

(E) EXERCISE THERAPY I & MASSAGE MANIPULATION (150 Hours)

(1) EXERCISE THERAPY – I

(The following underlined topics are must to know)

1. Introduction to exercise therapy.
2. Physiological effects and uses of exercise.
3. Pathogenic aspects of exercises.
4. Pharmacological aspects of exercises.
5. Use of apparatus in exercise therapy.
6. Fundamental starting positions, derived positions-effects and uses, pelvis tilt.
7. Muscle work for all positions
8. Joint movement - terminology and range axes and planes of movement, levers, measurement of joint movements, goniometry, types of goniometer, bubble and gravity goniometer.
9. Classification of movements
10. Active movements - Definition, types, techniques, effects and uses.
11. Passive movements - Definition, types, techniques of relaxed passive movements and uses, comparison of both movements.
12. Causes of restriction of range of movement - Distinguish between skin, muscles, capsular contractures.
13. Group work-Criteria of selection of patients, advantages and disadvantages of group class exercises.
14. Home exercises - trick movements.
15. Suspension therapy - definitions of suspension and point of suspension, types of suspension, pulleys and use of pulleys in suspension therapy, application of suspension therapy either to increase the joint range or to increase muscle power.
16. Breathing - Mechanism of breathing (normal), Muscles of respiration, changes in thoracic cage during process of respiration, types of breathing exercises, training programme - diaphragmatic and segmental breathing.
17. Pursed lip breathing - significance.
18. Crutch walking - Types of crutch walking, Use of parallel bars in pre-crutch walking stage, balance exercises, phase of walking, gait training, group of muscles responsible during crutch walking.
19. Progression in crutch walking, measurement of crutches, other walking aids canes, walkers, tripods other types of crutches, crutch - walking on even surface, slopes, climbing up the stair case.

20. Measurement of limb length, methods of measurements.
21. Application of resistance to develop endurance and power, progression of exercises, angle of pull, types of muscle work, exercises - free resisted, assisted - use of gadget apparatus.
22. Resisted Exercises - Techniques and types of resistance, SET system (Heavy resisted exercises) Oxford method, Delorme method, Macqueen's method.
23. Free Exercises - Classification, technique, effects of free exercises - application for shoulder, neck, hip and knee joints, techniques of mobilization for stiff joints.
24. Mat exercises - education of balance, strength, endurance.
25. Posture-definition, types, factors influencing posture, posture training.
26. Maintenance of record-volume, range of motion, resistance, limb length.

(2) SOFT TISSUE MANIPULATION-MASSAGE MANIPULATION

1. Introduction-brief history, definition, classification.
2. Physiological effects and therapeutic uses, contra - indications.
3. Preparation of patient, basic points to be considered before and during massage procedure.
4. Technique, effects and uses of each manipulation and contra-indications.
5. Specific effects of certain manipulations.
6. Massage for arm, leg, neck and upper back face.
7. Massage for oedema, scar, tendinitis, fibrosis (tight fascia)
8. Practice of soft tissue manipulation in subjects.
9. Mobilization of soft tissues, joints and fluid collection.

(2) S.Y.B. PHYSIOTHERAPY

(A) PATHOLOGY, MICROBIOLOGY & BIOCHEMISTRY

(1) PATHOLOGY (50 Hours)

(The following underlined topics are must to know)

1. **Introduction:** Aims and objects of study of pathology. Definitions of health, disease, causes of disease, methods of study of disease.
2. **Reversible and Irreversible Cell Injury** : Cellular adaptation - hypertrophy, hyperplasia, atrophy.
3. **Acute Inflammation** : General morphology, phenomenon of acute inflammation.

4. Repair : of wound, fractures, skin, nerves, muscles.
5. Chronic inflammation : Osteomyelitis, tuberculosis (lung, bone), leprosy, syphilis.
6. Fluid and hemodynamic-disturbances : oedema, thrombosis, embolism, infarction.
7. **Neoplasia** : General outline, classification, characteristics of benign and malignant tumours, spread of tumours, systematic effects.
8. Disorders of joints : Rheumatoid arthritis, osteo arthrits, hemarthritis, gout.
9. Immunity and hypersensitivity.
10. **Hematological disorders** : Anemia, hemophilia.
11. Respiratory disorders : Suppurative lung disorders, bronchial asthma, emphysema.
12. Diseases of nervous system : Poliomyelitis, cerebrovascular accidents.
13. Diseases of muscles : myasthenia gravis, myopathies, amyotonia congenita, the genetically determined neuromuscular diseases.
14. Diseases of C.V.S. : A brief outline of heart diseases, infective endocarditis, ischemic heart disease, diseases of blood vessels - Buerger's disease, T.A.O., Thrombophlebitis, atherosclerosis.

(2) MICROBIOLOGY (50 Hours)

(The following underlined topics are must to know)

General Bacteriology :

1. Introduction, historical background, classification of micro-organisms.
2. Morphology of bacteria.
3. Staining of bacteria.
4. Sterilization
5. Cultivation and culture media.

Systemic Bacteriology :

1. Gram positive cocci - strepto cocci, staphylococci and pneumo cocci.
2. Gram negative cocci-gono and meningococci.
3. Gram positive bacilli
4. Gram negative bacilli - Typhoid, Cholera, Dysentery
5. Aerobic-diphtheria, tuberculosis, leprosy.
6. anaerobic - tetanus, gas gangrene, botulism.

Immunology :

1. Immunity, antigens.
2. Antibodies, antigen and antibody reactions.
3. Agglutination, precipitation.

General Virology :

1. Poliomyelitis.
2. Rabies.
Demonstration of tests in : Diagnosis of Aids.
Diagnosis of hepatitis.
Diagnosis of syphilis.

Parasitology :

1. Malaria.
2. Amoebiasis.
3. Round worm and Hook worm.

Mycology :

1. Candidiasis, Ring worm, Scabies.

(3) BIO-CHEMISTRY (40 Hours)

(The following underlined topics are must to know)

1. Biochemical characteristics of living mater.
2. Biochemistry, morphology of cell
3. Nucleic acids.
4. Proteins.
5. The enzymes.
6. Metabolism.
7. Hormones.
8. Nutrition's.
9. Biochemistry of connective tissues, nerve tissue and muscle.
10. Water, electrolyte and acid base balance.
11. Chemistry of biology materials.
12. Physico chemistry Phenomenon.
13. Common procedures used in biochemistry.

(B) MEDICINE – I

(1) GENERAL MEDICINE (35 Hours)

(The following underlined topics are must to know)

1. **Respiratory Diseases** : Lung function tests, pneumonia, lung abscess, bronchiectasis, asthma, emphysema, pleural effusion, Pneumothorax, empyema, chronic bronchiectasis.
2. **Cardio Vascular Diseases** : Rheumatic fever, valvular lesions, congestive cardiac failure, ischaemic heart diseases (Angina pectoris and myo-cardial infarction) stress test, hypertension, peripheral vascular-diseases (TAO, Raynauds disease).
3. **Endocrinal Disorders** : Diabetes mellitus, thyrotoxicosis, myxedema.
4. **Gastro-intestinal Disorders** : Peptic ulcer, pancreatitis, dysenteries and diarrhea, inflammatory bowel diseases, jaundice, cirrhosis of liver.
5. **Infectious Disease** : Tuberculosis, malaria, typhoid, infective hepatitis, tetanus.
6. **Nutritional Disorder** : Vitamins and its deficiencies, disorders including rickets and osteomalacia, anaemia.
7. **Urogenital System** : Structure and functions of kidneys including physiology of micturition, acute and chronic renal failure, glomerulo-nephritis, pyelonephritis.
8. **Rheumatology** : Rheumatoid arthritis, ankylosing spondylitis, gout, osteoarthritis, Spondyloarthritis, systemic lupus erythromatous, polyarteritis nodosa, mixed connective tissue disorders, scleroderma.

(2) PAEDIATRICS (20 Hours)

(The following underlined topics are must to know)

1. Growth and development of a child from birth to 12 years, including physical, social, adaptive development.
2. The maternal and neonatal factors contributing to high risk pregnancy, the neonate, inherited diseases, maternal infections - viral and bacterial, maternal diseases incidental to pregnancy, induced hypertension, chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy, bleeding in the mother at any trimester.
3. Community programmes : International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism, the immunization schedule for children.
4. Cerebral Palsy : Etiology - prenatal, perinatal and postnatal causes, pathogenesis, types of cerebral palsy (classification), findings on examination, general examination, examination of C.N.S., musculoskeletal system, respiratory system, G.I. Tract and nutritional status.

5. Associated defect-Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions.
6. Prevention - Appropriate management of high risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.
7. Muscular Dystrophy : Various forms, modes of inheritance and clinical manifestation, physical findings in relation to disabilities, progression of various forms and prognosis, treatment goals in forms which are not fatal.
8. Spinabifida, Meningomyelocele : Development, clinical features - lower limbs, bladder and bowel complications - U.T.I. and hydrocephalus, medical management.
9. Still's Disease : Classification, pathology in brief, physical findings, course and prognosis, treatment, prevention and correction of deformity.
10. Acute C.N.S. infections, Classification (Bacterial and Viral), the acute illness, C.N.S. sequelae leading to mental retardation, blindness, deafness, speech defect, motor paralysis, bladder and bowel problems, seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties.
11. Normal diet of newborn and child : List dietary calorie, fat, Protein, mineral and vitamin requirement in normal child and in a child with malnutrition. Etiology, findings, and treatment of rickets, vitamin D deficiency and resistant rickets.
12. Lung infections : Clinical findings, complications and medical treatment of bronchiectasis, lung abscess and bronchial asthma.

(3) SKIN & V.D. (DERMATOLOGY) (20 Hours)

(The following underlined topics are must to know)

1. Structure and functions of normal skin, primary and secondary skin lesions.
2. Scabies and pediculosis.
3. Fungal infections of skin
 - Dermatophytosis
 - Pityriasis versicolor.
 - Candidiasis.
4. Bacterial infections of skin-Impetigo / Boil.
5. Viral infections of skin-Herpes zoster.
6. Eczema / Dermatitis / Allergies.
7. Psoriasis / Acne / Alopecia / Vitiligo and Leucoderma.
8. Leprosy / Lepra - reaction/Physiotherapy in leprosy.

9. Sexually transmitted diseases
Syphilis - primary & secondary.
Gonorrhoea
Chancroid
AIDS.

(C) SURGERY - I

(1) GENERAL SURGERY & PLASTIC SURGERY (50 Hours)

(The following underlined topics are must to know)

1. Acute infections, Inflammatory fever, bacteraemia, septicaemia, pyaemia, toxemia. Specific types - Cellulitis - sites lymphangitis, abscess with special reference to hand infection, carbuncle.
2. Specific types cont'd : Tetanus, gas gangrene, hospital infection, cross infection with modes of spread and prevention, General survey of chronic inflammations, Syphilis (reference to other venereal diseases) leprosy, actinomycosis.
3. Surgical tuberculosis.
4. General survey of trauma, pathology and clinical features of wound repair - primary, secondary and tertiary wound healing, Clean wounds, contaminated wounds and infectious wounds, Principles of treatment, survey of factors affecting wound healing, Ulcers and gangrene, Post operative complications of abdominal surgery specifically chest, wound infection, oedema.
5. Burns as a specific type of severe trauma, classification, early and late complications, management & reconstructive surgery - skin grafting as an example of plastic procedure.
6. Types of skin grafting - take of grafting - healing of grafting, Post operative care of plastic surgery with specific role of physiotherapy, outline of surgical disorders of brain - head injuries.
General survey of surgical disorders of spine and spinal cord problem of paraplegia, malignancy - spread and its behavior, various abdominal incisions, abdominal drainage tubes, catheters and nasogastric tubes, ward demonstration for an hour a day for a period of one week.
7. Anesthesia, O.T. demonstrations.
8. Neck, skin contractures and correction.
9. Problems of trauma to hand and their management, Urinary tract infection.
10. Principles of cineplasty, tendon transplant, cosmetic surgery types of grafts, surgery of hands with emphasis on management of traumatic and leprosy hand.
11. Breast - surgery.

Neuro Physiology :

Neurophysiology, basis of tone, disorders of tone and posture, bladder control, muscle contraction, movement and pain.

Clinical Features and management of the following

1. Congenital and childhood disorders - hydrocephalus spina bifida.
2. Trauma - Broad localisation, first aid and management of sequelae of head injury and spinal cord injury.
3. Diseases of the Spinal Cord - Craniovertebral junction anomalies, syringomyelia, cervical and lumbar disc disease, tumours.
4. Peripheral nerve disorders - Peripheral nerve injuries, localisation & management. Entrapment neuropathies.
5. Intracranial tumours - Broad classification, signs and symptoms.
6. Pre-operative Assessment and indications and contra - indication for neurosurgery.
7. Management of pain, electrical stimulation of brain and spinal cord.
8. Miscellaneous.

(2) ORTHOPAEDICS (TRAUMATOLOGY) (40 Hours)

(The following underlined topics are must to know)

Traumatic Disorders :

1. **General principles and injuries of the upper limb.**

Introduction : Orthopaedic Surgery, Definition and scope, Brief history. Sprains and dislocations - causes, types, principles of treatment. Fractures - types, displacement, general symptoms, healing, principles of treatment, union, delayed union, non-union, complications.

Injuries to the hand-types, Principles of treatment, fractures to the phalanges and metacarpals, sprains, dislocations of MP & IP joints. Bennet's fracture, mallet finger, stenosing tenosynovitis, Trigger finger.

Wrist, dislocations, sprains, injuries to carpal, scaphoid, ganglion, colle's fracture, displaced epiphysis. Fractures of forearm bones - greenstick fracture. Infarction injury, adult forearm fractures, principles of treatment, monteeggia fracture dislocation.

Injuries to the elbow, Traumatic synovitis, sprain, dislocation, myositis ossificans, tennis elbow, principles of treatment of elbow. Fractures involving the elbow joint are Supracondylar fracture - displacement of lateral humeral epiphysis, medial condyle injuries, Y & T shaped fractures. Volkman's Ischaemic Contracture. Fracture of the head of the radius, fracture of olecranon. Baby car fracture, dislocation and reference to Volkman's contracture.

Fractures of the shaft of humerus, principles of treatment. Injuries to shoulder, fractures of the upper end of humerus, shoulder cuff lesions, dislocation, recurrent dislocations, periarthrosis. Fractures of clavicle, acromioclavicular and sternoclavicular dislocations, fractures of the scapula. Injuries to main nerves : Radial, ulnar and median.

2. Injuries of the spine and pelvis :

Vertebral injuries, Transverse processes, kummel's disease, Neural arch, vertebral body. Injuries to the cervical spine, atlanto-axial injuries, hyperaemic dislocation. Brachial plexus injuries, Injuries to pelvis.

3. Injuries of the lower limb :

Injuries of the legs, epiphyseal injuries. Dislocations of the hip joint, sciatic nerve injuries, fractures of the neck femur, Coxa vara, fracture of the shaft of femur, supracondylar fracture.

Injuries to the knee joint, contusion, haemarthrosis, quadriceps mechanisms, ligamentous injuries, cartilage tear, fractures involving knee joint dislocation, Epiphyseal injuries to the knee, fractures of upper end of tibia and fibula, lateral & popliteal nerve injuries, principles of treatment of fractures of tibia and fibula, sprain, subluxation, dislocation, injuries to peroneal tendons.

Injuries to the ankle. Pott's fracture, Injuries to the talus, calcaneum and tarsal bones. Injuries to the foot.

4. Miscellaneous :

Amputations - types, site, ideal stump, complications, general principles, upper extremity and lower extremity - prosthesis and prosthetic service. Nerve injuries, paraplegia, hemiplegia, quadriplegia. orthopaedic splints, appliances, Injuries to muscles and tendons.

(3) E.N.T. (10 Hours)

1. Anatomy and physiology of hearing and the use of audiometry in assessment of hearing - outline only.
2. General introduction to diseases of E.N.T. emphasis on otitis media. Bell's palsy, sinusitis, rhinitis.
3. Mastoid surgery.
4. Larynx and associated functional paralysis with tracheostomy and care of tracheostomy.
5. Causes of hearing loss, conservative and surgical intervention including types and availability of hearing aids.

(4) RADIOLOGY (5 Hours)

Introduction, X Rays of Fractures of Bones, Orthopaedic Conditions - O.A., P.A., Cervical & Lumbar Spondylosis, common Chest Conditions, C.T. Scan, M.R.I. and Angiography etc.

(D) EXERCISE THERAPY - II & KINESIOLOGY

(1) EXERCISE THERAPY – II (150 Hours)

(The following underlined topics are must to know)

- 1, **Passive Movements** : Definition, types, technique, effects and uses, CPM unit, comparison of passive movements with active movements, Active and passive movements for all joints of extremities, neck and trunk.
Stretching : Definitions related to stretching, types of contractures and differentiation properties of soft tissues affecting elongation, and aims of stretching, manual and mechanical stretching, cyclic mechanical stretching, indication of stretching, principles of stretching and contra-indications.
traction : Types effects, principles of application for cervical and lumbar spine, traction to soft tissue of joints-gliding movement.
2. **Mobilisation** : Causes of restrictions of range of movements, prevention of restrictions, Techniques of mobilisation of various joints of limbs, assistance to mobilize joints ROM through functional diagonal patterns, joint mobilisation manipulations definition, types, joint shapes, types of motion, compression, traction, indications, contra-indications and precautions, conditions for special precautions.
3. **Manual muscle testing** : Need of MMT, Uses of MMT, Fundamental principles, anatomical and physiological bases of muscle testing, Oxford scale of muscle gradation, principles of isolation, substitution, stabilization, grading procedure for muscles of arm, leg, neck and trunk, voluntary control of movements, gradation by bobath, Brunstrom.
Breathing mechanisms, normal mechanism of respiration, altered mechanism of respiration in respiratory diseases, control of breathing, pursed lip breathing, postural drainage, assistive measures, techniques, indications, and contra-indications.
4. **Posture** : Type, factors influencing posture, regulation of postural reflex mechanism, pelvic tilt, and postural deviations of spine and treatment. Crawling Exercises, Necessity, types, effects and uses of Clapp's crawl.
5. **Strengthening of muscles** : Principles involved to prevent muscle wasting, Rood's technique initiating of muscle contraction, progressive strengthening of muscles, (Load assisted and load resisted exercises) Use of equipments, re-education of muscles and restoration of functions. Practice of strengthening of muscles of limbs, neck, trunk and face. Emphasis on hand and foot muscles,

- quadriceps gluteal, calf, triceps, deltoid and face muscles, use of manual and mechanical resistance, contraindications to resisted exercises. Isometric-isokinetic regime.
6. **Proprioceptive Neuromuscular facilitation** : Introduction, response of neuromuscular mechanism, basic techniques of PNF patterns of arm, leg and trunk (Emphasis on straight Patterns). Specific techniques of emphasis. Repeated contractions - Slow reversal, contract and relax, hold-relax, rhythmic stabilization, Inhibitory techniques, Kabat-Bobath-Rood's.
 7. **Hydrotherapy** : Physiological properties of water and hydrodynamics, physiological and application of Bad-Ragaz technique, Indications and contra - indications of hydrotherapy.
 8. **Relaxation** : Muscle tone, postural tone, general and local relaxation techniques of relaxation.
 9. **Co-ordination** : Neuromuscular co-ordination, factors governing co-ordination, principle of re-education of co-ordination, Frenkel's exercises and its techniques.
 10. **Mat Activities** : Functional re-education, mat activities for re-education of hemiplegics, paraplegics and cerebral palsy, walking re-education in neurological conditions and in orthopaedic cases.
 11. **Aerobic Exercises** : Physiological effects and therapeutic uses of aerobic exercises, fitness testing, stress testing for healthy and convalescent individuals. Exercise programme to test strength, flexibility, endurance, skill.

(2) KINESIOLOGY (80 Hours)

(The following underlined topics are must to know)

1. **Basic Concepts** :
Centre of gravity, line of gravity, planes and axes of motion (mechanical & Anatomical)
2. **Principles of stability** :
Base of support, height of centre of gravity, line of gravity, mass of body, the impact of forces, friction, segmentation, visual factors, psychological factors, physiological factors.
3. **Principles of motion** :
Cause of motion, kinds of motion, motions experienced by body, laws of motion, centripetal and centrifugal force.
4. **Mechanics of joint motion** :
Structure of joint, types of joint, types of movement.

5. **The mechanics of muscular action :**

Classification of muscles, line of pull, types of contractions, role of muscles, tendon, action of two joint muscle, non customary action.

6. **Muscular skeletal Mechanics :**

Anatomical levers, anatomical wheel and axle, anatomical pulley

7. **Force and Work :**

Magnitude of force, point of application, direction of force and resistance, arm of lever, perpendicular distance, composite effect of two or more forces, methods of determining the components of force and work, movements of body as a whole, movements of the segments of the body in air, water and on surface.

8. **Lcomotion :**

Swing Phase, stance phase, joints and muscles involved during these phases.

9. **Muscle Palpation :**

Upper extremity, Neck, trunk, lower extremity, Muscular analysis of fundamental movements.

10. **Bio-mechanics of Joints :**

Shape of the articular cartilage, type of joint movement-gliding, rocking with gliding, axial rotation, mechanics of the muscle and stabilizing, rotating.

Patho-mechanics of joints-Hip, knee, ankle and foot. Patho-mechanics of the paralytic joints-Hip, knee, ankle and foot. Patho-mechanics of the shoulder, elbow, wrist and hand. Patho-mechanics of the Paralytic joints-shoulder, elbow, wrist and hand.

11. **Mechanics of spinal column :**

Spinal curves, articulations, non-contractile soft tissue of column, IV disc, ligaments, intrinsic equilibrium, movements of spinal column and muscle mechanics.

12. **Mechanics of Pelvis Complex :**

Pelvis at rest, in standing, body in motion, pathomechanics of pelvis.

13. **Mechanics of the thorax :**

Movement between ribs and vertebrae, sternum and ribs.

Pathomechanics of respiration, Postural Strain and Occupational hazards.

14. **Ergonomics :-**

Correct use of body mechanics at home, at school, at work, recreation. Particular application of patients, physiotherapists and other staff.

(E) ELECTRO THERAPY - I (150 Hours)

(The following underlined topics are must to know)

1. **Electromagnetic Waves :**

Electromagnetic spectrum, physical properties of electromagnetic radiations- reflection, refraction, absorption, penetration, grothus law, cosine law, inverse square law and its practical application.

2. **Infra Red Rays :**

Production of infra red rays, luminous and non luminous cenetors, penetration, technique of application, physiological effects and therapeutic uses of infra red rays, duration and frequency of treatment, indications and contra-indications, dangers and precautions.

3. **Ultra Violet rays :**

Production of U.V.R., mercury vapour lamps (Kromayer Lamp), Fluorescent tubes for U.V.R. production (Alpinesum lamp), Theraktin tunnel and PUVA apparatus, physiological effects of U.V.R. (chemical reactions with skin), Structure of skin, penetration and absorption of U.V.R., Erythema, different degrees of erythema, test dose, technique to find out the test dose and its importance, Technique of application of U.V.R. in local and general irradiation, specific conditions like psoriasis, acne, alopecia, indolent wounds, Technique of applications using accessories, Filters, sensitizers, Dangers and contra-indication.

4. **Cold Therapy :**

Physiological effects and therapeutic uses of ice therapy, Techniques of application, contra-indication to ice treatment.

5. **Hydrotherapy :**

Properties of water buoyancy, effects of buoyancy on movement, hubbard tank, Contrast bath, whirl pool bath.

6. **Paraffin wax bath :** Structure of the bath, composition of wax and mineral oils, physiological effects and therapeutic uses of wax bath.

7. **Other Heating Modalities :** Heating Pad, moist heat.

8. **High Frequency Current :**

Short Wave Diathermy : Introduction, Physiological effects and Therapeutic effects of S.W.D., Methods of application (capacitor field method and cable method etc.) Techniques of treatment, indications, contra-indications and dangers.

Pulsed SWD : Definition, Characteristics, Mechanism of work, Physiological effects & therapeutic effects, Indications, Technique of application, Principles of treatment and contra-indications.

Microwave Diathermy : Introduction and characteristics, Physiological effects, Therapeutic effects, techniques of application and principles of treatment, Danger of microwave diathermy.

LASERS : Introduction and characteristics, effects on tissue. Therapeutic effects, Principles of application, Indications, contra-indications and dangers.

Ultrasonic Therapy : Introduction and characteristics, U.S. Therapy parameters, Coupling media, Therapeutic effects, Indications, contra-indications and dangers. Testing of apparatus, Techniques of application & dosage.

(3) T.Y.B. PHYSIOTHERAPY.

(A) MEDICINE - II

(1) NEUROLOGY (40 Hours)

(The following underlined topics are must to know)

1. Anatomy, Physiology, Lesions and diseases of Pyramidal system, extra-pyramidal system, cerebellar system, spinal cord, upper and lower motor neurone, cranial nerves, brachial plexus, lumbosacral plexus and peripheral nerves.
2. Causes, Clinical features and management of : Unconscious patient, hemiplegia, paraplegia, quadriplegia, cerebral diplegia, spastic child, footdrop and wristdrop.
3. Disorders of cerebral circulation.
4. Infections : Encephalitis, meningitis, poliomyelitis, transverse myelitis, slow viral diseases.
5. Diseases of Peripheral nerves : Peripheral neuropathy, other neuropathies.
6. Muscle disorders : Myopathy, polymyositis, Muscular dystrophies.
7. Degenerative diseases : Parkinsonism, motor neurone diseases, spinocerebellar degenerations and diseases of anterior horn cell, dementia.
8. Costoclavicular syndrome.
9. Demyelinating disorders including multiple sclerosis.
10. Basic concept of electrophysiology and electromyography.

(2) OBSTETRICS AND GYNAECOLOGY (40 Hours)

(The following underlined topics are must to know)

1. Anatomy and physiology of the female reproductive organs. Puberty dynamics.
2. Physiology of menstrual cycle-ovulation cycle, Uterine cycle Cx. cycle, Duration, amount.
3. Hormonal regulation of menstruation.
4. Diagnosis of pregnancy.
5. Abortion
6. Physiological changes during pregnancy.
7. Antenatal care exercises.
8. High risk pregnancy.
9. Normal labour.
10. Normal puerperium and postnatal exercises.
11. Family planning.
12. Medical Termination of pregnancy (MTP).
13. Infection of female genital tract including sexually transmitted diseases, low backache.
14. Prolapse of uterus and vagina.
15. Principles of common gynaec operations Hysterectomy.

(B) SURGERY - II

(1) CARDIOTHORACIC SURGERY (30 Hours)

(The following underlined topics are must to know)

1. Basic anatomy of chest wall, trachea and bronchial tree, lungs and bronchopulmonary segments, pleura and mediastinum.
2. Physiology and mechanics of breathing and use of mechanical breathing - ventilator : (respirators).
3. Pulmonary function tests.
4. Investigation of lung diseases including endoscopies.
5. Chest injury.
6. Common suppurative diseases of lung - Bronchiectasis, lung abscess.
7. Bronchogenic carcinoma

8. Common surgeries of chest
Thoracoplasty, pulmonary dissections, thoracotomy.
Pneumothorax, hydrothorax-Pneumothorax, empyema.
9. Common diseases of oesophagus and related conditions causing dysphagia.
10. Surgery of portal hypertension.
11. Surgery of pulmonary tuberculosis.
12. Surgery of heart and great vessels.
13. Basic anatomy of heart, great vessels.
14. Investigation of patient undergoing cardiac surgery.
15. Cardiac arrest, its management.
16. Basic principles of open heart Surgery, Heart lung bypass (Extra Co-portal circulation)
17. Common diseases of heart requiring surgery both congenital and acquired including open heart surgery.
18. Common drugs used in cardiac surgery, its uses, side effects.
19. Common vascular surgery, Embolectomy, vascular reconstructive surgery, (Thrombosis, Embolism, atherosclerotic and occlusive vascular diseases including coronary arterybypass)
 Clinical : 1. Examination of patients as regards chest & heart diseases.
 2. Demonstration - Acquaintances with C.T. Surgery, Equipments, I.C.C.U.O.T.
 Radiology - X-ray studies - X-ray chest in various lung diseases.

(2) OPHTHALMOLOGY (10 Hours)

1. Common eye diseases, including Refractory errors, conjunctivitis and trachoma.
2. Cataract and glaucoma.
3. Squint and ptosis.
4. Eye lesions in leprosy, including causes treatment and complications of lagophthalmos.
5. Causes, clinical features and treatment of disorders of ocular movement occurring in diseases such as myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases.

6. Causes, clinical features, treatment and prognosis in inflammatory disorders, vitamin A deficiency, emphasis on preventable causes and prophylactic measures.
7. Definition of blindness, and visual disability evaluation, investigative procedures used for testing visual failures.

(3) ORTHOPAEDICS (40 Hours)

(The following underlined topics are must to know)

Non-Traumatic Disorders :

1. **Congenital disorders :**

Congenital deformities, congenital elevation of scapula, torticollis, Endocranial dystosis, superior radio - ulnar dystosis, Scoliosis, medelung's deformity, sternocleidomastoid tumour, congenital wry neck, Kyphosis, lordosis, scoliosis - primary and secondary idiopathic, Spinabifida, myelomeningocele, Coxa vara, congenital epiphysial, congenital dislocation of hip, Derotation varus osteotomy, salter operation, Denisbrown splint, Lorenz position for plaster immobilization of C.D.H., Genuvalgum, genu varum, genu recurvatum, Quadriceps contracture, talipes equino varus, Flat foot and foot wear, Hallux valgus, rigidus, metatarsalgia etc. Dupuytren's contracture.

2. **Infections of bones, joints and arthritis :**

Infections of bones - acute and chronic diseases of joints, Rheumatoid arthritis, osteoarthritis, Skeletal tuberculosis, Principles of treatment, T.B. of shoulder, elbow and wrist, T.B. of hip, knee, ankle and foot.

3. **Neurological disorders :**

Poliomyelitis -recovering and late stages, Rehabilitation in recovery phase, tenodesis, tendon transplants, stabilization problems, short limb and equalizations, tendon lengthening.

4. **Miscellaneous :** Backache, Disc lesions cervical spondylosis, metabolic diseases, rickets, osteomalacia, osteoporosis, parathyroid osteodystrophy, scurvy etc. Tumours of bones and soft tissues.

(C) ELECTRO THERAPY – II (150 Hours)

(The following underlined topics are must to know)

Low frequency currents :

1. **Nerve Muscle Physiology** : resting potential action potential propagation of action potential motor unit, synapse and synaptic transmission of impulses. Effect of negative and positive electrodes on nerve & accommodation.
2. **Faradic Current** : Definition, characteristic and modified faradic current sinusoidal current, Parameters of faradic stimulation, Physiological and therapeutic effects of faradic-stimulation. Indications, contra-indications and precautions. Techniques of stimulation, Group muscle stimulation, faradic foot bath, faradism under pressure and pelvic floor muscle re-education.
3. **Galvanic Current** : Introduction & Characteristics, Parameters of stimulation, physiological and therapeutic effects of stimulation, precautions.
4. **Electro Diagnosis** : F.G. test, S.D. Curve, Chronaxie & Rheobase, Nerve conduction.
5. **E.M.G.** Nerve conduction velocity measurement (outline only)
6. **Iontophoresis** : Definition, principles of iontophoresis, physiological and therapeutic effects, indications, techniques of iontophoresis, principles of treatment, contra-indications and dangers.
7. **TENS** : Definition, pain gate theory, Theories of pain modulation, principle of TENS treatment, Techniques of Treatment, indications, and Contra-indications.
8. **Medium Frequency Current** :
Interferential current : Definition, characteristics, physiological & therapeutic effects of I.F. current, Indications, Techniques of application, Contra-indications and precautions.
9. **Bio-Feed Back** :
Introduction, Principles of Bio-feedback, Therapeutic effects of bio-feedback, Indications and contra-indications, Techniques of treatment.
10. **Advanced Electrotherapy** :
Computerisation in electrotherapy, Programming of parameters of treatment. Appropriate selections of parameters and combination in therapy, combined therapy- Principles, therapeutic uses and indications like, U.S. therapy with stimulation or TENS etc.

(D) BIO-STATISTICS & RESEARCH METHODOLOGY (45 Hours)

(The following underlined topics are must to know)

Bio-Statistics :

1. Introduction to biostatistics, why statistics ?
2. Data : What is data ? Qualitative & quantitative data and the presentation of data with practical exercises.
3. Measures of Central tendency, Mean, Median, Mode, Arithmetic Mean, Geometric mean.
4. Sampling : Why sampling ? Methods of sampling & concept of sample size.
5. Measures of Variability
6. Standard Deviation, Coefficient of Variation Normal distribution.
7. Measures of variability Standard Error and its significance, limitations.
8. Statistical tests X² test, S.E. of proportions, difference of proportions.
9. Mean & Difference of Mean.
10. Concept of Z. & X² & t.
11. Values Coefficient of co-relation.

Research Methodology:

1. What is research? Why research?
2. Types of epidemiological studies & measurements of various indications.
3. Possible errors that may generate due to study design & how to overcome them.
4. How to read and what to read from journals.

(E) PHARMACOLOGY: (40 Hours)

(The following underlined topics are must to know)

1. Chemical Character and general action of drugs.
2. Methods of administration.
3. Metabolic fate of drug.
4. Drug toxicity including allergy and idiosyncrasy.
5. Drugs acting on C.N.S. anaesthetics, alcohols, alkaloids, narcotics, analgesics, antipyretics, hypnotics, sedatives, psychotherapeutics.
6. Drugs acting on peripheral nervous system, stimulating and / or inhibiting cholinergic and adrenergic activity.
7. Drugs acting on neuromuscular junction and muscle.

8. Drugs acting on the cardio-vascular system.
9. Chemotherapeutic agents.
10. Drugs acting on the respiratory system.
11. Hormones and drugs affecting endocrine functions.
12. The vitamins.
13. Immunological agent.
14. Irritants, counterirritants, plasters, paultice, pastes.
15. Diagnostics.

(F) PSYCHIATRY (30 Hours)

1. **Mental health :**
 - Normal Mental Health
 - Criteria of normality or matured personality
 - Factors contributing to normal mental health.
2. **Study of Abnormal Personality :**
 - Neurotic
 - Hysterical
 - Psychotic
 - Paranoid
 - Schezoid
 - Psychopathic etc.
3. **General Etiological Factors :**
 - Hereditary
 - Genetical Constitutional
 - Acquired
 - Traumatic
 - Infective
 - Toxic
 - Degenerative
 - Social and Environmental including pathogenic family patterns
 - Precipitating causes
 - Frustration and conflicts.

4. **Symptomatology and Treatment of :**

Psychoses :

(1) Functional - Functional Schizophrenic, reaction group, simple, paranoid, catatonic, hebephrenic paranoid state, paranoia, juvenile, schizophrenia, autistic thinking, dementia.

(2) Organic - Toxic confused states, senile psychoses, arteriosclerotic, degenerative, G.P.I.

Affective Disorders :Dynamics of Mania, hypomania, chronic mania, M.P.D. Involutional depression, senile depression, postpartum depressive reactions, reactive and neurotic depression, endogenous depression, suicide (egoistic, Altruistic, Anomic) Epileptic Disorders : Epileptic Psychoses.

5. **Neurosis :**

Symptomatology, diagnosis and treatment and psychodynamics of anxiety state, hysteria, conversion reaction, dissociative reaction, dual personality, obsessional neurosis, phobias, hypochondriasis, neurasthenia and mental fatigue.

6. **Mental Retardation :**

Definition,

Etiological factors - Prenatal, postnatal, infective, hormonal, congenital.

Types of mental retardation, clinical types-microcephaly, hydrocephalus, mongot, family idiocy, phenylketonuria etc. Symptomatology of various grades of retardation, differential diagnosis and treatments.

7. **Child Psychology :**

Behaviour disorders - Nail biting, Enuresis, Truancy, Thumb sucking, Speech difficulties, Pica, Vomiting, Anorexia, delinquency.

8. **Introduction to dynamics of Psychophysical disorders :**

Asthma, skin rashes, hypertension, bowel disorders.

Introduction to treatment in psychiatry - E.C.T., Insulin, coma therapy.

Drug therapy - Tranquilizer, Mood elevators, hypnotics and sedatives, Psychotherapy - Deep and superficial, individual and group, expressive, suppressive, environmental manipulation, re-educative.

Psychodrama

Psychoanalysis

Play Therapy

Physiotherapy

Occupational Therapy.

(4) FINAL YEAR B. PHYSIOTHERAPY.

**(A) PHYSIOTHERAPY IN GENERAL MEDICAL AND SURGICAL CONDITIONS
(120 Hours)**

(The following underlined topics are must to know)

Assessment & Treatment Plan strategies & Documentation.

1. Community Physical therapy - Sports, health promotion, occupational hazards.
2. Physiotherapy in mother and child care. - Antenatal and postnatal management, Early intervention and stimulation therapy in child care - (Movt. therapy)
3. Physical Fitness - Endurance, Aerobic Exercises.
4. Skin conditions : Acne, Psoriasis, Alopecia, Leucoderma, Carbuncles and Boils, Sexually Transmitted Diseases - AIDS, Syphilis, Gonorrhoea.
5. Geriatrics - Handling of old Patients and their problems.
6. Psychiatry - Physiotherapy in Psychiatric conditions.
7. Complications common to all operations.
8. Physiotherapy during pre-operative and post-operative stages.
9. Wounds, Local infections, ulcers, pressure sores - UVR and other electro therapeutics for healing of wound, prevention of hypergranulated scars, relief of pain and mobilization.
10. Abdominal incisions.
11. Operations on upper gastro-intestinal tract-oesophagus - stomach - duodenum.
12. Operations on large and small intestine-Appendicetomy, Cholecystectomy, partial colectomy, ilieostomy, hernias, herniotomy, herniorraphy.
13. Hysterectomy, Prostatectomy, Nephrectomy, Pelvis repair, Caesarian.
14. Other gynaecological operations.
15. Mastectomy - simple, radical.
16. Burns and its treatment, physiotherapy in burns, skin grafts, and reconstructive surgery.
17. ENT : Sinuses, Non suppurative otitis media, chronic suppurative otitis media, otosclerosis, Labyrinthitis, Mastoidectomy, facial palsy, chronic rhinitis, chronic nasal sinusitis, laryngectomy, Pharyngeal - Laryngectomy.

(B) PHYSIOTHERAPY IN NEURO-MUSCULAR CONDITIONS (120 Hours)

(The following underlined topics are must to know)

Assessment and treatment planning strategies for Neuromuscular deficits.

1. **Diseases of Nervous System** : Hemiplegia, Cerebral palsy, Hydrocephalus, Basal ganglion-Extrapyramidal tracts, Parkinsonism, Cerebellar ataxia, meningitis.
2. **Spinal Cord** : Quadriplegia, paraplegia, Brown Sequard Syndrome, Monoplegia, Pott's spine, Cauda equina, spinabifida, disseminated sclerosis, (Multiple sclerosis) Tabes dorsalis, Subacute combined degeneration of cord (S.C.D.C.)
3. **Viral Infections** : Polio, Herpes Zoster, Encephalitis, Peripheral neuritis, transverse myelitis.
4. **Motor Neurone Disease** : Peroneal muscular atrophy, myopathies, myasthenia gravis, Syringomyelia, Amyotonic congenita, Polymyositis, prolapse disc, Thoracic inlet syndrome, Carpal tunnel syndrome.
5. **Peripheral nerve injuries** - Erb's palsy, Klumpke's palsy, Axillary palsy (Brachial plexus injury), Rectal palsy, Bell's palsy etc., Polyneuropathies, Causalgia, sciatic nerve injuries
6. **Leprosy** - operations, transplantations, grafts, sutures, splints.
Nerve-trunk & root injuries.
7. **Cranial nerve injuries** : Neuro surgery, cranial surgery, Head injuries- intracranial aneurysms, intracranial abscess, tumors.
8. **Surgery of spinal cord** : Spinal neoplasms, infections, tuberculosis of spine, spinal abscess laminectomy, discectomy, spinal fusion.

(C) PHYSIOTHERAPY IN CARDIO-PULMONARY CONDITIONS (120 Hours)

Assessment & Treatment planing strategies & documentation for cardio thoracic patients.

1. Mechanisms of Normal respiration, Retraining, Relaxation and maintenance of bronchial hygiene in respiratory diseases, Respiratory rehabilitation, Cardiac rehabilitation, Fitness programme for cardio-respiratory disorder.
2. Diseases of Respiratory System
Acute respiratory infections : Pneumonia, Pleurisy, Empyema, Pulmonary tuberculosis, lung abscess,

Chronic respiratory conditions : Chronic Bronchitis, Emphysema, Bronchiectasis, Asthma, cystic fibrosis, Pneumothorax, Pyothorax, Hydropneumothorax.

3. Incisions on thorax (Thoracotomy), Thoracoplasty, Lobectomy, Pneumonectomy, Tracheostomy, Mitral Valvotomy (Mitral stenosis), Aortic Incompetence, Valve Replacement, Patent ductus arteriosus, Coarctation of aorta, Pericardiectomy in chronic constrictive pericarditis, Septal defects, Fallot's tetralogy.
4. Bypass surgery, Aim of physiotherapy in General cardiac surgery ICCU.
5. Resuscitation and Cardiac arrest - Demonstration.
6. Peripheral vascular diseases
7. Rheumatic Heart Diseases.

(D) PHYSIOTHERAPY & REHABILITATION THERAPY (35 Hours)

(The following underlined topics are must to know)

1. The Philosophy and Need of Rehabilitation.
The Principles of Physical Medicine
Basic Principles of Administration and Organization.
2. The evaluation Process and Treatment Planning.
Principles of Prescription writing.
Evidence based practice & documentation.
3. Principles of Rehabilitation
Nursing.
Communication problems
Social problems
Vocational problems and Vocational placements.
Disaster management - Role of physiotherapy.
4. Prostheses :
 1. Difference between Prosthesis and orthosis.
 2. Purpose of prosthesis, types.
 3. Upper limb prosthesis.
 4. Lower limb prosthesis in detail, B.K. Prosthetic components, Gait analysis and deviations following B.K. Prosthesis.
 5. Prosthetic components, Gait analysis and deviations following A.K. Prostheses.

6. Check out procedure for B.K. and A.K. Prosthesis.
 7. Syme's and Partial foot Prosthesis.
 8. Upper limb prosthetic components - terminal devices - hooks - wrist units.
 9. Forearm, shoulder harness - suspension control system.
 10. Prosthetic checkout procedure.
5. Orthotics :
1. Purposes of orthosis, types, lower limb orthosis in detail.
 2. Lower limb orthosis - Introduction to HKAFO Orthosis, Pathological gaits, bio-mechanics of lower limb orthosis, orthotic components, Check out procedure and training with orthosis.
 3. Upper Limb Orthosis - Introduction to wrist hand orthosis, Principles of wrist - finger - thumb orthosis, opponens splint (short and long) finger splints for correction of contractures, knuckle bender splint, interphalangeal, Extension splint with lumbrical bar, spring coil assistance, Introductory demonstration of methods of construction of temporary orthosis for hand and fingers.
 4. Spinal - orthosis - Introduction, Lumbosacral (Knight), Thoracolumbar (Taylor) orthosis, Cervical collar, Milwaukee orthosis.

(E) PHYSIOTHERAPY IN MUSCULO - SKELETAL CONDITIONS (120 Hours)

(The following underlined topics are must to know)

Assessment and treatment planning strategies, Documentation for orthopaedic cases based on SOAP.

1. Traumatology :Fractures and complications : Definitions, healing process of fractures, causes, signs and symptoms of fractures, Methods of reduction, means of immobilization, duration of immobilization, fractures in children, epiphyseal injury, principles of physiotherapy in fractures of upper, lower extremity bones, scapula, ribs, vertebrae, spine and pelvis.
2. Physiotherapy for Puttiplats operation.
3. Rehabilitation of patients - Arthroplasties, excision arthroplasty, total, partial hip and knee replacement, MC Murray's osteotomy, reconstructive surgery mechanical changes - tendon transfer, peripheral nerve injuries.
4. Dislocation : Causes, types, principles of treatment of shoulder, elbow, wrist, MP, IP, hip, knee, ankle dislocation, perthe's disease, acromio clavicular and sternoclavicular joints.

5. Deformities : Mallet finger, trigger finger, dequervains disease, metatarsalgia hallux valgus, dupuytran's contracture.
6. Pathological changes in inflammation, oedema, pyogenic conditions, osteomyelitis.
7. Soft Tissue Injury : Contusion, sprains, strains, ruptures of muscles and ligaments, knee injuries, arthroscopy.
8. Rheumatology and arthritis : Still's disease, ankylosing spondylitis, bursitis, capsulitis, synovitis, tendinitis, infective arthritis, osteoarthritis, cervical spondylosis, gout, periartthritis, fasciatis, tennis elbow, ganglions, tenosynovitis, chondromalacia patellae, OS good schlatters disease, cauaslgia.
9. Congenital Deformities : Coxa vara, coxa valgus, C.D.H., Sprengle's scapula, torticollis, Madelung's deformity, wry neck, kyphosis, lordosis, PID, sprain back, spina bifida, spondylosis, spondylolisthesis, tuberculous spine, CV anomalies.
10. Foot conditons : Valgus and Varus feet, Morton's neroma, flat foot.
11. Amputations of lower and upper extremity - Physiotherapy management, Calipers, prosthesis and splints.

EXAMINATION REGULATION

(1) F.Y.B. PHYSIOTHERAPY :

No.	SUBJECT	EXTERNAL MARKS	DURATION OF PAPER
1	Human Anatomy	Theory - 100 Practical - 100	3 hours
2	Human Physiology	Theory - 100 Practical - 100	3 hours
3	Psychology and sociology	Theory - 100	3 hours
(Section-1 Psychology 50 marks, Section-2 Sociology 50 marks)			
4	Fundamental of Electrotherapeutics	Theory - 50	2 hours
5	Exercise Therapy I & Massage Manipulation	Theory - 100 Practical - 100	3 hours

Note: * Blue print of Anatomy theory and Practical paper is enclosed after R.B. PHYSIO-4.

(2) S.Y.B. PHYSIOTHERAPY:

No.	SUBJECT	EXTERNAL MARKS	DURATION OF PAPER
1	Pathology, Microbiology & Biochemistry	Theory 100	3 hours
(Section-1 : Pathology, Microbiology 50 Marks, Section-2 : Biochemistry 50 Marks)			
2	Medicine I	Theory 100	3 hours
(Section-1 : General Medicine including Pediatrics 70 marks, Section-2 : Dermatology 30 marks)			
3	Surgery I	Theory 100	3 hours
(Section-1 : General Surgery including Neurosurgery and Plastic Surgery 50 marks, Section - 2 : Traumatology 50 marks)			
4	Exercise therapy II & Kinesiology	*Theory 100	3 hours
		Practical 100	
(*Section-1 : Exercise therapy II 50 marks, Section-2 : Kinesiology 50 Marks)			
5	Electro therapy I	Theory 100 Practical 100	3 hours

(3) T.Y.B. PHYSIOTHERAPY:

No.	SUBJECT	EXTERNAL MARKS	DURATION OF PAPER
1	Medicine II	Theory 100	3 hours
(Section-1 : Neurology 70 marks, Section-2 : Ob. and Gy. 30 marks)			
2	Surgery II	Theory 100	3 hours
(Section-1 : Orthopedics - non traumatic conditions 50 marks, Section-2 : C.T. Surgery 50 marks)			
3	Electro therapy II	Theory 100 Practical 100	3 hours
4	Bio-Statistics & Research Methodology	Theory 50	2 hours
5	Pharmacology	Theory 50	2 hours

(4) FINAL YEAR PHYSIOTHERAPY:

No.	SUBJECT	EXTERNAL MARKS	DURATION OF PAPER
1	Physiotherapy in Neuromuscular Conditions	Theory 100 Practical 100	3 hours
2	Physiotherapy in Cardiopulmonary Conditions	Theory 100 Practical 100	3 hours
3	Physiotherapy in General Medical & Surgical conditions	Theory 100 Practical 100	3 hours
4	Physiotherapy & Rehabilitation	Theory 50	2 hours
5	Physiotherapy in Musculoskeletal Conditions	Theory 100 Practical 100	3 hours

STRUCTURE OF QUESTION PAPERS

Annexure I

Paper- style for 100 marks subjects
(Including section I and II for 50 marks each)

Section I

Que. 1 Long Essay	2 x 10 = 20	(2 out of 3)
Que. 2 Short Essay	2 x 5 = 10	(2 out of 3)
Que. 3 Write in Short	5 x 2 = 10	(5 out of 6)
Que.4 Multiple Choice Questions	10 x 1= 10	(no options)

Section II

Que. 1 Long Essay	2 x 10 = 20	(2 out of 3)
Que. 2 Short Essay	2 x 5 = 10	(2 out of 3)
Que. 3 Write in Short	5 x 2 = 10	(5 out of 6)
Que.4 Multiple Choice Questions	10 x 1= 10	(no options)

Applicable for following subjects

1 st Year	2 nd Year	3 rd Year	4 th Year
Human Physiology	Exercise Therapy II & Kinesiology (50 + 50 marks distributions)	Surgery II	Physiotherapy in Musculoskeletal Conditions
Human Anatomy	Electro Therapy I	Electrotherapy II	Physiotherapy in General Medical & Surgical Conditions
Exercise Therapy I & massage manipulation (80 + 20 marks distributions)	Surgery I		Physiotherapy in Cardio Pulmonary Conditions
Sociology and Psychology	Pathology, Microbiology, Biochemistry		Physiotherapy in Neuromuscular Conditions

Annexure II

Paper- style for 100 marks subjects
(Including section I for 70 marks and section II for 30 marks each)

Section I – 70 marks

Que. 1 Long Essay	3 x 10 = 30	(3 out of 4)
Que. 2 Short Essay	4 x 5 = 20	(4 out of 5)
Que. 3 Write in Short	5 x 2 = 10	(5 out of 6)
Que.4 Multiple Choice Questions	10 x 1 = 10	(no options)

Section II – 30 marks

Que. 5 Long Essay	1 x 10 = 10	(1 out of)
Que. 6 Short Essay	2 x 5 = 10	(2 out of 3)
Que. 7 Write in Short	5 x 2 = 10	(5 out of 6)

1 st Year	2 nd Year	3 rd Year	4 th Year
	Medicine I	Medicine II	

Annexure III

Paper- style for 50 marks subjects

Que. 1 Long Essay	2 x 10 = 20	(2 out of 3)
Que. 2 Short Essay	2 x 5 = 10	(2 out of 3)
Que. 3 Write in Short	5 x 2 = 10	(5 out of 6)
Que.4 Multiple Choice Questions	10 x 1= 10	(no options)

Applicable for following subjects

1 st Year	2 nd Year	3 rd Year	4 th Year
Fundamentals of Electrotherapeutics	-----	Pharmacology	Physiotherapy in Rehabilitation
		Biostatics & Research Methodology	

R.B. PHYSIO - 3

GENERAL INSTRUCTIONS FOR UNIVERSITY PRACTICAL EXAMINATION

- (1) Practical examination should be taken and marks should be given by pair of examiners only and not by single examiner.
- (2) Marks should be put directly to the marksheet. No rough marksheet should be used.
- (3) Sealed original and duplicate marksheets should be submitted at the end of EACH SESSION to the special supervisor or co-ordinator of examination.
- (4) Examiner shall not keep any kind of rough or fair copy of any mark sheet with him.

R.B. PHYSIO - 4

The concerned college authorities shall do the posting of the successful candidates for internship within 15 days of declaration of Result of Final B. Physiotherapy Examination.

During training of Internship 75% presence in compulsory, failing which an intern will have to repeat the term (training).

BLUE PRINT OF ANATOMY THEORY AND PRACTICAL PAPER

1st Year B. Physiotherapy - Anatomy

Time : 3 Hours

Total Marks : 100

- Instruction :-
1. Answers should be brief and to the points.
 2. Each section should be written in a separate answer books.
 3. Figures to the right indicate mark of question.
 4. Illustrate answer with suitable diagrams.

SECTION – I

- Q. 1. Write any two (20)
(Above diaphragm)
1. Myology, Osteology and arthrology.
 2. Myology, Osteology and arthrology.
 3. Myology, Osteology and arthrology.
- Q. 2. Write any two short notes. (10)
1. Resp. OR CVS
 2. Urogenital system
 3. GIT OR Endo
- Q. 3. Write in short (any five) (10)
1. General Histology
 2. General Histology
 3. General Histology
 4. General Histology
 5. General Histology
 6. General Histology
- Q. 4. Select and write down any one correct answer for M.C.Q. (10)
1. Muscles, Bones, Nerves, Joints or Applied (above diaphragm)
 2. Muscles, Bones, Nerves, Joints or Applied (above diaphragm)
 3. Muscles, Bones, Nerves, Joints or Applied (above diaphragm)
 4. Muscles, Bones, Nerves, Joints or Applied (above diaphragm)
 5. Muscles, Bones, Nerves, Joints or Applied (above diaphragm)
 6. Urogenital
 7. Urogenital
 8. GIT/ Endo.
 9. Repi. OR CVS
 10. Gen. Anatomy

SECTION – II

- Q. 5. Write any two (20)
(Below diaphragm)
1. Myology, Osteology and arthrology.
 2. Myology, Osteology and arthrology.
 3. Myology, Osteology and arthrology.

Q. 6. Write any two short notes : (10)

1. CNS
2. CNS
3. CNS

Q. 7. Write in short (any five) (10)

1. General Embryology
2. General Embryology
3. General Embryology
4. General Embryology
5. General Embryology
6. General Embryology

Q. 8 . Select and write down any one correct answer for M.C.Q. (10)

1. Muscles, Bones Nerves, Joints or Applied (Below diaphragm)
2. Muscles, Bones Nerves, Joints or Applied (Below diaphragm)
3. Muscles, Bones Nerves, Joints or Applied (Below diaphragm)
4. Muscles, Bones Nerves, Joints or Applied (Below diaphragm)
5. Muscles, Bones Nerves, Joints or Applied (Below diaphragm)
6. CNS/ PNS
7. CNS/ PNS
8. CNS/ PNS
9. Gen. Anatomy
10. Gen. Anatomy

Anatomy Practical :-

1st Year B. Physiotherapy Practical Examination

Total Number of Marks 100

TABLE 1 – 25 MARKS

BONES OF WHOLE SKELETAL

- a) Appendicular (limb bones) -15
- b) Axia bones – 10

TABLE 2 – 25 MARKS

MUSCLES OF WHOLE BODY

- a) Upper & lower limb – 15
- b) Other muscles – 10

TABLE 3 – 25 MARKS

ALL ORGANS OF BODY

- a) Thorax - 05
- b) Abdomen -10
- c) Brain -10

TABLE 4 – 25 MARKS

(Surface marking and x-ray)

- a) Living surface – 05
- b) Dead surface – 05
- c) Upper limb X –ray – 05
- d) Lower limb X –ray – 05
- e) Other X –ray – 05