Maharashtra University of Health Science, Nashik

Physiotherapy Syllabus

I - B.P.Th.

[Applicable to the batches admitted from the year 2007-08]

I-B.P.Th Transcript hrs-1440

Subjects -

1] Introduction to physiotherapy ---------- 10 hrs
2] Human Anatomy ---------- 235 hrs
3] Human Physiology ---------- 235 hrs
4] Biochemistry ---------- 40 hrs
5] Fundamentals Exercise Therapy ---------- 250 hrs
6] Fundamentals of Electro Therapy ---------- 200 hrs
7] Seminar ---------- 60 hrs
8] Supervised clinical practice ---------- 410 hrs

[Clinical assignments should include Observation, Clinical History taking, & technical assistance to the senior clinical staff of the Therapeutic Gymnasium [Fundamentals of Exercise therapy] & Electro Therapy sections at the O.P.D. set up. The student should maintain a Journal/ File in which the "ATTITUDE" assessment chart & documentation of minimum 15 case histories to be included per assignment. The student should get all the documents duly signed by the section In-Charge with his/her assessment remarks at the end of each respective assignment.

INTRODUCTION TO PHYSIOTHERAPY

Objective – By the end of the 10 hours of introduction, the candidate will –

1] acquire the geographical orientation of the various concerned section of the college & the clinical training areas.
2] get the overall idea about the graduate program & its scope in the professional practice
3] learn the Bed-side manners, General Ethical code & discipline of the Department
4] Acquire the skill of History taking in general

HUMAN ANATOMY

[235 HRS]

Didactic – 160 HRS – Practical / Laboratory – 75 hrs

Goal – To provide the student with the necessary Anatomical knowledge & skills to practice as a qualified Physiotherapist

Objectives-

1] MUSCULO – SKELETAL –

i) The student should be able to identify & Describe Anatomical aspects of muscle bones & joints, & to understand and Analyze movements.

ii) To understand the Anatomical basis of various clinical conditions e.g. trauma, deformities, pertaining to limbs & spine.

iii) To be able to localize various surface land-marks;

iv) To understand & describe the mechanism of posture & gait the Anatomical basis of abnormal gait.

2] In NEURO – Anatomy –

i) to identify & describe various parts of C.N.S. – fore – brain, Midbrain, Hind-brain Brain stem, courses of cranial nerves; functional components, course distribution. Anatomical bases of clinical lesions:

ii) to describe the source & course of spinal tracts;

iii) to describe blood circulation of C.N.S. & spine;

iv) be able to identify the components of various Trans –sections.

3] THORAX – to identify & describe various components of the contents of the Thorax – with special emphasis to tracheo-bronchial tree, & cardio – pulmonary system.

4] CIRCULATORY – I) be able to identify & describe the source & course of major arterial venous & Lymphatic system, with special emphasis to extremities, Spine & Thora

5] PSYCHO-MOTOR –

i) to be able to demonstrate the movements of various joints –

ii) distinguish cranial & peripheral nerves

iii) distinguish major arteries, veins & Lymphatics with special emphases to extremities, & spine.

Syllabus –

1] GENERAL Anatomy ---------- 07 hours

Including Histology – Basic tissues like epithelial, Connective, muscular, nervous, system.

2] MUSCULO SKELETAL Anatomy [dissection / prosection mandatory]

i) superior extremity with shoulder girdle ---------- 20 hours
ii) Inferior extremity with pelvic girdle & pelvic floor muscles ------- 20 hours
iii) spine, head & neck ---------- 10 hours
iv) facial muscles & T.M. joint ---------- 5 hours
v) Surface Anatomy ---------- 5 hours

3] NEURO –Anatomy ---------- 45 hours

i) General organization of C.N.S.
ii) Cranial nerves
iii) peripheral nervous system
iv) C.N.S.

4] SYSTEMIC ANATOMY –

i. Elementary system ---------- 5 hrs
ii. Uro –genital system [special emphasis to Female organs] ---------- 5 hrs
iii. Micro – Anatomy (cartilage, bone, nerve, muscle) ---------- 5 hrs
iv. Cardio – vascular [including Lymphatic] ---------- 6 hrs
v. Respiratory system ---------- 5 hrs
vi. Neuro – muscular junction ---------- 2 hrs
vii. Axial skeletal ---------- 3 hrs
viii. Appendicular system ---------- 5 hrs
ix. Sensory organs ---------- 6 hrs
x. Endocrine ---------- 2 hrs
xi. Radiological ---------- 4 hrs

Total – 160 hours

5] PRACTICAL :

i) to be able to demonstrate the movements of various joints – (33 hrs)
ii) distinguish cranial & peripheral nerves (30 hrs)
iii) distinguish major arteries, veins & Lymphatics with special emphases to extremities, & spine. (12 hrs)

TEXT BOOKS

1. Human Anatomy – by Snell
2. Anatomy by Chaurasia all 3 volumes
3. Neuro anatomy by Inderbir Singh
4. Human Anatomy by Kadasne (All three volumes)

REFERENCE BOOKS

1. Gray's Anatomy
2. Extremities by Quining Wasb
3. Atlas of Histology by Mariano De Fiore
4. Anatomy & Physiology by Smout and McDowell
5. Kinesiology by Katherine Wells
6. Neuroanatomy by Snell
7. Neuroanatomy by Vishram Singh

SCHEME OF EXAMINATION

THEORY – 80 MARKS + Int. assessment – 20 marks Total …..... 100 Marks

Model question paper – 80 Marks

Section A) Q1) M.C.Q.

-based on Single best response …… [20 x 1] --- 20 marks – [20 minutes]

This question should include topics covered in syllabus –

Section B) S.A.Q.

Q2) Answer any Five out of Six -……. [3 x 5] ---------- 15 marks

This question should include

i] Digestive ii] /uro-genital iii] reproductive system iv] special senses – eye /ear/skin v] circulatory system.

Q3) Answer any 3 out of 4 …… [5 x 3] ---------- 15 marks

This question should include i] Thorax ii] soft parts upper limb iii] soft part lower limb iv] soft parts Thorax /spine / neck

Section C) L.A.Q.

Q4) Compulsory – based Musculo Skeletal system [including Kinesiology] 15marks

Q5) should be based on Neuro-Anatomy [including cranial nerves with emphasis to V,VII, VIII, IX & XII nerves ……..…….…….. 15 marks

OR

Q5) ……15 marks

PRACTICAL – 80 MARKS + Internal assessment – 20 marks = Total 100 marks

should include

1] Spots ---------- 60 marks

2] Viva ---------- 15 marks

Journal ---------- 05 marks

INTERNAL ASSESSMENT

THEORY:

Two exams – Terminal and prelims of 80 marks each TOTAL 160 marks

Section A) Q1) M.C.Q.-based on Single best response – [20 x 1] -- 20marks

This question should include topics covered in syllabus-

Section B) S.A.Q.- Q.2)-Answer any Five out of Six [3 X 5]---------- 15marks

This question should include

i]-Digestive ii]-uro-genital iii]-reproductive system

iv] - special senses-eye/ear/skin v]-circulatory system

Q.3) - Answer any 3 out of 4 [5 X 3] ---------- 15 marks

This question should include

i]-Thorax

ii]-soft parts upper limb

iii]-soft part-lower limb

iv]-soft parts Thorax/ spine / neck

Section C) L.A.Q-Q.4) based Musculo Skeletal system [including Kinesiology]--- 15 marks

Q.5) should be based on Neuro-Anatomy [including cranial nerves with

Emphasis to V, VII, VIII, IX & XII nerves ---------- 15 marks

OR

Q.5) ---------- 15 marks

I.A. to be calculated out of 20 marks

PRACTICAL:

Two exams – Terminal and prelims of 80 marks each TOTAL 160 marks

1. SPOTS ---------- 60 MARKS
2. Viva ---------- 15 marks
3. Journal ---------- 05 marks

I.A. to be calculated out of 20

HUMAN PHYSIOLOGY

Theory – 155 Hrs, Practical / Laboratory – 80 Hrs [235 HRS]

Objectives: At the end of the course, the candidate will –

1) acquire the knowledge of the relative contribution of each organ system in maintenance of the milieu interior (Homeostasis)
2) be able to describe physiological functions of various systems, with special reference to Musculo-skeletal, Neuro-motor, Cardio-respiratory, Female uro-genital function, & alterations in function with aging
3) Analyse physiological response & adaptation to environmental stresses-with special emphasis on physical activity, temperature
4) acquire the skill of basic clinical examination, with special emphasis to Peripheral & Central Nervous system, Cardiovascular & Respiratory system, & Exercise tolerance / Ergography.

Syllabus:

1) GENERAL Physiology Structure of cell membrane. Transport across cell membrane and Homeostasis ---- (only short notes) ---------- 4hrs
2) **BLOOD**- Rh- A B O system & mismatch-transfusion WBC plasma protein Erythrocytes. Hemoglobin. Normal values of Blood (Composition & function) ---------- 7hrs
3) **NERVE** Neuron AHC ---------- 8hrs
   i) Structure, classification & Properties; ii)- R.M.P. iii)- action potential;
   iv) Propagation of nerve impulse; v)- degeneration & regeneration
   vi) Reaction of degeneration (retrograde)
4) **MUSCLE** ---------- 9hrs
   i) Structure- properties-classification-excitation/contraction coupling
   ii) Motor unit- E.M.G.- factors affecting muscle transmission-
   iii) Neuro-muscular transmission
5) **C.N.S.** ---------- 32hrs
   i) Receptor physiology-classification & properties-;
   ii) Synapse-structure, properties, & transmission;
   iii) Reflexes-classification & properties;
   iv) Sensory & Motor Tracts-effect of transaction (complete & incomplete) at various levels

v) Physiology of Touch, Pain, Temperature & Proprioception;

vi) Physiology of Muscle Tone (muscle spindle); Stretch

vii) Vestibular Appralus mainly otolith organ Anatomy

viii) Connection & function of Basal ganglia, Thalamus, Hypo-Thalamus, lobes of the brain, Cerebellum, Peripheral Nervous System

ix) Sensory / motor cortex;

x) Limbic system;

xi) Learning, memory & condition reflex,

xii) Physiology of Voluntary movement

6)- **EXCRETARY** system ---------- 10hrs

i) Kidneys- (short note)- structure & function;

ii) urine formation;

iii) Micturition- neural control – neuroqenic bladder

7)- **TEMPERATURE REGULATION** ---------- 5hrs

i) circulation of the skin- body fluid- electrolyte balance

8)- **ENDOCRINE** ---------- 10hrs

i) secretion- regulation & function of Pituitary-thyroid-adrenal-parathyroid-pancreas

9)- **REPRODUCTIVE** system ---------- 5hrs

i) Functions of Estrogen, Progesterone & Testosterone

ii) Puberty & Menopause

10)- **SPECIAL** senses-

i) Eye-Errors of refraction-accommodation-reflexes-dark & light adaptation-photosensitivity Ear, Skin ---------- 5hrs

11) -**Gastrointestinal** system ---------- 5 hrs

12)- **RESPIRATORY** system ---------- 20hrs

i) Introduction, general organization;

ii) Mechanics of respiration;

iii) Pulmonary Volumes & capacities;

iv) Anatomical & Physiological Dead space-ventilation/perfusion ratio, alveolar ventilation

v) Transport of respiratory gases

vi) Nervous & Chemical control of respiration

vii) Pulmonary function tests-Direct & indirect method of measurement;

viii) Physiological changes with altitude & acclimatization

13)- **CARDIO – VASCULAR**---------- 20hrs

i) structure & properties of cardiac muscle;
ii) Cardiac cycle;

iii) Heart rate regulation-factors affecting;

iv) Blood pressure- definition-regulation-factors affecting;

v) cardiac output-regulation & function affecting;

vi) Peripheral resistance, venous return

vii) Regional circulation-coronary-muscular, cerebral

viii) normal ECG.

14)- **EXERCISE** physiology ---------- 10hrs

i) Effects of acute & chronic exercises;
ii) oxygen / CO2 transport-O2 debt-

iii) effects of exercise on muscle strength, power, endurance,

B.M.R.,R.Q.-hormonal & metabolic effects-respiratory & cardiac conditioning

iv) AGING

v) Training-fatigue- & recovery;

vi) Fitness-related to age, gender, & body type

15)- **A.N.S** ---------- 5hrs

Sympathetic / parasympathetic system-adernal medulla-functions-Neuro

Transmitters-role in the function of pelvic floor-(micturation, defecation labour)

TEXT BOOKS

1) Course in Medical Physiology – Vol- I & II- by Dr. Chaudhary

2) Medical Physiology - by Dr. Bijlani

3) Text book on Medical Physiology – by Guyton

REFERENCE BOOKS

1) Review of medical physiology – Ganong

2) Samson & wright's applied physiology

3) Human Physiology – Chaudhary & Bijlani

4) Semiclingum – Essentials of Medical physiology – K. Semubulingam

PRACTICAL

1) Haematology – (demonstration only) ---------- 15hrs

2) GRAPHS ---------- 14hrs

i) skeletal muscle-properties-pre / after load-fatigue-Starling's law

ii) Cardiac muscle-properties-effect of Ach & Adrenaline.

3) Physical fitness ---------- 12hrs

i) breath holding

ii) mercury column test;

iii) cardiac efficiency test- Harvad step test- Master step test

4)- Blood pressure- effects of change in posture & exercise ---------- 8hrs

5)- Stethography ---------- 4hr

i) effect of deglutination;

ii) voluntary hyperventilation

6)- Spirometry ---------- 4hr

i) Lung volumes ii) timed vital capacity

7) Bicycle ergography ---------- 4hr

8) Perimetry ---------- 4hr

9) Clinical examination ---------- 15hrs

respi / cvs / higher functions / memory / time / orientation / reflexes / motor & sensory system

Total 80 hours

SCHEME OF EXAMINATION

THEORY-80MARKS + INT. ASSESSMENT-20MARKS=TOTAL - 100MARKS

Section-A-MCQ.

Q-1) based on single Best answer ------ (20 x 1) ---------- 20 marks

It must include MUST KNOWN questions

Section-B-SAQ.

Q-2) Answer any Five out of Six ----- (5 x 3) ---------- 15 marks

Should include – i)- Blood, ii)- G.I. tract iii)- Endocrine

iv)- Uro-genital v)- Metabolism vi)- special senses (eye/ear/skin)

Q-3) Answer any Three out of four ----- (3 x 5) ---------- 15 marks

Should include i)- Cardio – vascular ii)- Respiratory iii)- Exercise Physiology iv)- Electrolyte balance

Section-C-LAQ

Q-4) based on Musculo-skeletal system ---------- 15marks

(LAQ should give breakup of 15 marks)

Q-5) based on C.N.S./ spinal cord/Electro-Neuro-Physiology -------- 15 marks

OR

Q-6)- ---------- do---------- 15 marks

PRACTICAL – 80 Marks + Internal Assessment 20 Marks – total 100 marks

a) Spots-based on topics covered in syllabus ---------- 20 marks

b) Viva-based on 1 to 8 mentioned in practical syllabus --------- 20 marks

c) Demonstration – on Clinical Physiology ---------- 35 marks

d) Journal ---------- 05 marks

INTERNAL ASSESSMENT

THEORY:

Two exams – Terminal and prelims of 80 marks each TOTAL 160 marks

Section-A-MCQ.Q-1]-based on single Best answer---- [20 x 1] ---------- 20 marks

It must include MUST KNOW questions

Section-B- SAQ-Q-2] Answer any Five out of Six --- [5 X 3] ---------- 15 marks

Should include –

i]-Blood,

ii]-G.I. tract

iii]-Endocrine

iv] - Uro-genital

v]- Metabolism

vi]-special senses [eye/ear/ skin]

Q-3]-answer any Three out of four – [3 X 5] ---------- 15 marks

Should include

i] Cardio- vascular

ii] Respiratory

iii] Exercise Physiology

iv] Electrolyte balance

Section-C-LAQ-Q-4]-based on Musculo-skeletal system---------- 15 marks

Q-5]-based on C.N.S./ Spinal Cord/Electro-Neuro-physiology- 15 marks

OR

Q-6] ----------do---------- 15marks

[LAQ should give break up of 15 marks]

I.A. to be calculated out of 20 marks

PRACTICAL:

Two exams – Terminal and prelims of 80 marks each TOTAL 160 marks

1. Spots: - Based on Topics covered in syllabus---------- 20 marks
2. Viva: - Based on 1-8 mentioned in practical syllabus ---------- 20 marks
3. Demonstration on clinical Physiology ---------- 35 marks
4. Journal ---------- 05 marks

I.A. to be calculated out of 20 marks

BIOCHEMISTRY

(40 hrs- Didactic only)

SN	Topic		No. of Hrs.
01	CARBOHYDRATES :-	(1) Chemistry, Definition, classification with examples, functions. (2) Digestion and Absorption, glycogenesis, glycolysis, TCA cycle. Hormonal regulation of blood glucose, diabetes mellitus, glycosuria, changes in Carbohydrate, protein & lipid metabolism.	08
02	PROTEINS :-	Definition, Importance, Functional, Classification Digestion & Absorption, decarboxylation, deamination, transamination, transmethylation, Urea cycle, clinical significance of serum urea, function of glycine, Phenylalanine, trytophan, methionine tyrosine.	04
03	ENZYMES :-	Definition, Modern Classification, Factors affecting enzymes Action, diagnostic & therapeutics uses & enzymes, iso-Enzymes, competitive & Non competitive inhibition.	04
04	VITAMINS :-	Definition, Classification, Fat & water soluble vitamins, functions, Deficiency manifestations sources & RDA	03
05	MINERALS :-	Ca, P, Fe, I, Zinc, Selenium, Fluorine, Magnesium, Function sources, Deficiency manifestations	03
06	HORMONES :-	Definition with mechanism of action, classification	01
07	NUTRITION :-	Composition of food, balanced diet, kwashiorkor, marasmus, nitrogen balance, major dietary constituent & they importance	03
08	**Clinical Biochemistry :**	Liver function test, Renal function test, Lipid profile in serum	03
09	**LIPID :-**	Definition, classification with examples, biomedical importance, Phospholipid & lipoproteins functions. Digestion & absorption of lipid B – oxidation of fatty acid with energetic, Ketone bodies and their & metaboisn, cholesterol, importance of cholesterol, obesity.	04
10	Muscle Contraction :-	Mechanism & Biochemical, events Connective Tissue- Biochemistry of connective tissue-collagen-Glyco-protein-proteoglycans	02
11	NUCLEIC ACID :-	Function of DNA, RNA, genetic code specialized products of amino acids phenyalminetryosine trptophan, glycine, methionine. Transmionation, deamination and urea cycle (protein)	02
12	**Clinical Significance of some importance biochemical constituents in serum in various diseases.**		03
	Total		**40**

TEXT BOOKS

1) Biochemistry – by Dr. Deb Jyoti Das,
2) Biochemistry – by Dr. Satyanarayan
3) Text book of Biochemistry for Medical students by – Dr. Vasudevan / Shri Kumar

REFERENCE BOOKS

Review of Biochemistry (24th edition) by Harpar

Biochemistry (2nd edition) by Dr.Pankaja Naik

SCHEME OF EXAMINATION

Section A-MCQ-

Section A- Q1) MCQ – Single best answer [10 x 1] ---------- 10 marks

Section B-Q2) SAQ – To attempt any FIVE out of Six answers [5x3] ------ 15marks

Section C-Q3) LAQ To attempt any THREE out of Four answers [3 x5] ------- 15marks

INTERNAL ASSESEMENT 10 marks

Two exams – Terminal and prelim examination of 40 marks each TOTAL 80 marks

Section-A- Q 1) MCQ - Single best answer - [10 x 1] ----- 10 marks

Section-B- Q 2) SAQ-To attempt any FIVE out of Six answers-[5 x 3] --------15 marks

Section-C-Q3) SAQ - To attempt any THREE out of Four answers-[3 x 5] ---15 marks

I.A. to be calculated out of 10 marks

FUNDAMENTALS OF EXERCISE THERAPY

[250 hrs]

Theory – 100 & Practical / Lab – 150

BIOMECHANICS ---------- didactic – 40 hrs

BIO-PHYSICS APPLIED TO MOBILISATION /

EXERCISE & HYDROTHERAPY ----------didactic 30 hrs + practical/laboratory-25hrs

MASSAGE ---------- didactic – 5 hrs + practical / laboratory- --- 25hrs

BASIC EVALUATION ---------- didactic–10 hrs + laboratory / practical - 30hrs

BASICS IN YOGA ---------- didactic–15 hrs + laboratory / practical-70hrs

Objective: At the end of the course, the candidate will be able –

1] To define the various terms used in mechanics, Biomechanics & Kinesiology

2] Recall the basic principles of Physics related to mechanics of movement / motion & will be able to understand the application of such principles to the simple equipment designs, & their efficacy in therapeutic gymnasium, & various starting position used in therapeutics.

3] to describe & also acquire the skill of use of various tools of the Therapeutic gymnasium

4] to demonstrate passive movements in terms of various Anatomical planes

5] to demonstrate various starting & derived positions

6] Acquire the skill of application of various massage manipulations & describe the Physiological effects, therapeutic use, merits / demerits of the same.

7] acquire a skill of assessment of sensations, superficial & deep reflexes, pulse rate / Blood pressure, Chest expansion / respiratory rate, & limb length / girth measurement on Models

8] to demonstrate & also acquire the skill of relaxation.

9] to describe the skill & usefulness of group & recreational activities & will be able to demonstrate general fitness exercises used in Physical Training.

10] be able to define Yoga & its types, its physiological & Psycho-somatic effects & will be able to demonstrate standard yoga postures used by the beginners.

11] be able to describe Physiological principles of aerobic exercise conditioning related to general fitness & demonstrate skill of General Fitness exercises & shall gain fitness for self.

Syllabus:

1] Bio-mechanics i) Axes / planes, laws of inertia & motion, mechanics of Forces, levers, pendulum, equilibrium, Torque ii) Types of muscle work angle of pull – Mechanical advantage – applied mechanics in the Therapeutic Gymnasium.

2] Starting & derived positions, stability, base of support

3] Classification of movements, (active, passive, assisted, resisted) / Goniometry – techniques, uses, types.

4] Limb length (only lower limb – apparent, true, Supratrochantric) & girth measurements

5] Assessment of Sensations / Reflex testing

6] Assessment of Blood pressure / pulse rate / chest expansion & Respiratory rate

7] Relaxation – all methods,

8] Massage manipulations – principles effects / merits / demerits – skills on extremities / scalp/ spine / abdomen / face.

9] Therapeutic Gymnasium suspension therapy, use of accessories such as pulleys springs, shoulder wheel, axillary crutches, finger ladder, therapeutic balls parallel bars etc applied Biomechanical principles.

10] Physiological & Biophysical principles of Stretching, Strengthening and aerobic conditioning for general fitness exercise, Group & recreational activities – Warm up – stretching mobility strengthening – cool down.

11] Principles of Yoga & basic ten Yogic postures & their physiological effects Yogic postures.

A] 1) a] Padahastasana Padangusthanasana b] Trikonasana, c] utkatasana
2) Padmasana / Siddhasana, /Sukhasana
3) Bhujangasana
4) Ardha – Salabhasana
5) Paschimottanasana

B] Savasana

C] 1] Dhanurasana
2] Ardha Halasana
3] Yogamudrasana
4] Uttanasana
5] Virasana
6] Vajrasana
7] setu bandhasana

8] gomukhasana

9] Pavan muktasana

10] Halasana

11] Sarvangasana

12] Naukasana

12] Basic principles of General fitness – warming up exercises, aerobics – cooling down exercises

13] Hydrotherapy – physics – application – effects – merits / demerits

PRACTICAL

skills included in sr. no. 2 to 13 above to be practiced on self & models

TEXT BOOKS

1] Principles of Exercise Therapy – Dena Gardiner

2] Massage, manipulation & traction – Sydney Litch

3] Therapeutic Exercise ---------- do ----------

4] Massage – Holly

5] Suspension Therapy in Rehabilitation – Margaret Hollis

6] Bio mechanics –Cynthia Norkin

7] Hydrotherapy – Duffield

8] Measurement of physical function – Cynthia Norkins.

REFERENCE BOOKS

1] Therapeutic Exercise – Carolyn Kisner

2] Physiotherapy in Orthopedic conditions – by Jayant Joshi

[for the study of Basic Yogic postures]

SCHEME OF EXAMINATION

THEORY – UNI. EXAM – 80 MARKS + INT. ASSESSMENT – 20 MARKS

Section -A-MCQ

Q1] based on Single best answer [20 x 1] ---------- 20 marks (20Min)

[to cover the must KNOW area of the subject]

Section B-SAQ

Q2] Answer any FIVE out of Six – [5 x 3] ---------- 15 marks

Q3] Answer any THREE out of Four [3 x 5] ---------- 15 marks

Section C- LAQ

Q4] [compulsory] based on Bio-mechanics ---------- 15 marks

#Q5] based on any other topic ---------- 15 marks

OR

Q6] based on any other topic ---------- 15 marks

#To avoid questions based on Psychomotor domain

PRACTICAL–80 MARKS + INT.ASSESSMENT–20 MARKS = TOTAL – 100 MARKS

1 Long case – based on Massage / Goniometry ---------- 35 marks

i] Cognitive – Bio-physics / Biomechanical principles / indications – contra indication Documentation of findings etc ---------- 20 marks

Ii] Psychomotor & affective – skills ---------- 15 marks

2 a) Short Case :- any one of the following ---------- 20 marks

Short case Based on passive movts / Relaxation / Limb / Ength – girth / Sensation / Reflex testing / Yoga posture / Aerobics / group exercise / warm ups / BP/ & Pulse / Chest Expansion / Respirate / Starting / Derived position etc.

b) Spots – Four spots based on therapeutics gymnasium etc. 5 minute per spots (4x5) = 20 marks

3 Journal ---------- 5 marks

INTERNAL ASSESSMENT

THEORY (20 marks)

Two exams –Terminal and prelim examination of 80 marks each TOTAL -160 marks

Section-A-MCQ-Q-1]-based on -Single best answer [20 x 1] ----20marks(20 Min.)

[to cover the must KNOW area of the subject]

Section-B-SAQ- Q-2]-Answer any FIVE out of Six—[5 x 3] ---------- 15 marks

Q-3]-Answer any THREE out of Four-[3 x 5] ---------- 15 marks

Section-C-LAQ-Q-4]-[compulsory]—based on Biomechanics---------- 15 marks

Q-5]-based on any other topic---------- 15 marks

OR

Q-6]-based on any other topic---------- 15 marks

I.A. to be calculated out of 20 marks

PRACTICAL

Two exams –Terminal and prelim examination of 80 marks each TOTAL -160 marks

1. Long Case:-Massage/ Goniometry ---------- 35Marks

i) Cognitive – Biophysics / Biomechanical principles / indications / contraindications**.**

Documentation of findings etc. ---------- 20 marks

ii) Psychomotor and affective skills ---------- 15 marks

2. a) Short Case:- any one of the following.---------- ---------- 20 Marks

Short case Based on passive movts /Relaxation/Limb/ Length -girth/ Sensation/Reflex testing/ Yoga posture/Aerobics/group exercise/warm ups /BP & Pulse/Chest Expansion/Respiratory Rate/Starting & Derived position etc.

b) Spots - Four spots based on therapeutics gymnasium etc. 5 minute per spots

----- (4X5 = 20 Marks)

3. Journal ---------- 5 Marks

I.A. to be calculated out of 20 marks

FUNDAMENTALS OF ELECTRO THERAPY

[200 hrs]

1] MEDICAL ELECTRONICS ------- didactic 80 hrs + Practical /laboratory ---- 40 hrs

2] SUPERFICIAL THERMAL AGENTS – didactic – 15 hrs + Practical / Lab -- 65 hrs

Objectives – At the end of the course the candidate will be able to –

1] Recall the physics principles & Laws of Electricity, Electro – magnetic spectrum, & ultra sound

2] Describe effects of environmental & man made electro magnetic field at the cellular level & risk factors on prolonged exposure.

3] Describe the main electrical supply, Electric shock –precautions :-

4] Enumerate types & production of various Therapeutic electrical currents Describe the panel diagrams of the machines.

5] Describe in brief, certain common electrical components such as transistors, valves, capacitors, transformers etc & the simple instruments used to test / calibrate these components [such as potentiometer, oscilloscope etc] of the circuitry, ; & will be able to identify such components.

6] Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & significance of various media used to reduce skin resistance.

7] Acquire knowledge of various superficial thermal agents such as Paraffin wax bath, Cryotherapy, home made remedies, etc; their physiological & therapeutic effects, Merits / demerits; & also acquire the skill of application.

Syllabus:

1] Fundamentals of Low frequency currents –

i] production of electricity, mains supply,

ii] A.C. currents & Faradic type current

iii] D.C. currents – Types – fundamentals of electrical charges, static electricity- physic of direct currents Ohm's law Conductors-Capacitors-Rheostats-Potentiometers-ammeters-oscilloscopes,

iv] types of electrodes galvanic skin resistance – electrode –gels- types significance

2] Fundamentals of High frequency currents –

i] Magnetism, E.M.F. Conduction – Lenz's Law- transformers -types,

ii] Thermonic valves,

iii] Semi – conductors – types -Transistors

iv] Electronic circuits –oscillators,, - pulse generators

3] E.M. spectrum – Laws of transmission reflection – refraction – absorption – attenuation.

4] Cellular Bio-physics – reception & emission of E.M.F. signals

5] Environmental currents & fields risk factors on prolonged exposure to E.M. field.

6] Production, Physical principles, Panel diagram, Testing of apparatus – S.W.D. Ultra sound, U.V.R., I.F.T. / Beat frequency currents, I.R. LASER (no panel diagram)

7] Therapeutic continuous / interrupted Direct currents & their various wave forms, A.C. current

8] Bio-physics of Superficial heat & cold – Physiological effects –Therapeutic effects / uses – Merits / demerits, Indications / contra-indications-skills of application-

i] Home remedies,

ii] Paraffin wax bath

iii] whirl pool,

iv] contrast bath

v] Hydro-collator hot packs / cold packs,

vi] Cry therapy

PRACTICALS

1] Panel diagrams – Identification of components – Testing the mains supply & Machines

2] Skills of application of thermal agents

TEXT BOOKS

1. Clayton 1s Electro therapy – 3rd & 10th ed,
2. Electro therapy explained – by Low & Read
3. Electro Therapy – by Kahn
4. Basics of Electrotherapy – Dr. Subhash Khatri

REFERENCE BOOK –

Clinical Electro Therapy – by Nelson & Currier.

SCHEME OF EXAMINATION

Theory – 80 marks. **I.A. – 20 Marks**;

Theory – model question paper – [80 marks]

Section A-MCQ-

Q-1] based on Single best answer [20 x 1] ---------- 20 marks

Section B-SAQ

Q-2] to answer any FIVE out of six --- [5 x 3] ---------- 15 marks

Q-3] to answer any THREE out of Four [3 x 5] ---------- 15 marks

Section C-LAQ

Q-4] based on superficial Thermal agents ---------- 15 marks

* Q-5] ---------- 15 marks

OR

* Q-6] ---------- 15 marks

*To avoid any question based on Psychomotor area

PRACTICAL - PRACTICAL – 80 MARKS +, I.A. – 20 MARKS TOTAL = 100 MARKS

1] Long case based on Superficial thermal agent ---------- 35 marks

[Cognitive – Medical electronic area/ Physiological –Biophysical principles / therapeutic effects / Indications – contraindications] ---------- [20 marks]

+ [Psychomotor + Affective skills] ----------[15 marks]

2] Spots

A] Identification of Electronic component & give one use with example OR panel Diagram ---FOUR spots [5 minutes per spot] (4 x 5) ---------- [20 marks]

B] testing of equipment TWO spot (10 x2) [10 minutes] ---------- [20 marks]

Journal ---------- [05 marks]

I

NTERNAL ASSESSMENT ---------- 20 MARKS

THEORY (20 marks)

Two exams – Terminal and prelim examination of 80 marks each TOTAL -160 marks

Section-A-MCQ-Q-1] - based on Single best answer –[20x 1]---------- 20 marks

Section-B-SAQ -Q-2] - to answer any FIVE out of six—[5 x3] ---------- 15 marks

Q-3] - to answer any THREE out of Four-[3 x 5] ----------15 marks

Section-C-LAQ- Q-4] - based on superficial Thermal agents---------- 15 marks

* Q-5] ---------- 15 marks

OR

* Q-6] ---------- 15 marks

To avoid any question based on psychomotor area

I.A. to be calculated out of 20 marks

PRACTICAL

Two exams – Terminal and prelim examination of 80 marks each TOTAL -160 marks

1. Long Case: - Superficial thermal agents---------- 35 Marks

(Cognitive – medical electronic area / physiological – Biophysical principles/therapeutic effects /

Indications / contraindications) ---------- 20 marks

(Psychomotor + affective skills) ---------- 15 marks

2. Spots ---------- 40 marks

a) Identification of electronic component and give 1 use with example or panel diagram(4 spots, 5 min per spots) (4 x 5 = 20 marks)

b) Testing of equipment – 2 spots (10 minutes) (2 x 10 = 20 marks)

3. Journal ---------- 5Marks

I.A. to be calculated out of 20 marks

INTERNAL ASSESSMENT IN PRACTICAL ---------- 20 marks

SCEME OF EXAMINATION – OF Ist B.P.Th

Subject	Theory	I.A.	Total	Practical	I.A.	Total
ANATOMY	80	20	100	80	20	100
PHYSIOLOGY	80	20	100	80	20	100
BIOCHEMISTRY	40	10	50	--	---	----
FUNDAMENTALS OF EXERCISE THERAPY	80	20	100	80	20	100
FUNDAMENTALS OF ELECTRO THERAPY	80	20	100	80	20	100

HUMAN ANATOMY

[235 HRS]

Didactic – 160 HRS – Practical / Laboratory – 75 hrs

Goal – To provide the student with the necessary Anatomical knowledge & skills to practice as a qualified Physiotherapist

Objectives-

1] MUSCULO – SKELETAL –

i) The student should be able to identify & Describe Anatomical aspects of muscle bones & joints, & to understand and Analyze movements.

ii) To understand the Anatomical basis of various clinical conditions e.g. trauma, deformities, pertaining to limbs & spine.

v) To be able to localize various surface land-marks;

vi) To understand & describe the mechanism of posture & gait the Anatomical basis of abnormal gait.

2] In NEURO – Anatomy –

i) to identify & describe various parts of C.N.S. – fore – brain, Midbrain, Hind-brain Brain stem, courses of cranial nerves; functional components, course distribution. Anatomical bases of clinical lesions:

ii) to describe the source & course of spinal tracts;

v) to describe blood circulation of C.N.S. & spine;

vi) be able to identify the components of various Trans –sections.

3] THORAX – to identify & describe various components of the contents of the Thorax – with special emphasis to tracheo-bronchial tree, & cardio – pulmonary system.

4] CIRCULATORY – I) be able to identify & describe the source & course of major arterial venous & Lymphatic system, with special emphasis to extremities, Spine & Thora

5] PSYCHO-MOTOR –

i) to be able to demonstrate the movements of various joints –

ii) distinguish cranial & peripheral nerves

iii) distinguish major arteries, veins & Lymphatics with special emphases to extremities, & spine.

Syllabus –

1] GENERAL Anatomy ---------- 07 hours

Including Histology – Basic tissues like epithelial, Connective, muscular, nervous, system.

2] MUSCULO SKELETAL Anatomy [dissection / prosection mandatory]

i) superior extremity with shoulder girdle ---------- 20 hours
ii) Inferior extremity with pelvic girdle & pelvic floor muscles ------- 20 hours
iii) spine, head & neck ---------- 10 hours
iv) facial muscles & T.M. joint ---------- 5 hours
v) Surface Anatomy ---------- 5 hours

3] NEURO –Anatomy ---------- 45 hours

i) General organization of C.N.S.
ii) Cranial nerves
iii) peripheral nervous system
iv) C.N.S.

4] SYSTEMIC ANATOMY –

xii. Elementary system ---------- 5 hrs
xiii. Uro –genital system [special emphasis to Female organs] ---------- 5 hrs
xiv. Micro – Anatomy (cartilage, bone, nerve, muscle) ---------- 5 hrs
xv. Cardio – vascular [including Lymphatic] ---------- 6 hrs
xvi. Respiratory system ---------- 5 hrs
xvii. Neuro – muscular junction ---------- 2 hrs
xviii. Axial skeletal ---------- 3 hrs
xix. Appendicular system ---------- 5 hrs
xx. Sensory organs ---------- 6 hrs
xxi. Endocrine ---------- 2 hrs
xxii. Radiological ---------- 4 hrs

Total – 160 hours

5] PRACTICAL :

i) to be able to demonstrate the movements of various joints – (33 hrs)
ii) distinguish cranial & peripheral nerves (30 hrs)
iii) distinguish major arteries, veins & Lymphatics with special emphases to extremities, & spine. (12 hrs)

TEXT BOOKS

5. Human Anatomy – by Snell
6. Anatomy by Chaurasia all 3 volumes
7. Neuro anatomy by Inderbir Singh
8. Human Anatomy by Kadasne (All three volumes)