

Detailed Syllabus B.P.T 1st Year

(Total Theory + Practical/Clinical = 1000 hours)

Paper – I ANATOMY

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 130, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section-I General Introduction: 15 Hrs

1. Histology – Theory & microscopic sections of loose connective tissue, dense connective tissue (tendons & ligamentum nuchae), epithelium, areolar tissue, adipose tissue, hyaline, elastic & fibrous cartilage, compact & spongy bone, bone marrow, skeletal, smooth & cardiac muscle, nerve, lymph node etc.
2. Osteology – Theory of structure, function, growth, fracture & repair of bones. Physical study of all bones in the body. Also general features & functions of cartilage, tendon, ligament, articular capsule, synovial membranes, bursae, menisci, intra-articular cartilages. Classification of joints with their examples & specific features.
3. General Embryology –Development of muscles, bones, joints & nerves etc.

Section – II Systems of the Human Body: 40 Hrs

1. Cardio-Vascular System – Description of Arteries, capillaries, veins on a regional basis. Heart, lymphatic system.
2. Respiratory System – Anatomy of upper & lower respiratory tract including nose, larynx, trachea, bronchi, pleura & lungs. Also, muscles of normal & forced respiration. Description of intercostal spaces with surface markings.
3. Digestive System - Anatomy of the gastro intestinal tract with special emphasis on surface marking.
4. Urogenital System - Anatomy of Urinary System, male and female reproductive systems.
5. Endocrine System - The various endocrine glands with their structure, functions and neuro-regulation. Also role of hypothalamus.
6. Integumentary System

Section – III Neuro-anatomy: Microscopic and gross study of :
20 Hrs

- | | |
|-------------------------------|---------------------------------------|
| 1. Peripheral Nerves | 2. Neuromuscular Junction |
| 3. Sensory End Organs | 4. Spinal Cord Segments & Areas. |
| 5. Brainstem | 6. Cerebellum |
| 7. Inferior colliculi | 8. Superior Colliculi |
| 9. Diencephalon | 10. Hypothalamus |
| 11. Epithalamus | 12. Thalamus |
| 13. Cerebral hemispheres | 14. Corpus striatum |
| 15. Rhinencephalon | 16. Lateral Ventricles |
| 17. Meninges | 18. Blood supply of the brain |
| 19. Internal Capsule | 20. Visual radiation |
| 21. Auditory radiation | 22. Thalamocortical radiations |
| 23. Pyramidal systems | 24. Extra - pyramidal systems |
| 25. Anatomic integration | 26. Intra - cortical integration |
| 27. Sympathetic system | 28. Para-sympathetic system |
| 29. Cranial nerves | |

Section – IV Musculo Skeletal System 40 Hrs

(A) Myology:

1. The fascia and muscles of upper limb.
2. The fascia and muscles of lower limb.
3. The fascia and muscles of trunk.
4. The fascia and muscles of head, neck and face.
5. Muscles of eye.

(B) Osteology & Arthrology:

1. General structure and classification of all bones of skeleton and their attachments.
2. Classification of joints.
3. Movements of Joints.
4. Factors permitting and limiting movements of joints.
5. Joints of Upper Limb.
6. Joints of Lower Limb.
7. Shoulder girdle
8. Pelvic Girdle
9. Joints of Head & Neck and T.M Joints.
10. Joints of Trunk.

**7. Section – V Surface & Radiological Anatomy: 15 Hrs Surface Anatomy of the body.
Radiographic appearance of Musculo skeletal system of Upper limb, Lower-limb & Spine.**

Anatomy Practical

1. Surface Anatomy: To study, identify and mark the surface land marks on human Body.
2. To study the muscles of trunk, lower and upper extremities and face on a dissected human body.
3. To study the Bones of Human Body with special emphasis on origin and insertion of muscles & ligaments.
4. To study the anatomy of joints of upper and lower extremities and vertebral column on a dissected human body.
5. To study the anatomy of C.N.S. and P.N.S. on a dissected human body.
6. To study the gross anatomy of Respiratory, Digestive, Endocrine, Urinary and Genital system on a dissected human body.

Books Suggested:

1. Inderbir Singh, Textbook of Anatomy with colour Atlas - Vol.1,2,3. Jaypee Brothers.
2. B.D.Chaurasia, Human Anatomy - Volume 1,2,3, CBS Publishers & Distributors.
3. Meminn's Last's Anatomy - Regional and applied, Churchill Livingstone.
4. Meminn, et al- A Colour Atlas of Human Anatomy, Mosby.
5. Conningham Manual of Practical Anatomy Vol. I,II,III, Churchill. Livingstone....
6. Inderbir Singh, A Textbook on Human Neuro Anatomy, Jaypee Brothers.
7. Snell - Clinical Anatomy - Lippincott.
8. Williams & Warwick, Gray's Anatomy - Churchill Livingstone.

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 120, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section – I General Introduction: 20 Hrs

1. Cell Introduction: Outline of basic concepts of cell structure, functions of components and transport across membranes.
2. Skin: Functions, blood of flow and temperature regulation.
3. Blood and Lymph: Cell renewal system, haemoglobin, erythrocyte granulocyte, lymphocyte, coagulation, regulation of hydrogen within concentration of body fluids, fluid distribution and exchange.

Section – II Physiology of the system of the body: 45 Hrs

1. Digestion: Control of food and water intake and secretion and absorption movements of the alimentary canal.
2. Circulation: Cardio-vascular system, mechanical and electro-physiological activity of the heart, regulation of heart, coronary circulation, haemodynamics, circulation through brain, skin and skeletal muscle.
3. Excretion: Renal functions including formation of Urine & Micturition.
4. Respiration: Respiratory gases, pulmonary gas exchange, control and mechanics of breathing, hypoxia, asphyxia, dyspnoea, oxygen therapy and resuscitation.
5. Endocrine System: Outline of various hormones and their actions, pituitary gland, thyroid, parathyroid, adrenal glands & Gonads.
6. General Metabolism: Carbohydrate, Protein & Fat Metabolism.

20 Hrs

- ## Section – IV Muscle Physiology:

15 Hrs

- Section – V Physiology of exercise and work: 20 Hrs**

- ## PHYSIOLOGY PRACTICAL

Identification of blood cells and different counts.

1. W.B.C. Count.
2. R.B.C. Count.
3. Haemoglobin percentage and color index.
4. E.S.R. and Blood groups.
5. Bleeding time and clotting time.
6. Respiratory efficiency tests.
7. Artificial respiration and C.P.R.

8. Pulse rate, heart rate and measurement of Blood Pressure.
9. Respiratory rate and Auscultation.
10. Normal E.C.G.
11. Reflexes - Superficial Deep.
12. Sensations.
13. Tests for functions of Cerebrum.

Tests for functions of Cerebellum

Books Suggested:

1. Textbook of Medical Physiology - Arthur Guyton (Mosby.)
2. Text book of Physiology - Anand & Manchanda, Tata McGraw Hill.
3. Human Physiology - Vol. I & 2, Chatterjee, CC, Calcutta, Medical Allied.
4. Concise Medical Physiology- Chaudhari, S.K., New Central Agency, Calcutta.
5. Principles of Anatomy and Physiology- Tortora & Grabowski – Harper Collins.
6. Textbook of Practical Physiology - Gai- Jaypee

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess.=Total 100

Teaching hours: Theory = 50

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Section B:

Same as in Section A.

1. Biophysics: Concepts of pH and buffers, acid base equilibrium osmotic pressure and its physiological applications. **2 Hrs**
2. Cell: Morphology, structure & functions of cell, cell membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosomes. **2 Hrs**
3. Carbohydrates: Definition, functions, sources, classifications, Monosaccharides, Disaccharides, Polysaccharides, mucopolysaccharide and its importance. **2 Hrs**
4. Lipids: Definition, function, sources, classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acid. Essential fatty acids and their importance, Blood lipids and their implications, cholesterol and its importance. **2 Hrs**
5. Proteins Definition, sources, classification, simple protein conjugated protein, derived proteins and its, properties. **2 Hrs**
6. Nucleic acid: Structure and function of DNA and RNA, Nucleosides, nucleotides, Genetic code, biologically important nucleotides. **3 Hrs**
7. Enzymes: Definitions, classification, mode of action, factor affecting enzyme action, clinical importance of enzyme. **2 Hrs**
8. Vitamins: Classification, fat soluble vitamins, A,D,E & K, water soluble vit. B complex & C, Daily Requirements, Physiological functions and diseases of Vitamin deficiency.

3 Hrs

9. Bioenergetics: Concept of free energy charge, Exergenic and endogenic reaction, concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.

3 Hrs

10. Carbohydrate Metabolism: Glycolysis, HMP shunt pathway, TCA cycle, glyconogenesis, Gluconogenesis, Maintenance of Blood Glucose. **4 Hrs**

11. Lipid Metabolism: Fatty acid oxidation, Fatty acid synthesis, Metabolism of Cholesterol, Ketone bodies, Atherosclerosis and obesity. **4 Hrs**

12. Protein Metabolism: Transamination, Transmethylation, Deamination, Fate of ammonia, urea synthesis and synthesis of creatine, inborn errors of metabolism. **4 Hrs**

13. Water and Electrolyte Fluid compartment, daily intake and output sodium and potassium metabolism. **3 Hrs**

14. Nutrition: Balance, diet metabolism in exercise and injury, Diet for Chronically ill and terminally ill patients. **5 Hrs**

15. Connective tissue: Mucopolysaccharide connective tissue proteins, glycoprotein, chemistry and Metabolism of bone. **2 Hrs**

16. Nerve tissue: Composition, metabolism, chemical mediators of Nerve activity. **2 Hrs**

17. Hormones: General characteristics and mechanism of Hormone action insulin, glucagone Thyroid and Parathyroid hormones, cortical & sex hormones. **3 Hrs**

18. Isotopes: Isotopes and their role in treatment and diagnosis of diseases. **2 Hrs**

Books Suggested:

1. Medical Biochemistry for Physiotherapy students- Harpreet Kaur-- Jaypee Brothers.
2. Textbook of Biochemistry - Chatterjee M.N. - Jaypee Brothers.
3. Textbook of Biochemistry for Medical Students - Vasudevan D.M. - Jaypee Brothers.
4. Clinical Biochemistry - Metabolic & Clinical aspects - Marshall & Bangert Churchill Livingstone.
5. Biochemistry by Southerland - Churchill Livingstone

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

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Section B:

Same as in Section A.

Section-I Physical Principles: 20 Hrs

Structure and Properties - of matter - solids, liquids and gases, adhesion, surface tension; viscosity, density and elasticity.

Structure of atom, molecules, elements and compounds.

Election theory, static and current electricity.

Conductors, Insulators, Potential difference, Resistance & Intensity.

Ohm's Law - Its application to AC & DC currents.

- a) Rectifying Devices - Thermionic Valves, Semiconductors; Transisters, Amplifiers, Transducers Oscillator circuits.
- b) Capacitance, condensers in DC and AC circuits.
- c) Display devices & indicators - analogue & digital.

Effects of Current Electricity:

1. Chemical effects - Ions and electrolytes, Ionisation, Production of a E M.F. by chemical action.

2. Ultra - violet rays (UVR):

- a. Wavelength, frequency, types & sources of UVR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
- b. Dosimetry of UVR.

**Section-VI Superficial heat - Paraffin wax bath, moist heat, electrical heating pads
10 Hrs**

- a) Mechanism of production.
- b) Mode of heat transfer.
- c) Physiological & therapeutic effects.

Indications, contraindications, precautions, operational skills of equipment & patient preparation.

Electrotherapy – I (Practical)

- 1. To study the basic operation of electric supply to the equipment & safety devices.
- 2. To experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
- 3. To locate and stimulate different motor points region wise, including the upper & lower limb, trunk free.
- 4. Therapeutic application of different low frequency currents Faradic foot bath, Faradism under pressure, Ionotophoresis.
- 5. To study the reactions of degeneration of nerves, to plot strength duration curves.
- 6. To find Chronaxie and Rheobase.
- 7. To study a hydro collator unit, its operations and therapeutic application of Hot packs - region wise.
- 8. To study the various types of Infrared lamps and their application to body region wise.
- 9. To study a paraffin wax bath unit, its operation and different methods of application - regions wise.
- 10. To study the different types of Ultra violet units, their operation, assessment of test dose and application of U.V.R. - region wise.
- 11. To study a TENS Stimulator, its operation and application - region wise.

Books Suggested:

- 1. Electrotherapy Explained: Principles & Practice - Low & Reed - Butterworth Heinemann.
- 2. Clayton's Electrotherapy, (9th edi.) Forster & Palastanga Bailliere Tindall.
- 3. Therapeutic Heat and Cold - Lehmann - Williams & Wilkins.
- 4. Principles and Practice of Electrotherapy - Kahn - Churchill Livingstone.
- 5. Textbook of Electrotherapy – Jagmohan Singh - JAYPEE Bros, New Delhi

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

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Section B:

Same as in Section A.

Section-I

40 Hrs

Introduction to Exercise therapy, Principles, techniques and general areas of its application, Assessment & its importance.

Description of Fundamental starting positions and derives position including joint positions, muscle work, stability, effects and uses.

Introduction to Movements including analysis of joint motion, and muscle work.

Classification of movements - Describe the types, technique of application, indications, contraindication, effects and uses of the following:

a) Active movement

b) Passive movement

c) Active assisted movement

d) Resisted movement

e) To study the principles, techniques of application indication, precaution, effects and uses of Suspension Therapy.

Section – II Manual Muscle Testing 10 Hrs

- a) Principles and application techniques of Manual muscle testing.
- b) Testing position, procedure and grading of muscles of the upper limb, lower limb and trunk etc.

Section – III Goniometry 10 Hrs

Goniometers and its types

- a) Principles, techniques and application of Goniometry.
- b) Testing position, procedure and measurement of R.O.M. of the joints of upper limbs, lower limbs and trunk.

**Section - IV Soft Tissue Manipulation (Therapeutic Massage)
20 Hrs**

- a) History, various types of soft tissue manipulation techniques.
- b) Physiological effects of soft tissue manipulation on the following systems of the body, Circulatory, Nervous, Musculoskeletal, Excretory, Respiratory, Integumentary system and Metabolism.
- c) Classify, define and describe: - effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.
- a.) Preparation of patient: Effects, uses, indications and contraindications of the above manipulation.

Section - V Motor Learning 10 Hrs

- I. Introduction to motor learning
 - i. Classification of motor skills.
 - ii. Measurement of motor performance.
- II. Introduction to motor control
 - i. Theories of motor control.
 - ii. Applications.
- III. Learning Environment
 - i. Learning of Skill.
 - ii. Instruction & augmented feed back.
 - iii. Practice conditions.

Section – VI Relaxation & Therapeutic Gymnasium 10 Hrs

Relaxation:

- 1. Describe relaxation, muscle fatigue, muscle spasm and tension (mental & physical)
- 2. Factors contributing to fatigue & tension
- 3. Techniques of relaxation (local and general)
- 4. Effects, uses and clinical application
- 5. Indication & contraindication.

Therapeutic Gymnasium

- I. Setup of a gymnasium & its importance.
- II. Various equipment in the gymnasium.
Operational skills, effects & uses of each equipment.

Exercise Therapy Practical

1. To practice all the soft tissue manipulative techniques region wise - upper limb, lower limb, neck, back and face.
2. To practice the measurement of ROM of joints - upper limb, lower limb & trunk.
3. To practice the grading of muscle strength region wise - upper limb, lower limb and trunk.
4. To study the position of joints, muscle work and stability of various fundamental and derived positions.
5. To study the different types of muscle contraction, muscle work, group action of muscles and co-coordinated movements. .
6. To practice the various types of suspension therapy and its application on various parts of body - region wise.
7. To study & practice local & general relaxation techniques.
8. To study the structure & function alongwith application of various equipment in a gymnasium.

Books Suggested:

1. Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
2. Therapeutic Exercise - Basmajian - Williams and Wilkins.
3. Therapeutic Exercises Foundations and Techniques - Kisner and Colby. F.A. Davis.
4. Proprioceptive Neuromuscular Facilitation - Voss et al - Williams and Wilkins.
5. Principle of Exercise therapy - Gardiner - C.B.S. Delhi.
6. Beard's Massage - Wood - W.B. Saunders.
7. Motor Control: Theory and Practical Applications Shumway - Cook & Wallcott - Lippincott.
8. Hydrotherapy, Principles and Practices - Campion - Butterworth Heinmann.
9. Muscle testing and functions - Kendall - Williams & Wilkins.
10. Daniels and Worthingham's - Muscle testing - Hislop & Montgomery - W.B. Saunder.
11. Measurement of Joint Motion: A Guide to Goniometry - Norkins & White F.A. Davis.

Note : Only Practical examination will be conducted for this paper.

- To study the various components of a personnel computer.
- To have working knowledge of various hardwares and softwares.
- To have working knowledge of Common Operating Systems.
- To practice the operational skills of common computer applications, including word processing and spread sheet software.
- To have a basic knowledge of utility of multi-media.
- To learn skills of web surfing – For literature, researches relevant to the field of medicine.

Paper- VII English (Theory)

M. Marks: 50 (Theory)

Teaching Hours – 50 hours

Course Description : The Course is designed to enable students to enhance ability to comprehend spoken and written English (and use English) required for effective communication in their professional work. Students will practice their skills in verbal and written English during clinical and classroom experiences.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment methods
I.	10	• Speak and write grammatically correct English	• Review of Grammar • Remedial study of Grammar • Building Vocabulary • Phonetics • Public Speaking	• Demonstrate use of dictionary • Class-room conversation • Exercise on use of Grammar • Practice in public speaking	• Objective Type • Fill in the blanks • Para Phrasing.
II.	10	• Develop ability to read, understand and express meaningfully, the prescribed text.	• Read and comprehend passages. • Note Making	• Exercise on : – Reading – Summarizing – Comprehension	• Short Answers • Essay Types
III	10	• Develop writing skills	• Various forms of composition – Letter writing – Precise writing – Notice writing – Anecdotal records – Dairy writing – Report on health problems etc. – Resume / CV – Advertisements – Article writing	• Exercise on writing : – Letter writing – Precis – Diary – Health problems – Story writing – Resume / CV – Discussion on written reports / documents.	• Assessment of the skills based on the check list
IV	10	• Develop skill in spoken English	• Spoken English – Oral report – Discussion – Debate – Telephonic conversation	• Exercise on : – Debating – Participating in Seminar, Panel, symposium – Telephonic conversation	• Assessment of the skills based on the check list.
V	10	• Develop skill in listening comprehension	• Listening Comprehension – Media, audio, video, speeches etc.	• Exercise on :– Listening to audio, video, tapes and identify the key points.	• Assessment of the skills based on the check list.

Detailed Syllabus

BPT Second Year

(Total Theory + Practical/Clinical = 1000 hours)

Paper – I Pathology & Microbiology

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Total Teaching hours: Theory = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A: PATHOLOGY

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

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Section B: MICROBIOLOGY

Same as in Section A.

SECTION I PATHOLOGY

Teaching Hours: 60 Hrs

1. Introduction : Concepts of diseases, classification of lesions.
2. Bacterial, viral and parasitic infections – a general outline.
3. Inflammation and repair, degeneration, necrosis and gangrene.
4. Haemorrhage, shock, embolism, thrombosis.
5. Tuberculosis, Leprosy, Typhoid.
6. Deficiency diseases.
7. Tumours : Etiology & spread, common tumours.
8. Blood : Anaemia, Heart and blood vessels common congenital anomalies, Rheumatic & Coronary heart diseases.

9. Respiratory System : Pneumonias, Bronchiectasis, Emphysema, Chronic, bronchitis, Asthma.
10. Bone and Joints : Autoimmune diseases, septic arthritis, Osteomyelitis.
11. Skin : Leprosy.
12. Urinary System.
13. Central nervous system : CNS infections, vascular disorders.
14. Scleroderma Arthritis.
15. Scleroderma and Psoriasis.
16. Diseases of muscle including poliomyelitis, Myopathies.
17. Volkmann's Ischaemia

Section II Microbiology

Teaching Hours: 40 Hrs

1. Introduction and history of microbiology.
2. Micro-organisms.
 - (a) Classification
 - (b) Shape and arrangement.
 - (c) Special characteristics – spores, capsules, enzymes, motility, reproduction.
3. Disinfection and antiseptics.
4. Sterilization and asepsis.
5. Antibacterial agents - fundamental aspect, susceptibility tests.
6. Infection – source of infection, portals of entry, spread of infection.
7. Non-specific immunity.
8. Immunity – natural and acquired.
9. Allergy and hypersensitivity.
10. Outline of common pathogenic bacteria and diseases produced by them. Treatment and prevention.
 - (i) Respiratory tract infections.
 - (ii) Meningitis.
 - (iii) Enteric infections.
 - (iv) Anaerobic infections.
 - (v) Urinary tract infections.

- (vi) Leprosy, tuberculosis and miscellaneous infections.
 - (vii) Wound infections.
 - (viii) Sexually transmitted diseases.
 - (ix) Hospital acquired infections.
11. Pathogenic yeast's and fungi
 12. Virology – Virus infections with special mention of Hepatitis, Poliomyelitis and Rabbits.

Books Suggested:

1. Robbins Pathological Basis of Disease – Cotran, Kumar & Robbins – W.B. Saunders.
2. General Pathology – Walter & Israel – Churchill Livingstone.
3. Muir's Textbook of Pathology – Anderson – Edward Arnold Ltd.
4. Textbook of Pathology – Harsh Mohan – Jaypee Brothers.
5. Pathology : Implications for Physical Therapists – Godmann and Boissonault – W.B. Saunders.
6. Essential of Medical Microbiology – Bhatia & Lal – Jaypee Brothers.
7. Medical Microbiology – Mims – Jaypee Brothers.
8. Microbiology : An Introduction for the Health Science – Ackerman and Richards – W.B. Saunders Co.

Paper – B Pharmacology

Time: 3 Hrs.
hours: Theory = 50

Theory: 40+ 10 Int. Assess. = 50

Teaching

Note: The question paper covering the entire course shall be divided into one section.

SECTION – Basic Pharmacology

Teaching Hours: 50 Hrs

1. General action of drugs.
2. Drug allergy and idiosyncrasy
3. Drug toxicity.
4. Metabolic fate of drug.
5. Methods of administration.
6. Chemical character of drugs.
7. Common Drugs acting on Central nervous system, Peripheral nervous system, Neuromuscular junction and muscles.
8. Common Drugs acting on cardio-respiratory system.
9. Common Antibiotics & Chemotherapeutic agents.
10. Hormones, Vitamins and drugs affecting endocrine functions.

Books Suggested:

1. Pharmacology and Pharmacotherapeutics – R.S. Satoskar – Popular Publications, Bombay.
2. The Pharmacologic Principles of Medical Practice – Krantg & Jelleff – Calcutta Scientific Book Agency.
3. Pharmacology – Praseem K. Das. – Churchill Livingstone.
4. Essential of Medical Pharmacology – K.D. Tripathi – Jaypee Brothers.

Paper – III Electrotherapy – II

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 150, Practical = 150

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Section B:

Same as in Section A.

SECTION – I

30Hrs

1. Review of Neuro – muscular Physiology including effects of electrical stimulation.
2. Physiological responses to heat gain or loss on various tissues of the body.
3. Therapeutic effects of heat, cold and electrical currents.
4. Physical principles of Electro-magnetic radiation.
5. Physics of sound including characteristics and propagation.

Section II

60Hrs

1. High frequency currents (S.W.D. & M.W.D.) – Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
2. Medium frequency currents (Interferential therapy) – Conceptual framework of medium frequency current therapy, production, biophysical effects, types, therapeutic effects, techniques

of application, indications, contraindications, precautions, operational skills and patient preparation.

3. High frequency sound waves (Ultrasound) – Production, biophysical effects, types therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.

Section III

40Hrs

1. Therapeutic light in Physiotherapy (LASER) – Definition, historical background, physical principles, biophysical effects, types, production, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
2. Therapeutic cold (Cryotherapy) - Sources, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, application technique and patient preparation.
3. Therapeutic mechanical effects, indications, contraindications, precautions, operational skills and patient preparation.

Section IV

20Hrs

1. Electro-diagnosis – Instrumentation, definition & basic techniques of E.M.F. and E.N.G.
2. Bio-feedback – Instrumentation, principles, therapeutic effects, indications, contraindications, limitations, precautions, operational skills and patient preparation.

ELECTROTHERAPY – II (PRACTICAL)

1. To study a short wave diathermy unit, its operation and different methods of application - regionwise.
2. To study a Micro wave diathermy unit, its operation and different methods of application – regionwise.
3. To study an Ultrasound unit, its operation and different methods of application – regionwise.
4. To study a Laser unit, its operation and different methods of application – region wise.
5. To study various forms of therapeutic cold application region wise including – ice, cold packs, vapour coolant sprays etc.
6. To study a Intermittent therapy unit, its operation and different methods of application – regionwise.
7. To study a Inteferential pneumatic therapy unit, its operation and different methods of application – regionwise.
8. To observe various Electro – myography (EMG) procedures.
9. To observe various Electro – neurography (ENG) procedures.
10. To study a Bio feedback unit, its operation and different methods of application – regionwise.

Books Suggested:

1. Electrotherapy Explained : Principles & Practice Low & Reed – Butterworth Heinmann.
2. Clayton's Electrotherapy (10th Edition) – Kitchen & Bazin – W.B. Saunders.
3. Therapeutic Heat and Cold Lehmann – Williams and Wilkins.
4. Principles and Practice of Electrotherapy – Kahn – Churchill Livingstone.
5. Electrotherapy : Clinics in Physical Therapy – Wolf – Churchill Livingstone
6. Step by Step Practical Electrotherapy – Jagmohan Singh - JAYPEE Bros, New Delhi.

Paper –IV Exercise Therapy – II

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 150, Practical = 150

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section – I

Therapeutic Exercise: 50 Hrs

1. Principle, Classification, techniques, physiological & therapeutic effects, indications & contraindications of therapeutic exercises. Also, study aerobic and anaerobic exercises.
2. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise programme.
3. Joint Mobility – Etiogenesis of joint stiffness, general techniques of mobilization, effects, indications, contraindications & precautions.
4. Muscle Insufficiency – Etiogenesis of muscle insufficiency (Strength, tone, power, endurance & volume), general techniques of strengthening effects, indication, contraindications & precautions.

5. Neuromuscular Inco-ordination: Normal neuromuscular coordination, Etiogenesis of neuromuscular incoordination & general therapeutic techniques, effects, indication, contraindications & precautions.
6. Functional re-education – General therapeutic techniques to re-educate ADL function.

Section – II

Posture, Balance Gait

30Hrs

Normal Posture -= Overview of the mechanism of normal posture

Abnormal Posture – Assessment. Types. Etiogenesis. Management. Including, therapeutic exercises.

Static and Dynamic Balance – Assessment & management including therapeutic exercises.

Gait-Overview of normal gait & its components.

Gait deviations – Assessment types, etiogenesis, management, including therapeutic exercises.

Types of walking aids, indications, efforts and various training techniques.

Section – III

Hydrotherapy

10Hrs

1. Basic Principles of fluid mechanics as they relate to hydrotherapy.
2. Physiological & therapeutic effects of hydrotherapy including joint mobility muscle strengthening & wound care etc.
3. Types of Hydrotherapy equipment, indications, contraindications, operation skills & patient preparation.

Section – IV

Special Techniques:

60Hrs

1. Introduction to special mobilization & manipulation techniques, effects, indications & contraindications.
2. Conceptual framework, principle of proprioceptive neuromuscular facilitation (PNF) techniques, including indications, therapeutic effects and precautions.
3. Principles of traction, Physiological & therapeutic effects classification, types, indications, contraindications, techniques of application, operational skills & precautions.
4. Review normal breathing mechanism types techniques, indications, contraindications, therapeutic effects & precaution of breathing exercises.
5. Group Therapy – Types advantages & disadvantages.
6. Exercises for the normal person =- Importance and effects of exercise to maintain optimal health & its role in the prevention of diseases. Types, advantages disadvantages, indications, contraindications & precautions for all age groups.
7. Introduction to Yoga – Conceptual framework, various “asanas” the body – mind relationship, effects & precautions.

Exercise Therapy – II (Practical)

1. To practice assessment & evaluative & evaluative procedures, including motor, sensory, neuromotor co-ordination, vital capacity, limb length & higher functions.
2. To study & practice the various techniques of mobilization of joints region wise.
3. To study & Practice the various techniques of progressive strengthening exercises of muscles region wise.
4. To study & Practise the use of various ambulation aids in gait training.
5. To assess & evaluate ADL's and practice various training techniques.
6. To study & practice mat exercises.
7. To assess & evaluate normal & abnormal posture & practice various corrective techniques.
8. To assess & evaluate equilibrium/ balance & practice various techniques to improve balance.
9. To study the structure & functions of hydrotherapy equipments & their applications.
10. To study & practice various traction techniques, including manual, mechanical & electrical procedures.
11. To study & practice various group exercise therapies.
12. To practice & experience effects of basic Yoga “asanas”.
13. To study, plan & Practice exercise programmes for normal persons of various age groups.

Books Suggested:

1. Practical Exercise Therapy – Hollis- Blackwell Scientific Publications.
2. Therapeutic Exercises – Basmajian – William & Wilkins.
3. Therapeutic Exercise Foundations and Techniques Kisner & Colby – F.A. Davis
4. Proprioceptive Neuromuscular Facilitation – Voss et al – William and Wilkins.
5. Principle of Exercise Therapy – Gardiner- C.B.S. Delhi.

6. Orthopaedics Physical Therapy – Woods- Churchill Livingstone.
7. Manipulation and Mobilisation extremities and spinal techniques- Edmond- Mosby.
8. Aquatic Exercise Therapy- Bates and Hanson – W.B. Saunders.
9. Manual examination and treatment of spine and extremities- Wadsworth- Lippincott.
10. Hydrotherapy: Principles and Practise- Campion – Butterworth Heinmann.

Paper –V Biomechanics

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practicals: 40+ 10 Int. Assess. = 50

Teaching hours: Theory = 75 Hrs Practicals = 75 Hrs

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section – I Mechanics

10Hrs

- a) Introduction to mechanics including motion, forces, parallel forces system.
- b) Newton's law of motion, concurrent force systems – composition forces, muscle action line etc.
- c) Centre of Gravity, line of gravity, stability and equilibrium.
- d) Introduction of Bio-Mechanics and terminology.

Section – II Joint Structure and Function :

20 Hrs

- a) Basic principles of Joint design and a human joint.
- b) Tissues present in human joint including fibrous tissue, bone cartilage and connective tissue.
- c) Classification of joints.
- d) Joint function, Kinematics chains and range of motion.
- e) Recall anatomy and study the biomechanics of the spine, shoulder girdle, joints of the upper extremity, pelvic girdle and the joints of the lower extremity.

Section – III Muscle Structure and function : 15 Hrs

- a) Mobility and stability functions of muscle.
- b) Elements of muscle structure and its properties.
- c) Types of muscles contractions and muscle work.
- d) Classification of muscles and their functions.
- e) Group action of muscles, Co-ordinated movement.

Section – IV Posture & Gait : 30Hrs

- a) Posture – Definition, factors responsible for posture, relationship of gravity on posture.
- b) Postural imbalance – factors responsible for imbalance in Static and dynamic positions including ergonomics.
- c) Description of Normal gait, determinants of gait, spatio temporal features and analysis.
- d) Gait deviations – Types, Causative factors and analysis.

PRACTICALS TEACHING HOURS 75 HRS
50 MARKS

- 1. To study the effects of forces on objects.
- 2. To find out the C.G. of an object.
- 3. To identify axis and planes of motion at the joints of spine, shoulder, girdle, joints of upper extremity, Pelvic girdle and joints of lower extremity.
- 4. To study the different types of muscle contraction, muscle work, group action of muscles of co-ordinated movements.
- 5. Analysis of Normal posture respect to L.O.G. and the optimal position of joints in Antro-posterior and lateral views.
- 6. Analysis of normal gait and measurement of spatic temporal features.

Books Suggested:

- 1. Joint Structure and Function – A Comprehensive Analysis – Norkins & Levangie – F.A. Davis.
- 2. Measurement of Joint Motion – A Guide to Goniometry – Norkins & White - F.A. Davis.
- 3. Brunnstrom's Clinical Kinesiology – Smith et al – F.A. Davis.

- +6.4. Basic Biomechanics explained – Low & Reed – Butterworth Heinmann.
- 5. Kinesiology : Applied to Pathological Motion – Soderberg Lippincot.

Paper–VI Sociology & Psychology

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Teaching hours: Theory = 100 hours (50+50)

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A: SOCIOLOGY

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B: PSYCHOLOGY

Same as in Section A.

SECTION A: SOCIOLOGY (Teaching Hours= 50)

1. Introduction: Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy.
5 Hrs
2. Sociology & Health: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people. **5 Hrs**
3. Socialization: Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients. **3 Hrs**
4. Social groups: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings. **4 Hrs**
5. Family: Influence of family on human personality, discussion of changes in the functions of a family, influence of family on the individual's health, family and nutrition, the effects of sickness on family, and psychosomatic disease. **4 Hrs**
6. Community: Concept of community, role of rural and urban communities in public health role of community in determining beliefs, practice and home remedies in treatment. **5 Hrs**
7. Culture: Components of culture. Impact of culture on human behaviour, cultural meaning of sickness, response & choice of treatment (role of culture as social consciousness in moulding the perception of reality), culture induced symptoms and disease, sub - culture of medical workers.

4 Hrs

8. Caste system: Features of modern caste system and its trends.
2 Hrs

9. Social change: Meaning of social change, factors of social change, human adaption and social change, social change and stress, social change and deviance, social change and health programmes, the role of social planning in the improvement of health and in rehabilitation.
4 Hrs
10. Social Control: Meaning of social control, role of norms, folkways, customs, morals, religion, law and other means of social control in the regulation of human behaviour, social deviance and disease.
3 Hrs
11. Social Problems of the Disabled: Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems: **5 Hrs**
 - a. Population explosion
 - b. Poverty and unemployment Beggary
 - c. Juvenile delinquency
 - d. Prostitution
 - e. Alcoholism
 - f. Problems of women in employment
12. Social Security: Social security and social legislation in relation to the disabled.
3 Hrs
13. Social Worker: The role of medical social worker. **3 Hrs**

Books Suggested:

1. Megee - Sociology - Drydon Press Illinois
2. Kupuswamy – Social Changes in India - Vikas, Delhi
3. Ahuja - Social Problems - Bookhive, Delhi
4. Ginnsberg - Principles of Sociology - Sterling publications.
5. Parter & Alder - Psychology & Sociology applied to medicine - W.B.Saunders.
6. Julian -Social Problems - Prentice Hall.

Section – B: Psychology (Teaching Hours: 50 Hrs)

General Psychology

1. Definition of Psychology Definition of psychology, information in relation to following schools methods and branches.
 - a) Schools Structuralism, functionalism, behaviourism, psychoanalysis, gestalt psychology
 - b) Methods Introspection, observation, inventory and experimental method.
 - c) Branches General, child, social, abnormal, industrial, clinical,
2. **Heredity and Environmental** : Twins, Relative importance of heredity and environmental, their role in relation to physical characteristics, intelligence and personality, nature - nature controversy.
3. **Development and Growth Behaviour** :- Infancy, childhood, adolescence, adulthood, middle age, old age.
4. **Intelligence** : Definitions, IQ, Mental Age, List of various intelligence tests- WAT, WISC, Bhatia's performance test, Raven's Progressive Matrices test.

5. **Motivation** : Definitions : Motive, drive, incentive and reinforcement, Basic information about primary needs : hunger thirst, sleep, elimination activity, air, avoidance of pain, attitude to sex.

Psychological needs : Information, security, self-esteem, competence, love and hope.
6. **Emotions** : Definitions : Differentiate from feelings, psychological changes of emotion, Role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, Nature and control of anger, fear and anxiety.
7. **Personality** :
 - a) Definitions : List of components : Physical characteristics, character, abilities, temperament, interest and attitudes.
 - b) Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development.
 - c) Basic concepts of Freud : unconscious, conscious, Id, ego and superego, List and define the oral, anal and phallic stages of personality development list and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.
 - d) Personality assessment : interview, standardized, non-standardized. Exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI, projective test Rorschach, TAT and sentence completion test.
8. **Learning** : Definition : List the laws of learning as proposed by Thorndike. Types of learning : Briefly describe, classical conditions, operant conditioning, insight, observation and Trial and Error type list the effective ways to learn : Massed Vs. Spaced, Whole Vs. Part, Recitation Vs. Reading; Serial Vs. Free Recall, knowledge of results, Association Organization, Mnemonic methods, incidental Vs. Intentional learning, role of language.
9. **Thinking** : Definition, concepts, creativity, steps in creative thinking, list of traits of creative people, delusions.
10. **Frustration** : Definition, sources, solution, Conflict ; Approach – approach, Avoidance – avoidance, and approach – avoidance solution.
11. **Sensation, Attention and Perception**.
 - a) List of senses : Vision, Hearing, Olfactory, Gustatory and cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention : nature of stimulus intensity, colour, change, extensity, repetition, movement, size, curiosity, primary motives.
 - b) Define perception and list the principles of perception : Figure ground, constancy, similarity, proximity, closure, continuity values and interest, past experience context, needs, moods, religion, sex and age, perceived susceptibility, perceived seriousness, perceived benefits and socioeconomic status.
 - c) Define illusion and hallucination.

- d) List visual, auditory, cutaneous, gustatory and olfactory hallucination.
12. Democratic and Authoritarian Leadership : Qualities of leadership : Physical factors, intelligence, self-confidence, sociability, will and dominance. Define attitude, Change of attitude by: Additional information, changes in-group- affiliation, enforced modification by law and procedures that affect personality (Psychotherapy, Counseling and religious conversion).
13. Defence Mechanisms of the Ego: Denial, rationalization, projection, reaction formation, identification, repression, emotional insulation, undoing, interjection, acting out depersonalization.

Health Psychology

1. Psychological Reactions of a Patient : Psychological reactions of a patient during admission and treatment anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perpetual changes, confusion, disorientation, hallucinations, delusions, illusions, anger, hostility, loss of hope.
2. Reactions to Loss : Reactions to loss, death and bereavement shock and disbelief, development of awareness, restitution, resolution : Stages of acceptance as proposed by Kubler – Ross.
3. Stress : Physiological and Psychological relation to health and sickness : psychosomatic, professional stress burnout.
4. Communications :
 - a) Types verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
 - b) Counseling : Definition, Aim, differentiate from guidance, principles in counseling and personality qualities of counselors.
5. Compliance :- Nature, factors, contributing to non-compliance, improving compliance.
6. Emotional Needs :- Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed-ridden patients, chronic pain, spinal cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, parkinsonism, leprosy, incontinence and mental illness.
7. Geriatric Psychology : Specific psychological reactions and needs of geriatric patients.
8. Pediatric Psychology : Specific psychological reactions and needs of pediatric patients.
9. Behaviour Modifications : Application of various conditioning and learning principles to modify patient behaviours.
10. Substance Abuse : Psychological aspects of substance abuse : smoking, alcoholism and drug addiction.
11. Personality Styles : Different personality styles of patients.

Books Suggested:

1. Introduction to Psychology – Mums – I.D.P. Co.
2. Foundation of Psychology – Weld – Publishing House, Bombay.
3. Introduction to social psychology – Akolkar – Oxford Publishing House.
4. Psychology and Sociology – Applied to Medicine – Porter & Adler – W.B. Saunders.
5. Behavioural Sciences for Medical Undergraduates – Manju Mehta – Jaypee Brothers.
6. Elementary Psychology – Mohsin – Moti Lal Banarsin Dass, Delhi.

(Total Theory + Practical/Clinical = 1000 hours)

Paper – I Orthopaedics

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

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Section A:

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Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

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Section B:

Same as in Section A.

Section I :

10 Hrs

1. **Introduction to Orthopaedics** – Introduction to orthopaedic terminology. Types of pathology commonly dealt with, clinical examination, common investigations X-rays & imaging techniques and outline of non-operative management.
2. **Principles of operative treatment** :- List indications, contraindication and briefly outline principles of : Arthrodesis, Arthroplasty, Osteotomy, Bonegrafting Tendon – Transfers and Arthroplasty.
3. **Sprains, Strains & Contractures** :- List common sites of sprain, strains & contractures and describe the clinical manifestations and treatment. Viz. tennis elbow, golfer's elbow. Dequervan's disease, tenovaginitis, trigger, finger, carpal tunnel syndrome and plantar fasciitis etc.
4. **Sports Injuries** :- Injuries related to common sports their classification and management.

Section – II

30 Hrs

1. **Fractures and Dislocations** : General Principles, outline the following :
 - (i) Types of Fractures including patterns. Open & closed fractures and fracture dislocations.
 - (ii) Differences between dislocation & sublocation.

- (i) General & Local signs & symptoms of fractures & dislocation.
 - (ii) Principle of management of fractures & dislocations.
 - (iii) Prevention & treatment of complication including. Fracture – disease, Volkmann’s ischaemic contracture, Sudeek’s Atrophy, Carpal Tunnel Syndrome, Myositis ossificans and shoulder – hand syndrome.
 - (iv) Fracture healing.
2. Upper Limb Fractures & Dislocations
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complications.
 3. Lower Limb Fractures & Dislocations.
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complication.
 4. Spinal Fractures and Dislocations : Outline the mechanism, clinical features, principles of management and complications of spinal injuries.
 5. Recurrent Dislocations : Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

Section III

10 Hrs

1. Amputations

- a) Classify amputations, List indication for surgery.
- b) Outline pre-operative, operative and prosthetic management.
- c) Outline prevention and treatment of complications.

2. **Bone & Joint Infections** : Outline the etiology, clinical features, management and complications of septic arthritis osteomyelitis, Tuberculosis (including spinal T.B.).

3. **Bones Joint Tumors** :- Classify the outline the clinical features, management and complications of the following (benign / malignant bone and joint tumors, osteomas, osteosarcomas, osteoclastomas, Ewing’s sarcoma, multiplmyeloma).

Section IV

20 Hrs

1. **Chronic Arthritis** :- Outline of pathology : clinical features, mechanism of deformities, management and complications of : Rheumatoid arthritis. Osteoarthritis of major joints and spine, Ankylosing spondylitis.
2. Neck & Back Pain, Painful Arc Syndrome, Tendonitis, Facitis & Spasmodic Torticollis. Outline the above including clinical features and management.

3. **Spinal Deformities** :- Classify spinal deformities and outline the salient clinical features, management and complications of Scoliosis, Kyphosis and Lordosis.

Section – V

30 Hrs

1. **Poliomyelitis** : Describe the pathology, microbiology, prevention, managements and complications of polio. Outline the treatment of residual paralysis including use of orthoses. Principles of muscle transfers and corrective surgery.
2. **Congenital Deformities** :- Outline the clinical features and management of CTEV, CDH, Flat foot, vertical talus, limb deficiency (radial club hand and femoral, tibial and tibia deficiencies meningomyelocele, Arthrogryphosis multiplex congenita and Osteogenesis imperfect, Cerebral palsy.
3. **Peripheral Nerve Injuries** :- Outline the clinical features and management, including reconstructive surgery of :
 - a) Radial, median and ulnar nerve lesions.
 - b) Sciatic and lateral popliteal lesions.
 - c) Brachial Plexus injuries including Erbs, Klumpke's and crutch palsy.
4. **Hand Injuries** :- Outline of clinical features, management and complications of : Skin and soft tissue injury, tendon injury, bone and joint injury.
5. **Leprosy** : Outline of clinical features, management and complications of neuritis, muscle paralysis, tropic ulceration and hand and feet deformities.

Books Suggested:

1. Watson–Jones, Fractures and Joint Injuries – Wilson – Churchill Livingstone.
2. Clinical Orthopaedic Examination – McRae – Churchill Livingstone.
3. Concise System of Orthopaedics and Fractures – Apley – Butterworth Heinmann.
4. Outline of Fractures – Adam – Churchill Livingstone.
5. Outline of Orthopaedics – Adam - Churchill Livingstone.
6. Physical examination in orthopaedics – Apley – Butterworth Heinmann.
7. Clinical Orthopaedics Diagnosis – Pandey & Pandey – Jaypee Brothers.

Paper II General Medicine

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

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Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I :

25 Hrs

1. Introduction to modes of transfer of communicable diseases & general preventive measures.
2. Bacterial Diseases : Tuberculosis, Leprosy, Rheumatic fever, Tetanus, Typhoid fever, Diphtheria, Pneumonia, Bacillary Dysentery and Measles.
3. Viral Diseases : Herpes – simplex and zoster, Varicella, Measles, Mumps, Hepatitis B and C, AIDS and influenza.
4. Metabolic and Deficiency Diseases : Diabetes, Anemia, Vitamin & Nutritional Deficiency diseases, diseases of the endocrine glands.

Section II

30 Hrs

1. **Common Diseases of Respiratory System :** Asthma, Bronchitis, Massive collapse of lungs, Bronchiectasis Bronchial Pneumonia, lung abscess, Emphysema, Empyema, Paralysis of diaphragm and vocal cords, chronic infection of larynx and trachea. Abnormalities of tracheal infract of lungs, chronic passive congestion, chronic obstructive pulmonary disease, chest wall deformities.
2. **Common Diseases of Circulatory System :-** Thromobsis, Embolism, Gangrene, Valvular disease, Hemorrhage, various diseases of arteries, diseases of blood forming organs, Anemia, Peripheral Vascular diseases, disease of the lymphatic systems : Diseases of the

heart – Hypertension, Hypotension, Aortic aneurysm. Endocarditis, Pericarditis, Cardiac failure, coronary heart diseases, congenital heart malformation and its manifestation etc.

3. **Diseases of Digestive Systems :-** Pharyngitis, spasm of the Oesophagus, Diverticulum stenosis, Gastric ulcer, Hememesis, Pyloric stenosis, Dyspepsia, Vomiting, Diarrhoea, Duodenal ulcer etc.
4. **Diseases of Liver :-** Jaundice Cirrhosis of liver, Abscess of liver, Ascitis.
5. **Diseases of Kidney :** Polyuria, Hematuria, Uremia, Anuria, Nephritis, Urinary infections, Urinary calculi.

Section III

15 Hrs

Diseases of Skin

1. Characteristics of normal skin, abnormal changes, types of skin lesions.
2. Conditions – Leprosy, Acne, Boil, Carbuncles, Impetigo, Infections of skin, Herpes, Urticaria, Psoriasis, Skin disorders associated with circulatory disturbances, Warts, Corn, Defects in Pigmentation, Psoriasis, Leucoderma, Fungal infections, Alopecia, Dermatitis, Eczema, Skin-allergies, Venereal disease.

Section IV : Paediatrics

15 Hrs

1. Review normal foetal development & child birth, including assessment of a neonate.
2. Development of a normal child – neuromotor, physical growth, cognitive, intellectual, social etc.
3. The examination and assessment of a pediatric patient.
4. Congenital & acquired musculo skeletal disorders – etiogenesis, clinical manifestation & principles of management.
5. Congenital & acquired Cardio-pulmonary disorders – etiogenesis, clinical manifestation & principles of management.
6. Congenital & acquired neurological disorders (CNS & PNS) – etiogenesis, clinical manifestation & principles of management.
7. Hereditary disorders – etiogenesis, clinical manifestation & principles of management.
8. Nutritional Vitamins – Deficiency & development disorders – etiogenesis, clinical manifestation & principles of management.
9. Burns, Injuries & accident – Types & principles of management, including preventive care.
10. Surgical intervention – Indications & common surgical procedure.

Section V Geriatrics

15 Hrs

1. Normal aging – definition the anatomical, physiological and cognitive changes related to aging.

2. Epidemiology and socio-economic impact of aging.
3. The examination and assessment of a geriatric patient.
4. Musculo skeletal disorders – etiogenesis, clinical manifestation & principles of management.
5. Cardio – pulmonary disorders – etiogenesis, clinical manifestation & principles of management.
6. Neurological disorders (CNS & PNS) – etiogenesis, clinical manifestation & principles of management.
7. Diet & Nutritional requirement of the elderly. Nutritional disorders & their management.
8. Burns, Injuries & accident as related to the elderly & preventive care.
9. Dementia - Types and principles of management.
10. Overview of depressive disorders in the elderly.

Books Suggested:

1. Davidson's Principles and Practices of Medicine – Edward – Churchill Livingstone.
2. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
3. A Short Textbook of Medicine – Krishna Rao – Jaypee Brothers.
4. The Short Textbook of Paediatrics – Gupte – Jaypee.
5. A Short Textbook of Psychiatry – Ahuja Niraj – Jaypee Brothers.
6. Textbook of Paediatrics – Parsarthy – Jaypee.
7. Geriatric Physical Therapy – Guccione – Mosby.
8. Motor Assessment of the Developing infant – Piper & Davrah – W.B. Saunders.

Paper – III Physiotherapy in Orthopaedic Conditions

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 125, Practical = 150

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Theory

1. Brief review of the following surgical condition and various physiotherapeutic modalities, aims, means and technique of physiotherapy should be taught.

10 Hrs

2. Traumatology General physiotherapeutic approach for the following conditions: **40 Hrs**

- A. Fracture and dislocations; Classification and type of displacement, method of immobilization, healing of fractures and factors affecting union, delayed union etc. common sites of fractures. **20 Hrs**

- B. Specific fractures and their complete physiotherapeutic management. **20 Hrs**

Upper Limb; Clavical, humerus, ulna, radius, crush injuries of land.

Lower Limb; fracture neck of femur, shaft of femur patella tibia fibula, pott's fracture, fracture of tarsal and metatarsals.

Spine : fracture and dislocations of cervical, thoracic and lumbar vertebrae with and without neurological deficits.

3. Surgical procedures; Pre and post operative management of common corrective procedure like arthroplasty, arthrodesis, osteotomy, tendon transplants, soft tissue release grafting, including polio residual paralysis and leprosy deformities corrections. **15 Hrs**
4. Injuries : Soft tissue injuries, synovitis, capsulitis, Volkmann's ischemic contracture etc. tear of semilunar cartilage and cruciate ligaments of knee, meniscectomy, patellectomy, internal derangement of knee. **10 Hrs**
5. Amputation; level of amputation of upper limb and lower limb, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training etc. **10 Hrs**
6. Deformities; congenital torticollis and cervical rib, CTEV, Pes cavus, pes planus and other common deformities.

Acquired – Scoliosis, kyphosis, lordosis, coxa vara, genu valgum, genu varum and recurvatum. **10 Hrs**
7. Degenerative and infective conditions : osteoarthritis of major joints, spondylosis, spondylitis, spondylolisthesis, PIVD, Periarthritis of shoulder, Tuberculosis of spine, bone and major joint, Perthes disease, Rheumatoid arthritis, Ankylosing spondylitis etc. and other miscellaneous orthopaedic conditions treated by physiotherapy. **15 Hrs**
8. Principles of sports physiotherapy – causes of sports injury, prevention of sports injuries, management of acute sports injury, common occurred injuries. Role of physiotherapist in sports, principle & advanced rehabilitation of the injured athlete. **15 Hrs**

Practical

Various physiotherapy modalities and treatment techniques for the above mentioned conditions to be demonstrated and practiced by the students in clinical setup.

Books Suggested:

1. Cash's Textbook of Orthopaedics and Rheumatology for Physiotherapists – Downie – Jaypee Brothers.
2. Tidy's Physiotherapy – Thomson et al – Butterworth Heinmann.
3. Essentials of Orthopaedics and applied physiotherapy – Joshi and Kotwal – B.L. Churchill Livingstone.
4. Tetraplegia & Paraplegia – Bromley – W.B. Saunders.
5. Orthopaedic Physiotherapy – Donatelli & Wooden – W.B. Saunders.

6. Rheumatological Physiotherapy – David – Mosby.
7. Orthopaedic Physiotherapy Tids well – Mosby.
8. Physiotherapy for Amputee – Engstrom & Van de van – Churchill Livingstone.
9. Sports Injuries : Diagnosis and Management : Norris Butterworth Heinmann.

Paper – IV Physiotherapy in Medical Conditions

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 125, Practical = 150

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I : General Medicine

30 Hrs

Review of the Pathological and principles of management by Physiotherapy to the following conditions :

1. Inflammation – acute, chronic and suppurative.
2. Oedema – Traumatic, obstructive, Paralytic, Oedema due to poor muscle and laxity of the fascia.
3. Arthritis and Allied Conditions (in details) :
 - a) Osteo – arthritis – generalized, Degenerative and traumatic, spondylosis and disorders.
 - b) Rheumatoid Arthritis, Still's disease, infective Arthritis.

- c) Spondylitis, Ankylosing Spondylitis.
- d) Nonarticular Rheumatism – Fibrositis, Myalgia, bursitis, Periarthritis etc.
- 4. Common conditions of Skin – Acne, Psoriasis, Alopecia, Leucoderma, Leprosy, Sexually transmitted diseases.
- 5. Deficiency diseases – Rickets, Diabetes, Obesity, Osteoporosis and other deficiency disorders related to Physiotherapy.
- 6. Psychiatric Disorders – Psychosis, Psychoneurosis, Senile dementia.

Section II Respiratory

25 Hrs

- 1. Review of mechanism of normal respiration.
- 2. Chest examination, including auscultation, percussion.
- 3. Knowledge of various investigative procedures (invasive and noninvasive) used in the diagnosis of various respiratory disorders.

Review of pathological changes and principle of management by physiotherapy of the following conditions:

- 1) Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema, COPD.
- 2) Pleurisy and Empyema, Pneumonia.
- 3) Bacterial Disease..
- 4) Rheumatic fever, carcinoma of respiratory tract.
- 5) Paralysis of diaphragm and vocal cords.
- 6) Chest wall deformities.

Section III : Cardiovascular

25 Hrs

- 1. Review of anatomy and physiology of the cardiovascular system.
- 2. Knowledge of various investigative procedures (invasive and noninvasive) used in the diagnosis of various cardiovascular disorders.
- 3. Review of the pathological changes and principle of management by physiotherapy of the following conditions :

Thrombosis, Embolism, Buerger's diseases, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure. Hypertension, Hypotension, aneurysm.

- A Review of the examination & assessment of a Paediatric patient.
- B. Review of pathological changes and principle of management by physiotherapy of the following conditions. :
 - 1) Common congenital & acquired musculo skeletal disorders.
 - 2) Common congenital & acquired neurological disorders (CNS & PNS).
 - 3) Common heredity disorders.
 - 4) Common nutritional, ,metabolic and vitamin deficiency disorders.
 - 5) Cerebral palsy, myopathy and muscular dystrophies.

- A. Review of the examination & assessment of a Geriatric patient.
- B. Review of pathological changes and principle of management by physiotherapy of the following conditions :
 - 1) Musculo skeletal disorders
 - 2) Cardiopulmonary disorders.
 - 3) Neurological disorders (CNS & PNS).
 - 4) Injuries & accidents specific to the aged.

Books Suggested:

- 1. Cash's Textbook of general medical and surgical conditions for Physiotherapists -Downie – Jaypee Brothers.
- 2. Essentials of Cardiopulmonary physical therapy – Hillegass & Sadowsky – W.B. Saunders.
- 3. Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists – Downie – J.F. Brothers.
- 4. The Brompton Guide to Chest Physical Therapy.
- 5. Cardiopulmonary Physical Therapy – Irwin and Tecklin – Mosby.
- 6. Cardiovascular / Respiratory Physiotherapy – Smith & Ball – Mosby.
- 7. ACSM Guidelines for Exercise testing and Prescription – ACSM – Williams and Wilkins.
- 8. Chest Physiotherapy in Intensive Care Unit – Mackenzie et al – Williams and Wilkins.
- 9. Motor Assessment of Developing Infant – Piper & Darrah – W.B., Saunders.
- 10. Paediatric Physical Therapy – Tecklin – Lippincott.
- 11. Treatment of Cerebral Palsy and Motor Delay – Levitts – Blackwell Scientific Publications, London.
- 12. Physiotherapy in Paediatrics – Shepherd – Butterworth Heinmann.
- 13. Geriatric Physical Therapy – Gucciona – Mosby.

Paper – V Research Methodology and Biostatistics

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Teaching hours: Theory = 50

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Research Methodology

Section I :

15 Hrs

1. Introduction : Importance of research in clinical practice, scientific approach, characteristics, purposes and limitations.
2. Ethical issues in research, elements of informed consent.
3. Structure of a research proposal.

Section II:

15 Hrs

1. Research Question including literature review.
2. Measurement, Principles of measurement, reliability and validity.
3. Experimental sampling and design.
4. Descriptive research.

Biostatistics

1. Descriptive statistics.
2. Comparison of means, T-tests.
3. Analysis of Variance.
4. Multiple comparisons.
5. Non-parametric statistics.
6. Correlations.
7. Application of common statistical tools & programs.

Books Suggested:

1. Methods in Biostatistics – Mahajan – J.P.
2. Statistics in Medicine – Colton – Little Brown, Boston.
3. Research for Physiotherapist : Project Design and Analysis – Hicks – Churchill Livingstone.
4. Biostatistics : The manual for statistics methods for use in health and nutrition – K.V. Rao.
5. Research methods in Behavioural Sciences – Mohsin – Orient Publications.

BPT Fourth Year
(Total Theory + Practical/Clinical = 1000 hours)
Paper – 1 General Surgery

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I :

10 Hrs

1. Introduction to principles of surgery and its procedure.
2. Shock – definition, types, clinical, feature, pathology & management.
3. Haemorrhage – common sites, complication, clinical features & management.
4. Blood Transfusion – Blood group matching, indication & complication.
5. Anaesthesia – Principles of anaesthesia, types & procedure.

Section II

20 Hrs

1. Wounds, Tissue repair, Classification – Acute Wounds, Chronic wounds, Scars & their Management.
2. Wound infections : Psychology & manifestation, Types of infections & their management.
3. Tumors and Ulcers :
 - a) Tumors – Types of Management
 - b) Ulcers – Types & Management.
4. Burns – Causes, Classification, Clinical features & Management.
5. Skin Grafting – Indications, Types & Procedures.

6. Hand Infections – Types & Management.
7. General Injuries – Types & Management.

Section III **10 Hrs**

1. Complications of Surgery.
2. Abdominal Surgery – Types of Incisions & common surgical procedures.
3. Thoracic and Cardiac Surgery – Types of incision and common surgical procedures.

Section IV **20 Hrs**

Obstetrics & Gynaecology

1. Pregnancy, stages of labour and its complications, indications and types of surgical procedures.
2. Gynaecological disorders – Salpingitis, parametritis, retro-uterus, prolapse of uterus, pelvic inflammatory diseases, urinary incontinence.

Section – V **20 Hrs**

Ophthalmology

1. Common conditions of eye: Cataract, Glaucoma, Diabetic complications of eye, injuries, inflammations and other infections of eye.
2. Ptosis.
3. Blindness – common causes & management.
4. Refractions – testing, errors & remedies.
5. Strabismus – types, features & corrective measures.

Section VI **20 Hrs**

Ear, Nose & Throat (ENT)

1. Introduction – Outline, mechanism of audition, olfaction & speech.
2. Classify causes of hearing impairment, assessment techniques, conservative & surgical management.
3. Hearing Aids – types & indications.
4. Outline common ENT infections & lesions, which affect hearing, breathing, speech & their management.
5. Outline the function of vestibular organ, its common disorders & their management.

Books Suggested:

1. Baily and Love – Short Practice of Surgery – Mann and Rains – H.K. Levis Publications, London.
2. Undergraduate Surgery – Nan – Academic Publishers, Calcutta.
3. Textbook of Surgery – Gupta R.L. – Jaypee.
4. Principles and Practices of trauma care – Kocher – Jaypee.
5. Clinical Methods – S. Das – Calcutta.

Paper –II Neurology

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I :

15 Hrs

1. Neuroanatomy : Review the basic anatomy of the brain and spinal cord including Blood supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum and extrapyramidal system, relationship of the spinal nerves to the spinal cord segments, long tracts of the spinal cord, the brachial and lumbar plexus and cranial nerves.
2. Neurophysiology : Review in brief the Neurophysiological basis of tone and disorders of the tone and posture, bladder control, muscle contraction, movement and pain.
3. Assessment and evaluate procedures for the neurological patient.
4. Review of the principles of the management of a neurological patient.

Section II

25 Hrs

Briefly outline the etiogenesis, clinical features and management of the following Neurological disorders

1. Congenital and childhood disorders – Cerebral palsy, Hydrocephalus and Spina Bifida.
2. Cerebrovascular accidents – General classification, thrombotic, embolic, hemorrhagic and inflammatory, strokes, gross localization and sequelae.
3. Trauma – localization, first aid and management of sequelae of head injury and spinal cord injury.
4. Diseases of the spinal cord – Craniovertebral junction anomalies, Syringomyelia, Cervical and lumbar disc lesions, Tumors and Spinal arachnoiditis.
5. Demyelinating diseases (central and peripheral) – Guillain – Bane syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.

Section III**25 Hrs**

Briefly outline the etiogenesis, clinical features and management of the following Neurological disorders

1. Degenerative disorders – Parkinson's disease and dementia.
2. Infections – Pyogenic Meningitis sequelae, Tuberculous infection of central nervous system and Poliomyelitis.
3. Diseases of the muscle – Classification, signs, symptoms, progression and management.
4. Peripheral nerve disorders – Peripheral nerve injuries, Entrapment neuropathies and Peripheral neuropathies.

Section – IV**20 Hrs**

1. Epilepsy – Definition, classification and management.
2. Myasthenia Gravis – Definition, course and management.
3. Intracranial Tumors – Broad classifications, signs and symptoms.
4. Motor neuron disease – Definition, classification and management.
5. Cranial nerve – Types of Disorders, clinical manifestation & management.

Section V: Psychiatry**15 Hrs**

1. Introduction to neuropsychology: Definition, defence mechanism, symptomatology, types, causes, assessment of mental disorders, psychosomatic disorders.
2. Disorders :
 - a) Psychosis – Schizophrenia (including paranoid) maniac depressive psychosis, involvement psychosis.
 - b) Psychoneurosis – Anxiety, hysteria, anxiety states, neurasthesis, reactive depression, obsessive compulsive neurosis.
 - c) Organic reaction to – toxins, trauma & infection.
 - d) Senile dementia.
3. Mental retardation – definition, causes manifestation and management.
4. Therapies :
 - a) Psychotherapy – Group therapy, Psychodrama, behaviour, modification, family therapy, play therapy, psychoanalysis, hypnosis.
 - b) Drug therapy.
 - c) Electro convulsive therapy.

Books Suggested:

1. Davidson's Principles and practices of medicine – Edward – Churchill Livingstone.
2. Brain's Diseases of the Nervous System – Nalton – ELBS.

3. Guided to clinical Neurology – Mohn & Gaectier – Churchill Livingstone.
4. Principles of Neurology – Victor – McGraw Hill International edition.

Paper – III Physiotherapy in Neurological Conditions

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Theory

Section I : Neurology

100 Hrs

1. Examination of Neurological disorders and principles of treatment.
2. Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various neurological disorders.
3. Review of pathological changes and principle of management & physiotherapy of the following conditions :
 - a) Hemiplegia, Paraplegia, Tabes dorsalis, cerebellar ataxia, extra pyramidal lesions, Gullian Barre Syndrome, Parkinsonism.
 - b) Disseminated sclerosis, Amgotrophic lateral sclerosis, Symgomyela subacute combined degeneration of cord motor neuron disease.
 - c) Peripheral Nerve and cranial Nerve lesions.
 - d) Neuritis and Neuralgia - Brachial, sciatic etc.
 - e) Infections – Poliomyelitis, meningitis, Encephalitis, Polyneuritis Transverse myelitis.
 - f) Traumatic head injuries and spinal cord injury.

Practical

Various Physiotherapy modalities and treatment techniques for above mentioned conditions should be demonstrated and practiced by the students.

Books Suggested:

1. Cash's textbook of neurology & physiotherapists – Downi – J.P. Brothers.
2. Adult Hemiplegia – Evaluation & treatment – Bobath – Oxford Butterworth Heinmann.
3. Neurological Rehabilitation – Carr & Shepherd – Butterworth Heinmann.
4. Tetraplegia & Paraplegia – A guide for physiotherapist – Bromley – Churchill Livingstone.
5. Neurological Physiotherapy – A problem solving approach – Susan Edwards – Churchill Livingstone.
6. Neurological Rehabilitation – Umpherd- Mosby.
7. Motor Assessment of Developing Infant – Piper & Darrah – W.B., Saunders.
8. Treatment of Cerebral Palsy and Motor Delay – Levitts – Blackwell Scientific Publications, London.

Paper – IV Physiotherapy in Surgical Conditions

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practical: 80+ 20 Int. Assess = 100

Teaching hours: Theory = 100, Practical = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I : General Surgery, Eye & ENT 20 Hrs

Review of pathological changes and principle of pre and post operative management by physiotherapy of the following conditions :

1. Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder & Endoscopy etc.
2. Common organ transplant surgeries – heart, liver, bone marrow etc.
3. Common operations of the ear, nose, throat & jaw as related to physiotherapy.

Section II : Thoracic Surgery 20 Hrs

Review of pathological changes and principle of pre and post operative management by physiotherapy of the following conditions :

1. Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty & Key hole surgeries.
2. Corrective surgeries of congenital heart defects, angioplasties, blood vessel grafting, open heart surgeries & heart transplant.

Section III: Gynaecology and Obstetrics 20 Hrs

Common operation of reproductive system, including surgical intervention for child delivery Ante natal & post natal, physiotherapy.

Review of pathological changes and principle of pre and post operative management by physiotherapy of the following conditions :

- Section V - Neurosurgery 20 Hrs

1. Common surgeries of the cranium & brain.
2. Common surgeries of vertebral column & spinal cord.
3. Common surgeries of peripheral nerves.
4. Surgical interventions in traumatic head injuries.

1. Cash's Textbook of general medical and surgical conditions for physiotherapists – Downie – Jaypee Brothers.
2. Cash's textbook of heart, chest and vascular disorders for physiotherapists – Downie – Jaypee Brothers.
3. Principles and practices of cardiopulmonary physical therapy – Frown Felter – Mosby.
4. Chest physiotherapy in intensive care unit – Mackenzie – Williams & Wilkins.
5. Restoration of Motor Functions in stroke patient : A Physiotherapist Approach – Johnstone Churchill Livingstone.
6. Physiotherapy in obstetrics and gynaecology – Polden – F.A. Davis.

Time: 3 Hrs.

Theory: 80+ 20 Int. Assess. = 100

Practicals: 80+ 20 Int. Assess. = 100

Teaching hours: Theory = 100 Practicals = 100

Note: The question paper covering the entire course shall be divided into two sections. Each section to be attempted in a separate answer book and to be evaluated by separate examiners.

Section A:

Question1: This will consist of Five short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 3 marks total weightage being 15 marks.

Question 2: This will consist of one medium answer question with answer to each question upto three pages in length. One question will be set by the examiner and will be compulsory. This question will consist of 10 marks.

Question 3: This will consist of two long answer questions with answer to each question upto 5 pages in length. Two questions will be set by the examiner and the candidate will be required to attempt one. Each question will carry 15 marks.

Section B:

Same as in Section A.

Section I : Physiotherapy Ethics

20 Hrs

1. History of Physiotherapy.
2. Philosophy and Philosophical statements.
3. Major Ethical principles applied to moral issue in health care.
4. Rules of Professional conduct.
5. Scope of practice.
6. Relationships with patients.
7. Relationships with medical colleagues.
8. Relationships between professionals.
9. Relationships with in the profession.
10. Sale of goods.

11. Personnel and professional standard.

12. Professional standard.

Section II: Physiotherapy Administration**10 Hrs**

1. Responsibility and Confidentially.
2. Provision of services and advertising.
3. Professional and government licensing, Accreditation and Education standards.
4. Laws and Legal concepts:
 - Protection from Malpractice claims, Consumer Protection Act
 - Liability and Documentations.

Section III Principles of Rehabilitation**Section III A****20 Hrs**

1. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation.
2. Epidemiology of disability with emphasis on locomotor disability, its implications – individual, family, social, economic and the state.
3. Preventive aspects of disability and organizational skills to manage it.
4. Community Based Rehabilitation and out reach programmes to rehabilitate persons with disabilities living in rural areas.
5. Statutory provisions, Schemes of assistance to persons with disability.
6. Role of NGOs in rehabilitation of the persons with disabilities.
7. Basic principles of administration and finance including personnel management and budget preparation and procurement etc.

Section – III B**15 Hrs**

1. Principles of Orthotics – types, indications, contra-indications, assessment (check out) uses and fitting – region wise.
2. Fabrication of simple splints and self help devices for upper and lower extremity – indications and application.
3. Principles of Prosthetics – types, indications, contra-indications, assessment (check out), uses and fitting – upper and lower extremity.

Section III C**10 Hrs**

1. Principles and mechanisms of Communication including speech and hearing.
2. Common disorders of speech and hearing – etio genesis, clinical features, assessment and principles of management.

3. Principles in the management of vocational problems, including evaluation and vocational goals for people with disability.
4. Principles of rehabilitation Nursing, including function of Nursing personnel and Nursing practice in rehabilitation.

Section – III D

10 Hrs

1. Identification, assessment and classification of mentally subnormal.
2. Etiogenesis and principles of management including prevention.
3. Rehabilitation of the mentally subnormal, including vocational training & home education programme.

Section – III E

15 Hrs

1. Definition, scope & importance of Activities of Daily Living (ADLs).
2. The teaching and training of (a) wheel chair activities, (b) bed activities (c) transfer activities (d) Locomotor activities (e) Self care activities, such as toilet, eating, dressing etc.

PRACTICALS

1. Introduction, Identification & Indications for the application of various aids & appliances like common splints, orthotics & prosthetic devices.
2. Visit to some NGO's dealing with persons with disabilities.
3. Learning basic principles of pre-vocational evaluation & occupational therapy.
4. Learning basic principles of vocational training.

Books Suggested:

1. Physical Rehabilitation – assessment & Treatment – Sullivan & Schmitz – F.A. Davis.
2. Occupational Therapy and Physical dysfunction : Principles, Skills & Practices – Turner, Foster & Johnson – Churchill Livingstone.
3. Hand Splitting – Wilson – W.B. Saunders.
4. Orthotics in Rehabilitation : Splinting the hand and the body – Mckee & Morgan – F.A. Davis.
5. Atlas of Limb Prosthetics – American Academy of Orthopaedic Surgeon - Mosby.
6. Atlas of Orthotics – American Academy of Orthopaedic Surgeon – Mosby.

7. Krusen's Handbook of Physical Medicine & Rehabilitation – Kottke & Lehmann – W.B. Saunders.
8. Willard and Speckman's occupational therapy – Neistadt & Crepeau – Lippincott.