Faculty of Sports Medicine & Physiotherapy

Syllabus

For

Bachelor of Physiotherapy

Examination: 2014

GURU NANAK DEV UNIVERSITY AMRITSAR

BACHELOR OF PHYSIOTHERAPY

Scheme of Examination

First Year

Subject	Theory		Practical	
	Marks	Teaching Hours	Marks	Teaching Hours
Anatomy	100	225	100	100
Physiology	100	225	100	100
Biochemistry	100	100	---	---
Electrotherapy – I	100	125	100	200
Exercise therapy – I	100	125	100	200
Sociology & Community Health	100	100	---	---
Punjabi / Basic Punjabi (Mudhli Punjabi)	100			

Second Year

Subject	Theory		Practical	
	Marks	Teaching Hours	Marks	Teaching Hours
Pathology & Microbiology	100	200	---	---
Pharmacology	100	100	---	---
Electrotherapy – II	100	100	100	200
Exercise therapy – II	100	100	100	200
Biomechanics	100	100	---	---
Psychology	100	150	---	---
Environmental Study	100	---	---	

BACHELOR OF PHYSIOTHERAPY

Third Year

Subject	Theory		Practical	
	Marks	**Teaching Hours**	**Marks**	**Teaching Hours**
Orthopeadics	100	150	100	50
General Medicine	100	100	100	50
PT in Ortho Condition	100	100	100	100
PT in Medical Condition – I	100	100	100	100
Research Methodology and Biostatistics	100	100	---	---
Neurology	100	100	100	100
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Fourth Year

Subject	Theory		Practical	
	Marks	**Teaching Hours**	**Marks**	**Teaching Hours**
General Surgery	100	100	100	50
Community Physiotherapy & Rehabilitation	100	100	100	100
Pediatrics & Geriatrics	100	100	100	50
PT in Medical Conditions - II	100	100	100	100
PT in Surgical Conditions	100	100	100	100
Rehabilitation, Organization and Administration	100	150	---	---
Computer Applications	---	---	50	50
Clinical Training	---	---	---	300

Practical Schedule
Internship / Externship
Details

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – I **Anatomy**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section-I

General Introduction:

1. **Histology-**Cell, tissues of the body, epithelium, connective tissue, cartilage, bone, lymph, muscle, nerve etc.
2. **Osteology-**Formation, function, growth and repair of bones.
3. **General Embryology-**Ovum, spermatozoas, fertilization, differentiation, development of various systems and foetal circulation.

Section-II

Systems of Human body (a brief Outline):

1. **Blood Vascular System –** Arteries, capillaries, veins, heart, lymphatic system.
2. **Respiratory System –** Anatomy of upper and lower respiratory tract including nose, larynx, trachea, bronchi, pleura and lungs.
3. **Digestive System –** Anatomy of the gastro-intestinal tract.
4. **Urogenital System –** Anatomy of Urinary system, male and female reproductive system.
5. **Endocrine System –** The various organs and production of hormones including definition, structures in general, control of secretions and role of hypothalamus.
6. **Integumentary System**
7. **Surface Anatomy**

Section-III

Neuro-anatomy: Microscopic and gross study of:-

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. Bloody supply of the brain
19. Internal Capsule
20. Visual radiation
21. Auditory radiation
22. Thalamocortical radiations
23. Pyramidal systems
24. Extra-pyramidal systems
25. Sympathetic system
26. Para-sympathetic system
27. Crainal nerves

Section-IV
Upper Extremity

Osteology

- Outime the anatomical features, attachments, ossification and side determination of the bones of U/L : Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges

Myology

- Fascia and Muscles of front and back of upper arm : origin, insertion, nerve supply and action.
- Muscles of front and back of forearm : origin, insertion, nerve supply and action.
- Mention the small muscles of hand with their origin, insertion, nerve supply and action.
- Identify the nerves of upper units and mention their position course, relations and distribution.
- Detail explanation of joints of upper limb : shoulder guide, Shoulder joint, Elbow, Wrist and joints of hand.
- Indicate the blood vessels of upper limb and mention their position course, relations, distribution and main branches.
- Lymphatic damage of upper limb
- Applied anatomy of all structures of U/L

Section – V
Regional Anatomy

Detailed explanation of the following with their applied anatomy.

Pectoral Region

Scapular Region

Cubital Fossa

Axilla

Insatiate formation of Brachial Plexus

Spaces of the hand

Section – VI
TRUNK-THORAX ABDOMEN

Osteology:

- Vertebral columns: Identify the parts of typical vertbera and state the main features, attachments and ossification.
- Intervertebral disc and mention its part.
- Ribs: Parts and main features of typical rib and define true, false and floating ribs.
- Stenum: State the parts and anatomical features.

Myology:

- Fascia and muscles of bank
- Fascia and muscles connecting U/L with vertebral column: origin, insertion, nerve supply, action.
- Intercostal muscles and diaphragm: origin, insertion, nerve supply and action.
- List layers of anterior Abd wall and mention its origin, insertion, nerve supply and action of these muscles.
- Fascia and muscles of post abd. Wall: origin, insertion, nerve supply and action.

Joints of Thorax

Identify the various joints and explain in detail:

- Manubriosternal joint
- Costo vertebral joint
- Costo transverse joint
- Costo Chondral joint
- Chondro sternal joints
- Inter vertebral joint
- Movements of vertebral column
- Respiratory movements

Mention the course and branches and nerves, blood vessels and lymphatic drainage of trunk-thorax-abdomen.

Lumbar Plexus: Position, formation and branches.

Rectus sheath: formation and contents.

Contents of vertebral canal

Intercostal space and its contents

Diaphragm-structures passing through it.

Applied Anatomy of structures of trunk – thorax - abdomen

Section – VII
PELVIS

Features of pubic symphysis and sacroiliac joints.
Muscles of pubic floor and mention their attachments, action and nerve supply.
Difference between male and female pelvis.
Main features of subdivision, boundaries, walls and floor of pelvis.
Urogenital diaphagm (outlines only)

- Applied anatomy of plexus
- Lymphatic damage
- Nerve supply
- Sacral Plexus
- Mention the blood vessels of the region with course, variations, distribution and main branches.

Section – VIII
LOWER EXTREMITY

Osteology:

- Hip bone, femur, Tibia, Fibula, Patella, and bones of the foot

Myology:

- Fascia and muscles in front of thigh: Origin, Insertion, Nerve Supply, Action
- Fascia and muscles of medial side of thigh: Origin, Insertion, Nerve Supply, Action
- Fascia and muscles of back of thigh
- Fascia and muscles of gluteal region
- Fascia and muscles of front of leg and dossum of foot
- Fascia and muscles of lateral side of leg
- Fascia and muscles of back of leg and role of foot
- Detailed explaination of joints of Lower Leg: Pelvic Givdle, Hip, joint, Knee joint, Ankle joint, joints of foot.
- Identify the nerves of Lower Leg and mention their position course, relations distribution
- Indicate the blood vessels of Lower Leg a mention their position course, relation, distribution and main branches
- Lymphatic drainage of Lower Leg
- Explain Femoral triangle and subsartorial canal
- Poptileal fossa
- Anatomy of structures of Lower Leg

Section – IX

Radiological Anatomy: Radiographic appearance of Musculo-skeletal system of Upper limb, Lower limb, Spine.

Anatomy Practical: **Marks: 100**

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 and ligaments.
4. To study the anatomy of joints of upper and lower extremities and vertebral column on models, charts and Cds.
5. To study the anatomy of C.N.S and P.N.S on models, charts and Cds
6. To study the gross anatomy of Respiratory, Digestive, Endocrine, Urinary and Genital system on models, charts and Cds

Books Recommended:

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

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – II **Physiology**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

Instructions for Paper Setters:

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

General Introduction:

1. **Cell Introduction:** Outline of basic concepts of cell structure, functions of components and transport across membranes
2. **Skin :** Functions, blood 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 systems of the body:

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 resucitation.
5. **Endocrine system** : Outline of various hormones and their actions, pitutary gland, thyroid, parathyroid, adrenal glands & Gonads.
6. **General Metabolism** : Carbohydrate, Protein & Fat Metabolism.

Section – III

Neuro – physiology

1. Neuron: Properties and functions.
2. Action Potential
3. Special properties of nerve trunks and tracts.
4. Motor units.
5. Reflex physiology
6. Synapse and synaptic transmission.
7. Supraspinal Control.
8. Cerebellum and basal gangila.
9. Autonomic nervous system.
10. Somatic sensation.
11. Pain
12. Taste, Olfaction, Auditory and Vision.
13. Neuro physiological psychology.

Section – IV

Muscle Physiology:

Gross and Microscopic

1. Structure and function of Muscle tissue – skeletal and cardiac.
2. Chemical processes involved in muscle contraction.
3. Physiology of muscle contraction.

Section –V

Physiology of exercise and work:

1. Neuromuscular activity, human movement, physiological mechanism in movement behaviour, strength, endurance, analysis of movement.
2. Circulatory and respiratory response to exercise including effects on the heart blood circulation, body fluid changes, pulmonary ventilation, gas exchange and transport, etc.
3. Effects of exercise and work on other body functions.
4. Metabolic and environmental aspects of exercise and work – metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation & environmental factors.
5. Effects of Exercise training – endurance, fatigue and recovery.
6. Fitness and health – age, sex, body type, race, stress and medical aspects of exercise

PHYSIOLOGY PRACTICAL

To study the following Physiological Phenomena:

1. Identification of blood cells and different counts.
2. W.B.C. Count.
3. R.B.C. Count.
4. Haemoglobin percentage and colour index.
5. E.S.R. and Blood groups.
6. Bleeding time and clotting time.
7. Respiratory efficiency tests.
8. Artificial respiration and C.P.R.
9. Pulse rate, Heart rate and measurement of Blood Pressure.
10. Respiratory rate and Auscultation.
11. Normal E.C.G.
12. Reflexes – Superficial Deep.
13. Sensations.
14. Tests for functions of Cerebrum.
15. Tests for functions of Cerebellum.

Books Recommended:

1. Text book of Medical Physiology–Arthur Guyton (Mosby.)
2. Text book of Physiology–Anand & Manchanda, Tata McGraw Hill.
3. Human Physiology – Vol. 1 & 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. Text book of Practical Physiology – Ghai – Jaypee.

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper –III **Biochemistry**

Time: 3 Hrs. **M. Marks: 100**
Theory: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

1. **Biophysics:** Concepts of pH and buffers, acid base equilibrium osmotic pressure and its physiological applications.

2. **Cell:** Morphology, structure & kinetics of cell, cell membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosomes.

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

4. **Connective Tissue:** Mucopolysaccharide connective tissue proteins, glycoproteins, chemistry & Metabolism of bone and tooth, metabolism of skin.

5. **Nerve Tissue:** Composition, metabolism, chemical mediators of Nerve activity.
6. **Isotopes:** Isotopes and their role in treatment and diagnosis of diseases.

Section – II

1. **Carbohydrates:** Definition, functions, sources, classifications, Monosaccharides, Disaccharides, Polysaccharides, mucopolysaccharide and its importance.

2. **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.

3. **Proteins:** Definition, sources, kinetics, classification, simple protein conjugated protein, derived proteins, properties and varieties of proteins.

4. **Nucleic Aicd:** Structure and function of DNA and RNA, Nucleosides, nucleotides, Genetic code, Biologically important nucleotides.

5. **Enzymes:** Definitions, classification, mode of action, factor affecting enzyme action, clinical importance of enzyme.

6. **Vitamins:** Classification, fat soluble vitamins, A, D, E & K, water soluble vit. B complex & C, Daily Requirements, Physiological functions and diseases of Vitamin deficiency.

7. **Nutrition:** Balance, diet, metabolism in exercise and injury, Diet for chronically ill and terminally ill patients.

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

Section – III

1. **Bioenergetics:** Concept of free energy change, Exogenic and endogenic reactions, concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.

2. **Carbohydrate Metabolism:** Glycolysis, HMP shunt pathway, TCA cycle, glycogenesis, glycogenolysis, Glucogenesis, Maintenance of Blood Glucose, interconversions of different sugar.

3. **Lipid Metabolism:** Fatty acid oxidation, Fatty acid synthesis, Metabolism of cholesterol, Ketone bodies, Atherosclerosis and obesity.

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

Books Recommended:

1. Text book of Biochemistry - Chatterjee M.N.– Jaypee Brothers.
2. Text book of Biochemistry for Medical Students - Vasudevan D.M. - Jaypee Brothers.
3. Clinical Biochemistry – Metabolic & Clinical aspects - Marshall & Bangert – Churchill Livingstone.
4. Biochemistry Southerland – Churchill Livingstone.

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – IV **Electrotherapy – I**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

Physical Principles:
Structure and properties of matter – solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.
Structure of atom, molecules, elements and compounds.
Electron 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 actions.
2. Magnetic effects, Molecular Theory of Magnetism, Magnetic fields, Electromagnetic Induction.
3. Mili ammeter and Voltmeter, Transformers and Choke Coil.
   Thermal Effects – Joule's Law and Heat production.
4. Physical Principles of Sound and its Properties.
5. Physical Principles of Light and its Properties.
6. Electromagnetic Spectrum – Biophysical Application.

Section – II

1. **Electrical supply:**

   a) Brief outline of main supply of electric current.
   b) Dangers – short circuits, electric shocks.
   c) Precautions – safety devices, earthing, fuses etc.
   d) First aid & initial management of electric shock.

Section – III

Low Frequency Currents:

1. Introduction to Direct, Alternating & Modified Currents.
2. Production of direct current – Physiological and Therapeutic Effects of Constant Current, Anodal and Cathodal Galvanism, Ionisation and Their Application in Various Conditions.
3. Iontophoresis – Principles of Clinical Application, Indication, Contraindication, Precaution, Operational Skills of Equipment & Patient Preparation.
4. Modified Direct Current – various pulses, duration and frequency and their effect on Nerve and Muscle tissue. Production of interrupted and surged current & their effects.
5. Modified Direct Current – Physiological and therapeutic effects, principles of clinical application, indications, contra indications, precautions, operational skills of equipment & patient preparation.

6. Transcutaneous Electrical Nerve Stimulations (TENS):

a) Types of Low Frequency, pulse widths, frequencies & intensities used as TENS applications.
b) Theories of pain relief by TENS.
c) Principle of clinical application, effects & uses, indications, contraindications, precautions, operational skills of equipment & patient preparation.

Section – IV

Electrical Reactions and Electro – diagnostic tests:

Electrical Stimuli and normal behaviour of Nerve and muscle tissue.
Types of lesion and development of reaction of degeneration.
Faradic – Intermittent direct current test.
S.D. Curve and its application.
Chronaxie, Rheobase & pulse ratio.

Section – V

1. Infra red rays – Wavelength, frequency, types & sources of IRR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.

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.

a) Mechanism of production.
b) Mode of heat transfer.
c) Physiological & therapeutic effects.
d) Indications, contraindications, precautions, operational skills of equipment & patient preparation.

Electrotherapy – I (Practical) Marks: 100

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 hydrocollator 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 – region 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 Recommended:

1. Electrotherapy Explained: Principles & Practice – Low & Reed – Butterworth Heinemann.
2. Clayton's Electrotherapy, (9^{th} Ed.) Forster & Palastanga Bailliere Tindall.
3. Therapeutic Heat and Cold – Lehmann – Williams & Wilkins.
4. Principles and Practice of Electrotherapy – Kahn – Churchill Livingstone.

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – V **Exercise Therapy – I**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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

Description of fundamental starting positions and derive position including joint positions, muscle work, stability, effects and uses.

Introduction to Movements including analysis of joint motion, muscle work and Neuro – muscular co – ordination.

Classification of movements – Describe the types, technique of application, indications, contraindications, effects and uses of the following:

a) Active movement b) Passive movement
c) Active assisted movement c) Resisted movement
e) To study the principles, techniques of application indication, Contraindication, precaution, effects and uses of Suspension Therapy.

Section – II

Manual Muscle Testing

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

Goniometery

Goniometers and its types:

a) Principles, techniques and application of Goniometery.
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)

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.
d) Preparation of patient: Effects, uses, indications and contraindications of the above manipulation.

Section – V
Motor Learning

i) Introduction to motor learning
   a) Classification of motor skills.
   b) Measurement of motor performance.

ii) Introduction to motor control
   a) Theories of motor control.
   b) Applications.

iii) **Learning Environment**
   a) Learning of Skill.
   b) Instruction & augmented feed back.
   c) Practice conditions.

Section – VI
Relaxation & Therapeutic Gymnasium

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 & clinical application.
5. Indication & contraindication.

Therapeutic Gymnasium

i) Setup of a gymnasium & its importance.
ii) Various equipment in the gymnasium.
iii) Operational skills, effects & uses of each equipment.

Practical: **M. Marks: 100**

1) To practice all 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-ordinated 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 Recommended:

1. Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
2. Therapeutic Exercises - 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. Saunders.
11. Measurement of Joint Motion: A Guide to Goniometry - Norkins & White - F.A. Davis.

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – VI **Sociology & Community Health**

Time: 3 Hrs. **M. Marks: 100**
Theory: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

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.
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.
3. **Socialization:** Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients.
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.
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.
6. **Community:** Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment.
7. **Culture:** Components of culture. Impace of culture on human behavior, 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.
8. **Caste System:** Features of modern caste system and its trends.
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.
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 behavior, social deviance and disease
11. **Social Problems of the Disabled:** Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems:
    a) Population explosion
    b) Poverty and unemployment
    c) Beggary
    d) Juvenile delinquency
    e) Prostitution
    f) Alcoholism
    g) Problems of women in employment

12. **Social Security:** Social security and social legislation in relation to the disabled.
13. **Social Worker:** The role of medical social worker.

Community Health:

14. Introduction to Community Health, community and rehabilitation.
15. Community based rehabilitation in relation to different medical and surgical conditions e.g. Cholera, Typhoid, Diptheria, Leprosy, Poliomyelitis, HIV & AIDS, Hepatitis etc. Prevention of diseases at different levels.
16. Community based rehabilitation vs. institutional based rehabilitation – comparison and different aspects. Community resources and their uses.

Books Recommended:

1. Mcgee - 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.

BACHELOR OF PHYSIOTHERAPY (PART-I)

ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

ਸਮਾਂ : 3 ਘੰਟੇ **ਕੁਲ ਅੰਕ: 100**

ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

1. **ਚੋਣਵੇਂ ਪੰਜਾਬੀ ਨਿਬੰਧ** (ਸੰਪਾ. ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਡਾ. ਪਰਮਜੀਤ ਸਿੰਘ ਸਿੱਧੂ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
2. **ਗਲੀਏ ਚਿਕੜੁ ਦੂਰਿ ਘਰ** (ਵਣਜਾਰਾ ਬੇਦੀ) ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼, ਦਿੱਲੀ, 1985.
3. **ਪੈਰ੍ਹਾ ਰਚਨਾ**
4. **ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ**
5. **ਵਿਆਕਰਣ** :
   - (ੳ) ਪੰਜਾਬੀ ਧੁਨੀ ਵਿਉਂਤ : ਉਚਾਰਨ ਅੰਗ, ਉਚਾਰਨ ਸਥਾਨ ਤੇ ਵਿਧੀਆਂ, ਸਵਰ, ਵਿਅੰਜਨ, ਸੁਰ
   - (ਅ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ ਭਾਸ਼ਾ ਦਾ ਅੰਤਰ, ਪੰਜਾਬੀ. ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ-ਚਿੰਨ੍ਹ
   - (ੲ) ਸ਼ਬਦ-ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ-ਰਚਨਾ : ਪਰਿਭਾਸ਼ਾ, ਮੁਢਲੇ ਸੰਕਲਪ
   - (ਸ) ਸ਼ਬਦ-ਸ਼੍ਰੇਣੀਆਂ

ਅੰਕ ਵੰਡ ਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1.	ਕਿਸੇ ਨਿਬੰਧ ਦਾ ਸਾਰ ਜਾਂ ਉਸਦਾ ਵਿਸ਼ਾ ਵਸਤੂ (ਦੋ ਵਿਚੋਂ ਇਕ)	20 ਅੰਕ
2.	ਸਮਕਾਲੀ ਇਤਿਹਾਸ, ਦੇਸ਼-ਵੰਡ, ਲੋਕ-ਧਾਰਾ, ਕਲਾਤਮਕ,ਗੁਣ, ਸਵੈ-ਜੀਵਨੀ ਸਾਹਿਤ ਨੂੰ ਦੇਣ ।	20 ਅੰਕ
3.	ਪੈਰ੍ਹਾ ਰਚਨਾ : ਤਿੰਨ ਵਿਸ਼ਿਆਂ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਉਤੇ ਪੈਰ੍ਹਾ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇ ।	10 ਅੰਕ
4.	ਪੈਰ੍ਹਾ ਦੇ ਕੇ ਉਸ ਬਾਰੇ ਪੰਜ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ।	10 ਅੰਕ
5.	ਨੰਬਰ 5 ਉਤੇ ਦਿੱਤੀ ਵਿਆਕਰਨ ਦੇ ਆਧਾਰ ਤੇ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ	20 ਅੰਕ
6.	ਉਪਰੋਕਤ ਲੜੀ ਨੰਬਰ 1 ਅਤੇ 2 ਦੀਆਂ ਪੁਸਤਕਾਂ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ । ਹਰੇਕ ਦਾ ਉੱਤਰ 50 ਸ਼ਬਦਾਂ ਤੋਂ ਵੱਧ ਨਾ ਹੋਵੇ ।	10×2 = 20 ਅੰਕ

BACHELOR OF PHYSIOTHERAPY (PART-I)

ਮੁਢਲੀ ਪੰਜਾਬੀ

(In lieu of Punjabi Compulsory)

ਪਾਠ-ਕ੍ਰਮ

ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ **ਕੁਲ ਅੰਕ : 100**

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ,
   ਗੁਰਮੁਖੀ ਲਿਪੀ
   ਗੁਰਮੁਖੀ ਲਿਪੀ : ਬਣਤਰ ਅਤੇ ਤਰਤੀਬ
   ਗੁਰਮੁਖੀ ਆਰਥੋਗ੍ਰਾਫੀ
   ਸੁਰ ਬਣਤਰ ਅਤੇ ਉਚਾਰਨ
   ਵਿਅੰਜਨ ਬਣਤਰ ਅਤੇ ਉਚਾਰਨ

2. ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ
   ਸਾਧਾਰਨ ਸ਼ਬਦ
   ਇਕ ਉਚਾਰਖੰਡੀ ਸ਼ਬਦ

3. ਪੰਜਾਬੀ ਵਾਕ-ਬਣਤਰ
   ਸਾਧਾਰਨ ਵਾਕ : ਕਿਸਮਾਂ
   ਸੰਯੁਕਤ ਵਾਕ : ਕਿਸਮਾਂ
   ਮਿਸ਼ਰਤ ਵਾਕ : ਕਿਸਮਾਂ

4. ਪ੍ਰਕਾਰਜੀ ਪੰਜਾਬੀ
   ਚਿੱਠੀ ਪੱਤਰ
   ਪੈਰਾ ਰਚਨਾ
   ਸੰਖੇਪ ਰਚਨਾ
   ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ

ਯੂਨਿਟ ਅਤੇ ਥੀਮ

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ: ਨਾਮਕਰਣ ਅਤੇ ਸੰਖੇਪ ਜਾਣ ਪਛਾਣ, ਗੁਰਮੁਖੀ ਲਿਪੀ: ਨਾਮਕਰਣ, ਗੁਰਮੁਖੀ ਵਰਣਮਾਲਾ; ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਸੁਰ ਵਾਹਕ (ੳ ਅ ੲ), ਲਗਾਂ ਮਾਤਰਾਂ, ਪੈਰ ਵਿਚ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ, ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ, ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ, ਗੁਰਮੁਖੀ ਆਰਥੋਗ੍ਰਾਫੀ ਅਤੇ ਉਚਾਰਨ; ਸੁਰਾਂ ਦੀ ਬਣਤਰ ਅਤੇ ਉਚਾਰਨ (ਲਘੂ-ਦੀਰਘ ਸੁਰ); ਸੁਰ ਅਤੇ ਲਗਾਂ ਮਾਤਰਾਂ; ਵਿਅੰਜਨਾਂ ਦੀ ਬਣਤਰ ਅਤੇ ਉਚਾਰਨ; ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣਾਂ (ਹ, ਰ, ਵ) ਦਾ ਉਚਾਰਨ ; ਲ ਅਤੇ ਲ਼ ਦਾ ਉਚਾਰਨ; ਭ, ਧ, ਢ, ਝ, ਘ ਦਾ ਉਚਾਰਨ; ਪੈਰ ਵਿਚ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣਾਂ ਦਾ ਉਚਾਰਨ।

2. ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ : ਸਾਧਾਰਨ ਸ਼ਬਦ; ਇਕੱਲਾ ਸੁਰ (ਜਿਵੇਂ ਆ); ਸੁਰ ਅਤੇ ਵਿਅੰਜਨ (ਜਿਵੇਂ ਆਰ); ਵਿਅੰਜਨ ਅਤੇ ਸੁਰ (ਜਿਵੇਂ ਪਾ); ਵਿਅੰਜਨ ਸੁਰ ਵਿਅੰਜਨ (ਜਿਵੇਂ ਪਾਰ); ਕੋਸ਼ਗਤ ਸ਼ਬਦ (ਜਿਵੇਂ ਘਰ, ਪੀ); ਵਿਆਕਰਣਕ ਸ਼ਬਦ (ਜਿਵੇਂ ਨੂੰ, ਨੇ); ਸੰਯੁਕਤ ਸ਼ਬਦ; ਸਮਾਸੀ ਸ਼ਬਦ (ਜਿਵੇਂ ਲੋਕ ਸਭਾ); ਦੋਜਾਤੀ ਸ਼ਬਦ (ਜਿਵੇਂ ਕਾਲਾ ਸਿਆਹ); ਦੋਹਰੇ ਸ਼ਬਦ/ਦੁਹਰੁਕਤੀ (ਜਿਵੇਂ ਧੂੜ ਧਾੜ/ਭਰ ਭਰ), ਮਿਸ਼ਰਤ ਸ਼ਬਦਾਂ ਦੀ ਬਣਤਰ/ਸਿਰਜਨਾ; ਅਗੇਤਰਾਂ ਰਾਹੀਂ (ਜਿਵੇਂ ਉਪ ਭਾਸ਼ਾ), ਪਿਛੇਤਰਾਂ ਰਾਹੀਂ (ਜਿਵੇਂ ਰੰਗਲਾ) ।

3. ਪੰਜਾਬੀ ਵਾਕ-ਬਣਤਰ: ਕਰਤਾ ਕਰਮ ਕਿਰਿਆ; ਸਾਧਾਰਨ ਵਾਕ, ਬਿਆਨੀਆ, ਪ੍ਰਸ਼ਨਵਾਚਕ, ਆਗਿਆਵਾਚਕ, ਸੰਯੁਕਤ ਅਤੇ ਮਿਸ਼ਰਤ ਵਾਕਾਂ ਦੀਆਂ ਕਿਸਮਾਂ; ਸੁਤੰਤਰ ਅਤੇ ਅਧੀਨ ਉਪਵਾਕ; ਸਮਾਨ (ਤੇ/ਅਤੇ) ਅਤੇ ਅਧੀਨ (ਜੋ/ਕਿ) ਯੋਜਕਾਂ ਦੀ ਵਰਤੋਂ; ਪੰਜਾਬੀ ਵਾਕਾਂ ਦੀ ਵਰਤੋਂ: ਵਿਭਿੰਨ ਸਮਾਜਕ/ਸਭਿਆਚਾਰਕ ਪ੍ਰਸਥਿਤੀਆਂ ਦੇ ਅੰਤਰਗਤ; ਘਰ ਵਿਚ, ਬਾਜ਼ਾਰ ਵਿਚ, ਮੇਲੇ ਵਿਚ, ਸ਼ੋਪਿੰਗ ਮਾਲ/ਸਿਨਮੇ ਵਿਚ, ਵਿਆਹ ਵਿਚ, ਧਾਰਮਿਕ ਸਥਾਨਾਂ ਵਿਚ, ਦੋਸਤਾਂ ਨਾਲ ਆਦਿ।

4. ਇਸ ਯੂਨਿਟ ਵਿਚ ਚਿੱਠੀ ਪੱਤਰ (ਨਿੱਜੀ/ਦਫ਼ਤਰੀ/ਵਪਾਰਕ), ਪੈਰਾ ਰਚਨਾ, ਸੰਖੇਪ ਰਚਨਾ ਅਤੇ ਅਖਾਣ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਰਾਹੀਂ ਵਿਦਿਆਰਥੀ ਦੀ ਭਾਸ਼ਾਈ ਯੋਗਤਾ ਨੂੰ ਪਰਖਿਆ ਜਾਵੇਗਾ।

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਯੂਨਿਟ ਪਹਿਲਾ, ਦੂਜਾ ਅਤੇ ਤੀਜਾ ਵਿਚੋਂ ਛੇ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਹਰ ਇਕ ਭਾਗ ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ) ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀ ਨੇ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ (ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ) ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। (ਉੱਤਰ ਚਾਰ ਪੰਨਿਆਂ ਤੋਂ ਵੱਧ ਨਾ ਹੋਵੇ) 20 x 03 = 60 ਅੰਕ

2. ਯੂਨਿਟ ਪਹਿਲਾ, ਦੂਜਾ ਅਤੇ ਤੀਜਾ ਵਿਚੋਂ ਤਿੰਨ ਸੰਖੇਪ ਪ੍ਰਸ਼ਨ (ਹਰ ਇਕ ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ) ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀ ਨੇ ਦੋ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। (ਉੱਤਰ ਦੋ ਪੰਨਿਆਂ ਤੋਂ ਵੱਧ ਨਾ ਹੋਵੇ) 10x2=20 ਅੰਕ

3. ਨਿੱਜੀ, ਦਫ਼ਤਰੀ ਅਤੇ ਵਪਾਰਕ ਚਿੱਠੀ : ਵਿਦਿਆਰਥੀ ਨੂੰ ਦੋ ਵਿੱਚੋਂ ਕਿਸੇ ਇਕ ਵਿਸ਼ੇ ਤੇ ਚਿੱਠੀ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 10 ਅੰਕ

4. ਵਿਦਿਆਰਥੀ ਨੂੰ ਤਿੰਨ ਵਿਸ਼ਿਆਂ ਵਿੱਚੋਂ ਕਿਸੇ ਇਕ ਤੇ ਪੈਰਾ ਲਿਖਣ ਲਈ ਜਾਂ ਕੋਈ ਪੈਰਾ ਦੇ ਕੇ ਉਸ ਬਾਰੇ ਪੰਜ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 05 ਅੰਕ

5. ਅੱਠ ਅਖਾਣ/ਮੁਹਾਵਰੇ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀ ਨੂੰ ਕਿਸੇ ਪੰਜਾਂ ਨੂੰ ਵਾਕਾਂ ਵਿਚ ਵਰਤ ਕੇ ਅਰਥ ਸਪਸ਼ਟ ਕਰਨ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 05 ਅੰਕ

Paper – I **Pathology & Microbiology**

Time: 3 Hrs.

M. Marks: 100
Theory: 100

Instructions for Paper Setters:

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I
Pathology (Part 1) General Pathology

1. Aims and objectives of the study of pathology. Meaning of terms, etiology, pathogenesis and lesions.
2. Causes of disease .cell injury – causes of cell injury features of cell injury mechanism of cell injury – hypoxia, free radical injury. Necrosis and gangrene
3. Inflammation–definition, events of acute inflammation, chemical mediator of inflammation, morphological types of acute inflammation ,chronic inflammation, difference between acute and chronic inflammation
4. REPAIR–primary healing, secondary healing, factors affecting healing and repair healing of skin, muscle and bone.
5. Fluid and hemodynamic derangements–oedema, hyperemia, Haemorrhage, shock, embolism, thrombosis, infarction
6. Immunity–natural and acquired. immunological mechanisms of tissue injury, hypersensitivity reactions, general features of autoimmune diseases and immunodeficiency diseases.
7. Neoplacia: characteristic of benign and malignant tumors ,grading and staging of malignant tumors, a brief outline of the carcinogenic agents and methods of diagnosis of malignancy and general effects of malignancy on the host
8. Nutritional Disorders: deficiency disorders (protein deficiency, vitamin deficiency (A,B,C,D,E,) causes , features , a brief outline of the methods of diagnosis (details not required).

Part 2

Systemic pathology: a brief outline of etiology, pathogenesis and general features of disease of the following systems. (The morphology, microscopic details and details of diagnostic procedures are not required).

1. Blood: disorders of RBC,WBC, platelets

2. Blood Vessels: atherosclerosis, thromboangitis obliterence, vericose vein, DVT, thrombophlebitis, lymphoedema.

3. Disease of heart: congestive cardiac failure, ischemic heart disease, rheumatic heart disease, infective heart disease (pericarditis, myocarditis, endocarditis)

4. Respiratory System**:** Pneumonias, Bronchiactesis, Emphysema, Chronic bronchitis, Asthma, Tuberculosis.
5. Joints disorders: Arthritis- types and their features.

6. Bone Disorders: osteoporosis, pagets disease, osteogenesis imperfecta, osteomylitis, tumors–osteosarcoma, chonrosarcoma, ewings sarcoma, multiple myloma (a brief outline)

7. Muscles: muscular dystrophy, mysthenia gravis.

8. Nervous System**:** meningitis, encephalitis, vascular diseases of brain, poliomyelitis, nerve injuries

Section – II
Part–I Microbiology

1. An introduction to microbiology, Classification of microorganisms,
2. Infection – types, source, portals of entry, spread.
3. Prevention and control of infection, Disinfection and antiseptics Sterilization

Part–II

An outline of the following infectious diseases with respect to the causative organism, mode of transmission, pathogenesis, prevention, and diagnostic tests (details of the execution and interpretation of the tests not required)

Chicken Pox, Measles, Mumps, Influenza, Diphtheria, Whooping Cough, Tetanus, Tuberculosis, Leprosy, Rubella, Cholera, Gastroenteritis, Food Poisoning, Hepatitis, AIDS, Typhoid, Rabies, STD, Ameobiasis Kalaazar, Malaria, Filaria.

Books Recommended:

1. Robbins Pathological Basis of Disease - Cotran, Kumar & Robbins - W.B. Saunders.
2. General Pathology - Walter & Israel - Churchill Livingstone.
3. Muirs Textbook of Pathology - Anderson - Edward Arnold Ltd.
4. Text book of Pathology - Harsh Mohan - Jaypee Brothers.
5. Pathology: Implications for Physical Therapists - Goodmann and Boissonnault - 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 Sciences – Ackerman and Richards - W.B. Saunders Co.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – II

Pharmacology

Time: 3 Hrs. **Marks: 100**

Instructions for Paper Setters:

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

1. General action of drugs.
2. Drug allergy and idiosyncracy.
3. Drug toxicity
4. Metabolic fate of drug
5. Methods of administration
6. Chemical character of drugs
7. Drugs acting on respiratory system
8. Vitamins

Section – II

1. Drugs acting on Central nervous system – anaesthetics, alcohols, alkaloids, narcotics, antipyretics, hypnotics, sedatives, anticonvulsants, stimulants, psychotherapeutics.
2. Drugs acting on peripheral nervous system – stimulating and inhibiting cholinergic and anticholinergic activity.
3. Drugs acting on Neuromuscular junction and muscles
4. Drugs for pain management.

Section – III

1. Hormones and drugs affecting endocrine functions
2. Drugs acting on cardiovascular system
3. Chemotherapeutic agents

Books Recommended:

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
   Essential of Medical Pharmacology - K.D. Tripathi - Jaypee Brothers.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – III **Electrotherapy – II**

Time: 3 Hrs. **Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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

1. **High Frequency Currents (S.W.D. and 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

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 techniques and patient preparation.
3. **Therapeutic Mechanical Pressure (Intermittent Compression Therapy)** – Principle, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, operational skills and patient preparation.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Section – IV

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

Electrotherapy – II **(Practical)** **Marks: 100**

1. To study a short wave diathermy unit, its operation and different methods of application – region wise.
2. To study a Micro wave diathermy unit, its operation unit, its operation and different methods of application – region wise.
3. To study an Ultrasound unit, its operation and different methods of application – region wise.
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 – region wise.
7. To study a Interferential pneumatic therapy unit, its operation and different methods of application – region wise.
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 – region wise.

Books Recommended:

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 & Wilkins.
4. Principles and Practice of Electrotherapy - Kahn – Churchill Livingstone.
5. Electrotherapy: Clinics in Physical Therapy - Wolf - Churchill Livingstone.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – IV **Exercise Therapy – II**

Time: 3 Hrs. **Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

Therapeutic Exercises

1. Principle, classification, techniques, physiological & therapeutic effects, indications & contraindications of therapeutic exercises.
2. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise program.
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 – Review normal neuromuscular coordination, Etiogenesis of neuromuscular in co-ordination & general therapeutic techniques, effects, indications, contraindications & precautions.
6. Functional re-education – General therapeutic techniques to re-educate ADL function.

Section – II

Posture, Balance, Gait:

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, effects & various training techniques.

Section – III

Hydrotherapy:

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.

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Section – IV

Special Techniques:

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 & precautions of breathing exercises.
5. Group Theory – 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.
8. Role of muscle energy technique.

Exercise Therapy – II (Practical) Marks: 100

1. To practice assessment & 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 & practice 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 Recommended:

1) Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
2) Therapeutic Exercises - Basmajian - Williams & Wilkins.
3) Therapeutic Exercises Foundations and Techniques - Kisner & 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) Orthopaedic Physical Therapy - Woods - Churchill Livingstone.
7) Manipulation ad 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 Practices - Campion - Butterworth Heinmann.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – V **Biomechanics**

Time: 3 Hrs. **Marks: 100**
Theory: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I
Mechanics

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 to Bio-Mechanics and terminology.

Section – II
Joint Structure and Function:

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:

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

Section – IV
Posture & Gait:

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.

Practical:

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 Antereo - posterior and lateral views.
6. Analysis of normal gait and measurement of spatio temporal features.

Books Recommended:

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.
4. Basic Biomechanics Explained - Low & Reed - Butterworth Heinmann.
5. Kinesiology: Applied to Pathological Motion - Soderberg Lippincott.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – VI **Psychology**

Time: 3 Hrs. **Marks: 100**
Theory: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I
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:** Interospection, observation, inventory and experimental method.
c. **Branches:** General, child, social, abnormal, industrial, clinical, counseling, educational.

2. **Heredity and Environment:** Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality, nature – nature controversy.
3. **Development and Growth Behavior:** Infancy, childhood, adolescence, adulthood, middle age, old age.
4. **Intelligence:** Definitions, IQ, Mental Age, List of various intelligence tests – WAIS, 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 department 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 the 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 interests, 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.

Section – II **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 counseleors.
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. **Behavior 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 Recommended:

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 & Alder - W.B. Saunders.
5. Behaviourial Sciences for Medical Undergraduates – Manju Mehta - Jaypee Brothers.
6. Elementary Psychology - Mohsin - Moti Lal Banarsi Dass, Delhi.

BACHELOR OF PHYSIOTHERAPY (PART-II)

Environmental Studies (Compulsory)

Theory Lectures: 50 Hours
Time: 3 Hours **M. Marks: 100**

Section–A (30 Marks): It will consist of ten short answer type questions. Candidates will be required to attempt six questions, each question carrying five marks. Answer to any of the questions should not exceed two pages.
Section–B (45 Marks): It will consist of six essay type questions. Candidates will be required to attempt three questions, each question carrying fifteen marks. Answer to any of the questions should not exceed four pages.
Section–C (25 Marks): It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages. In this section the students will be required to write on the environment of an area/ ecosystem/ vi1lage industry/ disaster/ mine/ dam/ agriculture field/ waste management/ hospital etc. with its salient features, limitations, their implications and suggestion for improvement.

1. **The multidisciplinary nature of environmental studies:** Definition, scope & its importance, Need for public awareness.
2. **Natural resources**: Natural resources and associated problems.
   - **a)** **Forest resources**: Use of over exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
   - **b)** **Water resources**: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
   - **c)** **Mineral resources**: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
   - **d)** **Food resources**: World food problems, change caused by agriculture and overgrazing, effects or modern agriculture, fertilizer-pesticide problem, salinity, case studies.
   - **e)** **Energy resources**: Growing of energy needs, renewable and non-renewable energy resources, use of alternate energy sources, case studies.
   - **f)** **Land recourses**: Land as a resource, land degradation, soil erosion and desertification.
   - **g)** Role of an individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles.
3. **Ecosystem:**
   Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.
   Introduction, types, characteristic features, structure and function of the following ecosystems:
   a. Forest ecosystem
   b. Grassland ecosystem
   c. Desert ecosystem
   d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

4. **Biodiversity and its Conservation:**
   Definition: Genetic, species and ecosystem diversity, Biogeographical classification of India.
   Value of Biodiversity: Consumptive use; productive use, social, ethical, aesthetic and option values.
   Biodiversity of global, National and local levels, India as mega-diversity nation "Hot-spots of biodiversity.
   Threats to Biodiversity: Habitat loss, poaching of wild life, man wildlife conflicts
   Endangered and endemic species of India.
   Conservation of Biodiversity: In situ and Ex-situ conservation of biodiversity.

5. Environmental Pollution:

Definition, Causes, effects and control measures of:

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Marine Pollution
e) Noise Pollution
f) Thermal Pollution
g) Nuclear Hazards

Solid Waste Management: Causes, effects and control measures of urban and industrial wastes.

Role of an individual in prevention of pollution.

Pollution case studies Disaster Management: Floods, Earthquake, Cyclone and Landslides

6. Social Issues and Environment:

* From unsustainable to sustainable development
* Urban problems related to energy
* Water conservation, rain water harvesting, watershed management
* Resettlement and rehabilitation of people; its problems and concerns. Case studies
* Environmental ethics: Issues and possible solutions.
* Climate change, global warning, acid rain, ozone layer depletion, nuclear accidents and holocause. Case studies.
* Wasteland reclamation
* Consumerism and waste products
* Environmental Protection Act
* Air (prevention and Control of Pollution) Act
* Water (prevention and Control of Pollution) Act
* Wildlife Protection Act
* Forest Conservation Act
* Issues involved in enforcement o£. environmental legislation
* Public awareness

7. Human population and the environment

* Population growth, variation among nations
* Population explosion-Family welfare programme
* Environment and human health
* Human rights
* Value education
* HIV / AIDS
* Women and child welfare
* Role of information technology in environment :and human health
* Case studies
* **Road Safety Rules & Regulations:** Use of Safety Devices while Driving, Do's and Don'ts while Driving, Role of Citizens or Public Participation, Responsibilities of Public under Motor Vehicle Act, 1988, General Traffic Signs
* **Accident & First Aid:** First Aid to Road Accident Victims, Calling Patrolling Police & Ambulance

8. Field Work: Visit to a local area to document environmental assets–river / forest / grassland / hill / mountain. Visit to a local polluted site–Urban / Rural / Industrial / Agricultural. Study of common plants, insects, birds. Study of simple ecosystems–pond, river, hill slopes, etc. (Field work equal to 5 lecture hours)

References:

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2. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
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8. Down to Earth, Centre for Science and Environment, New Delhi.
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13. Kaushik, A. & Kaushik, C. P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
14. Miller, T. G. Jr. 2000. Environmental Science, Wadsworth Publishing Co.
15. Odum, E. P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA.
16. Rajagopalan, R. 2005. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.
17. Sharma, B. K. 2001. Environmental Chemistry. Geol Publishing House, Meerut.
18. Sharma, J. P. 2004. Comprehensive Environmental Studies, Laxmi Publications (P) Ltd, New Delhi.
19. Sharma, P. D. 2005. Ecology and Environment, Rastogi Publications, Meerut.
20. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi.
21. Survey of the Environment. 2005. The Hindu.
22. Tiwari, S. C. 2003. Concepts of Modern Ecology, Bishen Singh Mahendra Pal Singh, Dehra Dun.
23. Townsend, C., Harper, J. and Michael, B. 2001. Essentials of Ecology, Blackwell Science.
24. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – I Orthopaedics

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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: Athrodesis, Arthroplasty, Osteotomy, Bonegrafting, Tendon – Transfers and Arthroscopy.
3. **Sprains and Muscle Strains:** List common sites of sprains and muscle strains and describe the clinical manifestations and treatment. Viz. tennis elbow, golfer's elbow, Dequervan's disease, tenovaginitis, trigger finger, carpal tunnel syndrome and plantar fascitis.
4. **Sports Injuries:** Injuries related to common sports their classification and management.

Section – II

1. Fractures and Dislocations: General Principles, outline the following:

i) Types of Fractures including patterns. Open and closed fractures and fracture – dislocations.
ii) Differences between dislocation & subluxation.
iii) General & Local signs & symptoms of fractures & dislocation.
iv) Principle of management of fractures & dislocations.
v) Prevention & treatment of complication including: Fracture – disease, Volkmann's ischeamic contracture, Sudeck's Atrophy, Carpal Tunnel Syndrome. Myositis ossificans and shoulder – hand syndrome.
vi) 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

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. **Bone Joint Tumors:** Classify and outline the clinical features, management and complications of the following (benign / malignant bone and joint tumors, osteomas, osteosarcomas, osteoclastomas, Ewing's sarcoma, multiplemyeloma.

Section – IV

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

1. **Poliomyelitis:** Describe the pathology, microbiology, prevention, management 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 fibula deficiencies meningomyelocoele, Arthrogryphosis multiplex congentiae and Osteogenesis imperfecta.
3. **Peripheral Nerve Injuries:** Outline the clinical features and management, including re-constructive 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 & feet deformities.

Books Recommended:

1. Watson – Zones, 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.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – II **General Medicine**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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 & C, AIDS & influenza.

4. **Metabolic and Deficiency Diseases:** Diabetes, Anemia, Vitamin & Nutritional Deficiency diseases, diseases of the endocrine glands.

Section – II

1. **Diseases of Respiratory System:** Asthma, Bronchitis, Massive collapse of lungs, Bronchiectasis Bronchial Pneumonia, lung abscess, Emphysema, Empyema, Paralysis of diaphragm & vocal cords, chronic infection of larynx and trachea, Abnormalities of trachea, infract of lungs, chronic passive congestion, chronic obstructive pulmonary disease, chest wall deformities.
2. **Diseases of Circulatory System:** Thromobsis, Embolism, Gangrene, Valvular diseases, Hemorrhage, Heart Malformation, various diseases of arteries, diseases of blood forming organs, Anoemia, Leukaemia, Leucocytosis, Peripheral Vascular diseases, diseases of the lymphatic systems. Diseases of the heart – Hypertension, Hypotension, Aortic aneurysm, Endocarditis, Pericarditis, Aortic Regurgitation, Cardiac failure, coronary heart diseases, congenital heart malformation and its manifestation.

Section – III

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

Section – IV

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 diseases.

Section – V

Psychiarty:

1. Introduction: Definition, defence mechanism, symptomatology, types & causes 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 Recommended:

1. Davidson’s Principles and Practices of Medicine - Edward - Churchill Livingstone.

2. Hutchinson’s Clinical Methods - Swash - Bailliere Tindall.

3. A Short Text Book of Medicine - Krishna Rao - Jaypee Brothers.

4. A Short Text Book of Psychiatry - Ahuja Niraj - Jaypee Brothers.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – III **Physiotherapy in Orthopaedic Conditions**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section - I

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

Traumatology General physiotherapeutic approach for the following conditions:

Fracture and dislocations; Classification and type of displacement, method of immobilisation, healing of fractures and factors affecting union, non union, delayed union etc. common sites of fractures.

Specific fractures and their complete physiotherapeutic management.

Upper Limb; Clavicle, humerus, ulna, radius, crush injuries of hand.

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

Spine; fracture and dislocations of cervical, thoracic and lumbar vertebrate with and without neurological deficits.

Section - II

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.

Injuries; Soft tisse injuries, synovitis, capsulitis volkman's ischemic contracture etc. tear of semilunar cartilage and cruciate ligaments of knee, menisectomy, patellectomy, internal derangement of knee.

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.

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.

Section - III

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.

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.

Practical

Marks: 100

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

Books Recommended:

1. Cash text book 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.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – IV **Physiotherapy in Medical Condition-I**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I
General Medicine

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

1. Inflammation – acute, chronic and supprative.
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 – generlised, Degenerative and traumatic, Spondylosis and disorders.
   b) Rheumatoid Arthritis, Still's disease, infective Arthiritis.
   c) Spondylitis, Ankylosing Spondylitis.
   d) Nonarticular Rheumatism – Fibrositism, 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

1) Review of mechanism of normal respiration.
2) Chest examination, including auscultation, percussion.
3) Knowledge of various investigative procedures (invasive & 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 & vocal cords.
6) Chest wall deformities.

Section – III
Cardiovascular

1) Review of anatomy & physiology of the cardiovascular system.
2) Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various cardiovascular disorders.
3) Review of 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.

Books Recommended:

1. Cash 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 Textbook of Chest, Heart and Vascular Disorders for Physiotherapists - Downie - J.P. 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.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – V **Research Methodology and Biostatistics**

Time: 3 Hrs. **M. Marks: 100**

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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

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

Section – III

Biostatistics:

1. Descriptive statistics
2. Comparison of means, T – tests.
3. Analysis of Variance.
4. Qualitative and quantitative observations, Measures of Central Tendency – Arithmetic Mean, Median and Mode, Position of averages.
   Graphical representation of data.
5. Measures of dispersion – range, variance, mean deviation, standard deviation and coeff. of variation.
   Frequency distribution
6. Correlations

Books Recommended:

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 Statistical methods for use in health and nutrition - K.V. Rao-J.P.
5. Research methods in Behavioural Sciences - Mohsin - Orient Publications.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Paper – VI **Neurology**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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 evaluative procedures for the neurological patient.
4. Review of the principles of the management of a neurological patient.

Section – II

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, haemorrhagic & inflammatory, strokes, gross localisation 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 – Barre syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.

BACHELOR OF PHYSIOTHERAPY (PART-III)

Section – III

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

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

1. Introduction to neuropsychology.
2. General assessment procedures and basic principles of management.

Books Recommended:

1. Brain's Diseases of the Nervous System - Nalton – ELBS.

2. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.

3. Principles of Neurology - Victor – McGraw Hill International edition.

4. Davidson's Principles and Practices of Medicine - Edward - Churchill Livingstone.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – I **General Surgery**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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

1. Wounds, Tissue repair, Classification – Acute Wounds, Chronic wounds, Scars & their Management.
2. Wound infections: - Psychology and manifestation, Types of infections & their Management.
3. Tumors and Ulcers: -
   a) Tumors – Types & 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

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

Section – IV

Obstetrics & Gynaecology:

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

Section – V

Ophthalmology:

1. Common 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

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 Recommended:

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.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

PAPER-II: COMMUNITY PHYSIOTHERAPY & REHABILITATION

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

Unit–I

Surveillance, Monitoring & Screening in Occupational Health
- Types & purposes of work place health examination
- Ethical Issues in health examination in the work place

Work Disability
- Definition
- Causes & Prevention
- Management

Unit–II

Ergonomics & Work related Musculoskeletal disorders
- Fatigue
- Chronic work related musculoskeletal disorders
- Occupational low back pain
- Management of Work related Musculoskeletal disorders

Role of physiotherapy in occupational disorders

Unit–III

Industrial Hygiene
- Recognition of Occupational & Environmental Hazards
- Hazard Evaluation
- Hazard Control

Unit–IV

Women's Occupational Health Problem
- Musculoskeletal disorders
- Stress

Unit–V

Community Obstetrics
Social Obstetrics
Maternal & Child Health
- Health indicators
- Goals of MCH services

Role of Physiotherapy in women health related disorders

Unit–VI

Nutrition in Public Health & Preventive Medicine
- Nutritional deficiencies : Causes & Consequences
- Dietary Recommendations
- Nutritional disorders in women

Unit–VII

Family Planning Programs & Practices
- Goals
- Policies & Laws
- Effects
- Family Planning Problems in Public Health

Unit–VIII

Health Problems of the Aged due to
- Ageing
- Illness
- Psychological causes

Physiotherapy approach to Geriatric Conditions

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – III **Paediatrics & Geriatrics**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

Paediatrics:

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 & 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 – II

Geriatrics:

1. Normal aging – definition, the anatomical, physiological and cognitive changes related to aging.
2. Epidemiology and socio- economic impact of aging.
3. The examination & 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 Recommended:

1. Nelson’s Textbook of Paediatrics - Behrman & Vaughan - W.B. Saunders.
2. Textbook of Paediatrics - Parthsarthy - Jaypee.
3. The Short Textbook of Paediatrics - Gupte - Jaypee.
4. Geriatric Physical Therapy - Guccione - Mosby.
5. Motor Assessment of the Developing infant - Piper & Davrah - W.B. Saunders.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – IV **Physiotherapy in Medical Conditions - II**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section-I
Theory
Neurology

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 by 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, Syringomyela 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.

Section – II
Paediatrics

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 musclo skeletal disorders.
   2) Common congenital & acquired neurological disorders (CNS & PNS).
   3) Common heredity disorders.
   4) Common nutritional, metabolic & vitamin deficiency disorders.
   5) Cerebral palsy, myopathy and muscular dystrophies.

Section – III
Geriatrics

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.

Practical

Marks: 100

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

Books Recommended:

1. Cash's Textbook of Neurology for 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. Geriatric Physical Therapy - Gucciona - Mosby.
8. Motor Assessment of Developing Infant - Piper & Darrah - W.B, Saunders.
9. Paediatric Physical Therapy - Teckling - Lippincott.
10. Treatment of Cerebral Palsy and Motor Delay - Levitts - Blackwell Scientific Publications, London.
11. Aging the Health Care Challenge - Levis - F.A. Davis.
12. Physiotherapy in Paediatrics - Shepherd - Butterworth Heinmann.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – V **Physiotherapy in Surgical Conditions**

Time: 3 Hrs. **M. Marks: 200**
Theory: 100
Practical: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I
Thoracic Surgery

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

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

Section – II
General, Gynaecology and Obsterics and ENT

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 etc.
2) Common operation of reproductive system, including surgical intervention for child delivery. Ante natal & post natal, physiotherapy
3) Common operations of the ear, nose, throat & jaw as related to physiotherapy.
4) Common organ transplant surgeries – heart, liver, bone marrow etc.

Section – III
Wounds, Burns & Plastic Surgery

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

1) Wounds, ulcers, pressure sores.
2) Burns & their complications.
3) Common reconstructive surgical proceedings of the management of wounds, ulcers, burns & consequent contractures & deformities.

Section – IV
Neurosurgery

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

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.

Books Recommended:

1. Cash Textbook of General Medical and Surgical Conditions for Physiotherapists – Downie - Jaypee Brothers.
2. Cash 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 – Mackanzie – 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.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – VI Rehabilitation, Organization and Administration

Time: 3 Hrs. **M. Marks: 100**
Theory: 100

1. There will be Twelve Questions of equal Marks distribution. Candidate will have to answer any ten questions.
2. The questions should be equally distributed in the whole syllabus.

Section – I

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 N.G.Os in rehabilitation of the persons with disabilities.
7. Basic principles of administration and finance including personnel management and budget preparation and procurement etc.

Section – II

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

1. Principles and mechanisms of Communication including speech and hearing.
2. Common disorders of speech and hearing – etiogenesis, 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 – IV

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 & a home education programme.

Section – V

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 activites (e) self care activities, such as toilet, eating, dressing etc.

Books Recommended:

1. Physical Rehabilitation – assessment & Treatment - Sullivan & Schmitz - F.A. Davis.
2. Occupational Therapy and Physical disfunction: Principles, Skills & Practices – Turner, Foster & Johnson - Churchill Livingstone.
3. Hand Splitting - Wilson – W.B. Saunders.
4. Orthotics in Rehabilitation: Splinting the hand and the boby - 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 Spackman’s occupational therapy - Neistadt & Crepeau - Lippincott.

BACHELOR OF PHYSIOTHERAPY (PART-IV)

Paper – VII Practical : Computer Applications

M. Marks: 50

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

To study the various components of a personal computer.

To have working knowledge of hardware and software.

To practice the operational skills of common computer applications, including work processing & 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.

BTP-IV (Practical Schedule)

General Surgery –Practical including evaluation, clinical diagnosis and treatment for the condition covered in general surgery.

Community Physiotherapy & Rehabilitation: Practical includes community work based on different work places.

Neurology-Practical including evaluation, clinical diagnosis and treatment for the conditions covered in neurology.

Paediatrics & Geriatrics- Practical including evaluation, clinical diagnosis and treatment for the conditions covered in Paediatrics & Geriatrics.

Physiotherapy in Medical Conditions (II)-Practical for the evaluation, diagnosis and treatment for the various medical conditions including the physiotherapeutic approaches and the use of various modalities.

Physiotherapy in surgical Conditions-Practical for the evaluation, diagnosis and treatment for the various surgical conditions including the physiotherapeutic approaches and the use of various modalities.

Computer Applications : Practical examination covering the various components of computers, hardware and software knowledge, common computer applications, multimedia, utility and the skills of web surfing.

Internship / Externship

Rotational six months compulsory internship / externship after the successful completion of the final examination should cover the clinical branches concerned with the physiotherapy such as :

1. Neurology – Neurology IN patient, Neurosurgery, NS-ICU
2. Orthopedics and Trauma Ward
3. Cardiothoracic and ICU
4. Respiratory Care Unit
5. Pediatrics Unit
6. Gynaecology Unit
7. Burns & Plastic Surgery Unit
   Physiotherapy OPD