Faculty of Sports Medicine & Physiotherapy

Syllabus

For

BACHELOR OF PHYSIOTHERAPY
PART: I – IV
Examination: 2020

GURU NANAK DEV UNIVERSITY
AMRITSAR

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# BACHELOR OF PHYSIOTHERAPY

## Scheme of Examination

### First Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theory</th>
<th>Practical</th>
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<tbody>
<tr>
<td></td>
<td>Marks</td>
<td>Teaching Hours</td>
</tr>
<tr>
<td>Anatomy</td>
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<tr>
<td>Physiology</td>
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<tr>
<td>Biochemistry</td>
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<td>100</td>
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<tr>
<td>Electrotherapy – I</td>
<td>100</td>
<td>125</td>
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<tr>
<td>Exercise Therapy – I</td>
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<td>125</td>
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<tr>
<td>Sociology &amp; Community Health</td>
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<tr>
<td>Punjabi / Basic Punjabi (ਪੰਜਾਬੀ ਭਾਸ਼ਾ)</td>
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<tr>
<td><strong>Punjab History and Culture</strong></td>
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<tr>
<td>(Earliest Times to 1000 A.D.)</td>
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<td>*Problem of Drug Abuse: Management and Prevention (Compulsory)</td>
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(**For those students who are not domicile of Punjab)**

### Second Year

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<tr>
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<td>Biomechanics</td>
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<td>Psychology</td>
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<td>* Environmental Studies (Compulsory)</td>
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* Marks of this Paper will not be included in Grand Total.
### Third Year

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<td>Neurology</td>
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### Fourth Year

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<tr>
<td>PT in Surgical Conditions</td>
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<tr>
<td>Rehabilitation, Organization and Administration</td>
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<tr>
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<tr>
<td>Clinical Training</td>
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Practical Schedule
Internship / Externship
Details
Paper – I

Anatomy

M. Marks:  200
Theory:  100
Practical:  100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section-A

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.

Systems of Human body (a brief Outline):
2. Respiratory System – Anatomy of upper and lower respiratory tract including nose, larynx, trachea, bronchi, pleura and lungs.
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-B

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. Hypothalamus
10. Epithalamus
11. Thalamus
12. Cerebral hemispheres
13. Corpus striatum
14. Rhinencephalon
15. Lateral ventricles
16. Meninges
17. Blood supply of the brain
18. Internal Capsule
19. Visual radiation
20. Auditory radiation
21. Pyramidal systems
22. Extra-pyramidal systems
23. Sympathetic system
24. Para-sympathetic system
25. Cranial nerves

Upper Extremity
- **Osteology**
  - Outline 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 Sections 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

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**
TRUNK-THORAX ABDOMEN

- **Osteology:**
  - Vertebral columns: Identify the parts of typical vertebra 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
BACHELOR OF PHYSIOTHERAPY (PART-I)

Section-D

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 diaphragm (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.

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 explanation 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

**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 landmarks 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.
Paper – II
Time: 3 Hrs.

Physiology

M. Marks: 200
Theory: 100
Practical: 100

Instructions for the Paper Setters:-
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Section–A

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.

Section–B

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–C

Neuro – Physiology
2. Action Potential
3. Special properties of nerve trunks and tracts.
5. Reflex physiology
6. Synapse and synaptic transmission.
7. Supraspinal Control.
8. Cerebellum and basal ganglia.
9. Autonomic nervous system.
10. Somatic sensation.
11. Pain

Section–D

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.

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.
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.
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.
13. Sensations.
15. Tests for functions of Cerebellum.

Books Recommended:

1. Text book of Medical Physiology–Arthur Guyton (Mosby.)
BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper –III  Biochemistry

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

Instructions for the Paper Setters:-
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Section–A

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, **DNA & RNA**

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

4. **Connective Tissue:** Mucopolysaccharide connective tissue proteins, glycoproteins.

5. **Nerve Tissue:** Composition, chemical mediators of Nerve activity.

6. **Isotopes:** Isotopes and their role in treatment and diagnosis of diseases.

Section–B

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.
Section-C
1. **Enzymes**: Definitions, classification, mode of action, factor affecting enzyme action, clinical importance of enzyme.


3. **Nutrition**: Dietary requirements & Balanced diet.


Section-D
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.

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

Books Recommended:

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper – IV  Electrotherapy – I

Time: 3 Hrs.  M. Marks: 200

Theory: 100
Practical: 100

Instructions for the Paper Setters:-
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Section–A

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.
3. Mili ammeter and Voltmeter, Transformers and Choke Coil.

Section–B

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.
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.
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.

Electrical Reactions and Electro – diagnostic tests:
   a) Electrical Stimuli and normal behaviour of Nerve and muscle tissue.
   b) Types of lesion and development of reaction of degeneration.
   c) Faradic – Intermittent direct current test.
   d) S.D. Curve and its application.
   e) Chronaxie, Rheobase & pulse ratio.

Section – C

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–D**

**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.

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**Electrotherapy – I**  
**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 Section, 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 Section, its operation and different methods of application – region wise.
10. To study the different types of Ultra violet Sections, 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.

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**Books Recommended:**

3. Therapeutic Heat and Cold – Lehmann – Williams & Wilkins.
Instructions for the Paper Setters:
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Section–A
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
  d) Resisted movement
  e) To study the principles, techniques of application indication, Contraindication, precaution, effects and uses of Suspension Therapy.

General introduction to Yoga – Conceptual framework, various “asanas”, the body – mind relationship, efforts & precautions.

Section –B
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.

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–C
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–D

Motor Learning
i)  **Introduction to motor learning**
   a) Classification of motor skills.

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.

**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:**

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:

2. Therapeutic Exercises - Basmajian - Williams and Wilkins.
9. Muscle testing and functions - Kendall - Williams & Wilkins.
Instructions for the Paper Setters:-
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Section-A
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.

Section-B
1. **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.
2. **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.
3. **Culture:** Components of culture. Impact 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.
4. **Caste System:** Features of modern caste system and its trends.
5. **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.
Section-C

1. **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.

2. **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

3. **Social Security:** Social security and social legislation in relation to the disabled.

4. **Social Worker:** The role of medical social worker.

Section-D

**Community Health:**

1. Introduction to Community Health, Community and rehabilitation.
2. 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.
3. Community based rehabilitation vs. institutional based rehabilitation – comparison and different aspects. Community resources and their uses.

**Books Recommended:**

BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper VII: रीति पीठ (समासी)

भाग : दूसरा भाग

वस्त्र भाग : 100

पाठ-सूची अनुसार पाठ-प्रमाण

मैवस्त-ती

दे तैयार (मॉन. उचित सिद्धियां खिलाए अनुसार धूमध्य संज्ञापीय). बाहु सधार एक पूर्णपत्रमीटी, अभीष्टमत
(१) धूमध्य संज्ञापीटी, धिमा दम्मु
(२) व्यवस्थित स्थ संसार/समुद्र/मात

मैवस्त-ती

बौद्ध धार्मि (मॉन. विश्वास सिद्ध वैभव अनुसार समथन सिद्ध विषया). बाहु सधार एक पूर्णपत्रमीटी, अभीष्टमत
(१) धिमा/हाथ नीति/धिमा दम्मु
(२) अनुश्रवण/स्वत/धिमा दम्मु, मातमित्र दे बाहु

मैवस्त-मू

भाग सैनिकीय (भाग सात सैनिकी धुप, भाग अनुसार धुप-भाग सात भंडा, रीति पीठ-भवनां से धारक-अवत)

मैवस्त-ती

(१) अनुश्रवण
(२) धुप पत्र बे पूर्णां दे धुपन
(३) अनुश्रवण अनुसार

अनुश्रवण अनुसार पाठीमध्य खटी उपष्टियां

1. धुपत धुंधले रे भास ढुंढो। उस ढुंढ दिशेके रे पूर्ण पुंडे सागरो।
2. दिशाशिलक्षी के रेवंज धो पूर्ण पुंड हड़ी यह। उस ढुंढ दिशेके हिंदु पूर्ण समाभी है।
3. धुपत धुंधले रे भास मूज अंच रल।
4. धुपत मैंट वेयंट डांडिया नैति उचि पूर्णां ती बाजी डंग दे धंग चक धुप-पूर्णां
   हिंदु जान सवार है।
PUNJAB HISTORY AND CULTURE (Earliest Times to 1000 A.D.)
(Special Paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours                      Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section A
1. Physical Features of the Punjab and their impact.
2. Sources of Ancient Punjab History.
3. Harappan Culture: Principal places, town planning, features of social and economic life, religion, causes of disappearance.

Section B
4. The Indo- Aryans:- Original home and settlement in Punjab, political organisation, social, religious, and economies life during the Regvedic Age
5. Impact of Buddhism and Jainism in the Punjab.
6. Political condition of Punjab on the eve of Alexander’s Invasions, account of the invasion and its impact.

Section C
7. Punjab under Chander Gupta Maurya and Ashoka.
8. Scythians and Kushans and their contribution to Punjab.

Section D
10. Punjab from 7th Century to 1000 A.D (Survey of Political History)
11. Development of Education and Literature in the Punjab upto 1000 A.D.
12. Development of Art and Architecture up to 1000 A.D.

Suggested Readings
BACHELOR OF PHYSIOTHERAPY (PART-I)

Paper VII: ਭੁੱਧਨੀ ਪੇਸ਼ਾਵਾਈ
(In lieu of Punjabi Compulsory)

ਸ਼ਾਸਤਰ: ਇੱਕ ਜੇਟਿਲ
ਬਲਚੜ਼: 100

ਮੈਵਾਲੰਦ-ਦੇ
ਪ੍ਰਦੀਪ ਮਟੀ, ਅਹਿਮਤ ਬੂੰਗ, ਪ੍ਰਦੀਪ ਸਿੰਘ ਤੇ ਇਤਿਹਾਸ ਗ੍ਰਿਂਦਵਾਲ ਅਤੇ ਸਰਦਾਰ ਵਿੱਚਾਰੂਂ (ਸ਼ੁਭਸਿੱਧਾਂਤ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ), ਸਲਾਫ਼ (ਸਿੰਘੀ, ਥਿਰੀ ਅਧਿਆਪਕ) : ਪਹਾਣੀ ਅਤੇ ਵਾਰਕੇ

ਮੈਵਾਲੰਦ-ਸਿੀ
ਪ੍ਰਦੀਪ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ : ਸ਼ੁਭਸਿੱਧਾਂਤ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ
(ਸਾਹਿਤ ਸਾਹਿਤ, ਇਤਿਹਾਸ ਸਾਹਿਤ, ਬਿਬੀਤ ਸਾਹਿਤ, ਮੁੱਕ ਸਾਹਿਤ, ਅਕਾਦਮੀ ਅਤੇ ਵਿਗਿਆਨ)

ਮੈਵਾਲੰਦ-ਮੈਵਾਲੰਦ
ਸੀ ਰਾਹੂ ਇੱਕ ਪ੍ਰਦੀਪ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ : ਸਾਹਿਤ, ਇਤਿਹਾਸ, ਵਿਗਿਆਨ-ਰਾਸੁਲ, ਸੀ ਰਾਹੂ ਅਤੇ ਮੈਵਾਲੰਦ ਵਿਗਿਆਨ ਅਤੇ ਵਿਗਿਆਨ

ਮੈਵਾਲੰਦ-ਨਾਈ
ਕਹੋ ਜੇਤਾ ਸੀ ਸ਼ੁਭਸਿੱਧਾਂਤ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ ਅਤੇ ਜੇਤਾ ਸੀ ਸ਼ੁਭਸਿੱਧਾਂਤ ਸਾਹਿਤ-ਪ੍ਰਕਾਸ਼ਣ

ਸਾਹਿਤ-ਬਡਾਂ ਅਤੇ ਪਰਿਸ਼ੀਲਨ ਵਧਾਵੇ ਤਰਾਂ
1. ਪ੍ਰਦੀਪ ਤੋਂ ਚਿੜਣ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ,
2. ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ,
3. ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ,
4. ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ, ਜਨਾ ਦੀ ਵਿਚਾਰਾਂ ਦੇ ਤਾਂ,

ਉਤਪਨਨ: ਕੱਲ ਅਤੇ ਅਰਥਾਤਾਂ
PROBLEM OF DRUG ABUSE: MANAGEMENT AND PREVENTION

Thoery Lectures: 50 Hours
Max. Marks: 100
Time: 3 Hours

Instructions for the Paper Setters: -
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section – A

Meaning of Drug Abuse:
(ii) Consequences of Drug Abuse for:
    Individual : Education, Employment, Income.
    Family    : Violence.
    Society   : Crime.
    Nation    : Law and Order problem.

Section – B

Management of Drug Abuse:
(i) Medical Management: Medication for treatment and to reduce withdrawal effects.
(ii) Psychiatric Management: Counselling, Behavioural and Cognitive therapy.
(iii) Social Management: Family, Group therapy and Environmental Intervention.

Section – C

Prevention of Drug abuse:
(i) Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.
(ii) School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

Section – D

Controlling Drug Abuse:
(i) Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program
References:

Paper – I

Pathology & Microbiology

Time: 3 Hrs.

M. Marks: 100
Theory: 100

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section – A

General Pathology

1. Aims and objectives of the study of pathology. Meaning of terms, etiology, pathogenesis and lesions.
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. Neoplasia: 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

Section – B

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


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


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

**Section – C**

**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

**Section – D**

4. 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)


**Books Recommended:**

1. Robbins Pathological Basis of Disease - Cotran, Kumar & Robbins - W.B. Saunders.
2. General Pathology - Walter & Israel - Churchill Livingstone.
5. Pathology: Implications for Physical Therapists - Goodmann and Boissonnault - W.B. Saunders.
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 the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four
Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are
required to attempt five questions, selecting at least one question from each Section. The fifth
question may be attempted from any Section.

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

Section – B
1. Drugs acting on Central nervous system – anaesthetics, alcohols, alkaloids, narcotics,
antipyretics, hypnotics, sedatives, anticonvulsants, stimulants, psychotherapeutics
(brief description).
2. Drugs acting on peripheral nervous system – stimulating and inhibiting cholinergic and
anticholinergic activity.

Section – C
1. Drugs acting on Neuromuscular junction and muscles
2. Drugs for pain management.

Section – D
1. Hormones and drugs affecting endocrine functions
2. Drugs acting on cardiovascular system – (i) Antianginal drugs, (ii) Drugs for MI,
(iii) Brief outline of drugs for CHF, (iv) Antihypertensive drugs.
3. Chemotherapeutic agents – Modern antibiotics, antitubercular drugs, antiamoebic drugs
etc.

Books Recommended:
2. The Pharmacologic Principles of Medical Practice - Krantg & Jelleff - Calcutta Scientific
Book Agency.
3. Pharmacology - Praseem K. Das. – Churchill Livingstone
Paper – III:  

Electrotherapy – II

Time: 3 Hrs. 

Marks: 200
Theory: 100
Practical: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION – A

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.
5. Physics of sound including characteristics and propagation.

SECTION – B

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. (a) **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.
   (b) **Di–Dynamic Currents, Russian Current** – Production, types, therapeutic uses and contraindications of Russian currents and dynamic currents.
3. **High frequency sound waves (Ultrasound)** – Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.

SECTION – C

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.

SECTION – D

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)

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:

3. Therapeutic Heat and Cold Lehmann – Williams & Wilkins.
BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – IV

Exercise Therapy – II

Time: 3 Hrs.

Marks: 200
Theory: 100
Practical: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section–A

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.
6. Functional re-education – General therapeutic techniques to re-educate ADL function.

Section–B

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–C

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.
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.
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.
4) Proprioceptive Neuromuscular Facilitation - Voss et al - Williams and Wilkins.
8) Aquatic Exercise Therapy - Bates and Hanson - W.B. Saunders.
BACHELOR OF PHYSIOTHERAPY (PART-II)

Paper – V    Biomechanics

Time:  3 Hrs.    Marks:  100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section – A
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 – B
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 – C
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 – D
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 Antero-posterior and lateral views.
6. Analysis of normal gait and measurement of spatio temporal features.

Books Recommended:

4. Basic Biomechanics Explained - Low & Reed - Butterworth Heinmann.
Paper – VI  Psychology

Time: 3 Hrs.  Marks: 100
Theory: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section – A  General Psychology

1. Definition of Psychology: Definition of psychology, information in relation to following schools methods and branches.
   a. Schools: Structuralism, functionalism, behaviourism psychoanalysis, gestalt psychology.
   b. Methods: Introspection, observation, inventory and experimental method.
   c. Branches: General, child, social, abnormal, industrial, clinical, 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.


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.


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.

**Section – B**

1. **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.

2. **Thinking:** Definition, concepts, creativity, steps in creative thinking, list the traits of creative people, delusions.

3. **Frustration:** Definition, sources, solution, Conflict; Approach – approach, Avoidance – avoidance, and approach – avoidance solution.

4. **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.

5. **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).

6. **Defence Mechanisms of the Ego:** Denial, rationalization, projection, reaction formation, identification, repression, emotional insulation, undoing, interjection, acting out depersonalization.

**Section – C**

**Health Psychology**

1. **Psychological Reactions of a Patient:** Psychological reactions of a patient during admission and treatment anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perpetual changes, confusion, disorientation, hallucinations, delusions, illusions, anger, hostility, loss of hope.

2. **Reactions to Loss:** Reactions to loss, death and bereavement shock and disbelief, development of awareness, restitution, resolution. Stages of acceptance as proposed by Kubler – Ross.
3. **Stress:** Physiological and Psychological relation to health and sickness: psychosomatic, professional stress burnout.

4. **Communications:**
   a) Types verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
   b) Counseling: Definition, Aim, differentiate from guidance, principles in counseling and personality qualities of counselors.

5. **Compliance:** Nature, factors, contributing to non – compliance, improving compliance.

   **Section – D**

1. **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.

2. **Geriatric Psychology:** Specific psychological reactions and needs of geriatric patients.

3. **Pediatric Psychology:** Specific psychological reactions and needs of pediatric patients.

4. **Behavior Modifications:** Application of various conditioning and learning principles to modify patient behaviours.

5. **Substance Abuse:** Psychological aspects of substance abuse: smoking, alcoholism and drug addiction.

6. **Personality Styles:** Different personality styles of patients.

**Books Recommended:**

1. Introduction to Psychology - Mums - I.D.P. Co.
Environmental Studies (Compulsory)

Max. Marks: 100

Teaching Methodologies:
The Core Module Syllabus for Environmental Studies includes class room teaching and field work. The syllabus is divided into 8 Units [Unit-I to Unit-VII] covering 45 lectures + 5 hours for field work [Unit-VIII]. The first 7 Units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit-VIII comprises of 5 hours field work to be submitted by each candidate to the Teacher in-charge for evaluation latest by 15 December, 2019.

Exam Pattern:

End Semester Examination- 75 Marks
Project Report/Field Study- 25 Marks [based on submitted report]
Total Marks- 100

The structure of the question paper being:

Part-A, Short answer pattern with inbuilt choice – 25 Marks
Attempt any five questions out of seven distributed equally from Unit-I to Unit-VII.
Each question carries 5 marks. Answer to each question should not exceed 2 pages.

Part-B, Essay type with inbuilt choice – 50 Marks
Attempt any five questions out of eight distributed equally from Unit-I to Unit-VII. Each question carries 10 marks. Answer to each question should not exceed 5 pages.

Project Report / Internal Assessment:

Part-C, Field work – 25 marks [Field work equal to 5 lecture hours]
The candidate will submit a hand written field work report showing photographs, sketches, observations, perspective of any topic related to Environment or Ecosystem. The exhaustive list for project report/area of study are given just for reference:

1. Visit to a local area to document environmental assets: River / Forest/ Grassland / Hill / Mountain / Water body / Pond / Lake / Solid Waste Disposal / Water Treatment Plant / Wastewater Treatment Facility etc.
2. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
3. Study of common plants, insects, birds
4. Study of tree in your areas with their botanical names and soil types
5. Study of birds and their nesting habits
6. Study of local pond in terms of wastewater inflow and water quality
7. Study of industrial units in your area. Name of industry, type of industry, Size (Large, Medium or small scale)
8. Study of common disease in the village and basic data from community health centre
9. Adopt any five young plants and photograph its growth
10. Analyze the Total dissolved solids of ground water samples in your area.
11. Study of Particulate Matter (PM$_{2.5}$ or PM$_{10}$) data from Sameer website. Download from Play store.
12. Perspective on any field on Environmental Studies with secondary data taken from Central Pollution Control Board, State Pollution Control Board, State Science & Technology Council etc.
Unit-I
The Multidisciplinary Nature of Environmental Studies
Definition, scope and importance, Need for public awareness
(2 lectures)

Unit-II
Natural Resources: Renewable and Non-Renewable Resources:
Natural resources and associated problems.
(a) Forest resources: Use and 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, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
(e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
(f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
• Role of an individual in conservation of natural resources.
• Equitable use of resources for sustainable lifestyles.
(8 Lectures)

Unit-III
Ecosystems:
• 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 ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)
(6 Lectures)

Unit-IV
Biodiversity and its Conservation:
• Introduction – Definition: genetic, species and ecosystem diversity
• Biogeographical classification of India
• Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
• Biodiversity at global, national and local levels
• India as a mega-diversity nation
• Hot-spots of biodiversity
• Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
• Endangered and endemic species of India
• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit-V

Environmental Pollution:
Definition:
• Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
• 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

Unit-VI

Social Issues and the Environment
• From unsustainable to sustainable development
• Urban problems and 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 warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
• Wasteland reclamation
• Consumerism and waste products
• Environmental Protection Act, 1986
• Air (Prevention and Control of Pollution) Act, 1981
• Water (Prevention and control of Pollution) Act, 1974
• Wildlife Protection Act
• Forest Conservation Act
• Issues involved in enforcement of environmental legislation
• Public awareness

Unit-VII

Human Population and the Environment
• Population growth, variation among nations
• Population explosion – Family Welfare Programmes
• 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
Unit-VIII

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:

2. Down to Earth, Centre for Science and Environment, New Delhi.
9. State of India’s Environment 2018 by Centre for Sciences and Environment, New Delhi
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: Arthrodesis, 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, Volkman’s ischaemic 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.


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 meningomyelocele, Arthrogryphosis multiplex congenitae and Osteogenesis imperfecta.

3. **Peripheral Nerve Injuries:** Outline the clinical features and management, including reconstructive surgery of:
   a) Radial, Median and Ulnar Nerve Lesions.
   b) Sciatic and Lateral Popliteal Lesions.
   c) Brachial Plexus injuries including Erbs, Klumpke’s and crutch palsy.

4. **Hand Injuries:** Outline of clinical features, management and complications of : Skin and soft tissue injury, tendon injury, bone and joint injury.

5. **Leprosy:** Outline of clinical features, management and complications of neuritis, muscle paralysis, tropic ulceration and hand & feet deformities.
Books Recommended:

6. Physical Examination in Orthopaedics – Apley – Butterworth Heinmann.
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.
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.

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.


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, neurasthenia, 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:


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


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 patella 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:
2. Tidy’s Physiotherapy - Thomson et al -Butterworth Heinmann.
4. Tetraplegia & Paraplegia - Bromley - W.B. Saunders.
5. Orthopaedic Physiotherapy - Donatelli & Wooden - W.B. Saunders.
7. Orthopaedic Physiotherapy - Tids well - Mosby.
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 Arthritis.
   c) Spondylitis, Ankylosing Spondylitis.
   d) Nonarticular Rheumatism – Fibrositism, Myalgia, bursitis, Periarthritis etc.
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:

6. Cardiovascular / Respiratory Physiotherapy - Smith & Ball - Mosby.
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.
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.
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: -

3. Trauma – localization, first aid and management of sequelae of head injury and spinal cord injury.
5. Demyelinating diseases (central and peripheral) – Guillain – Barre syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.
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.

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.
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.
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.

Section – III
3. Thoracic and Cardiac Surgery – Types of incisions & common surgical procedures.

Section – IV
Obstetrics & Gynaecology:

Section – V
Ophthalmology:
1. Common inflammations and other infections of eye.
2. Ptosis
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.
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:

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
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.
7. Hereditary disorders - etiogenesis, clinical manifestation & principles of management.
8. Nutritional Vitamins Deficiency & Development Disorders – etiogenesis, clinical manifestation & principles of management.
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.
8. Burns, Injuries & accident as related to the elderly & preventive care.
9. Dementia – Types and principles of management.
Books Recommended:


2. Textbook of Paediatrics - Parthsarthy - Jaypee.


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 musculo 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

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:
5. Neurological Physiotherapy – A Problem Solving Approach - Susan Edwards - Churchill
Livingstone.
10. Treatment of Cerebral Palsy and Motor Delay - Levitts - Blackwell Scientific Publications,
London.
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 Obstetrics 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.

SECTION – V

ICU (Intensive Care Unit) and Ventilation

1) Intensive Therapy – Clinical Management
2) Intensive Therapy – Apparatus (Ventilations, Tubes, Humidifiers etc.)
3) Intensive Therapy – Adult Patient
4) Paediatric & Neonatal Intensive Therapy

Books Recommended:

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

2. Fabrication of simple splints and self help devices for upper and lower extremity – indications and application.

SECTION – III

1. Principles and mechanisms of Communication including speech and hearing.
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 activities (e) self care activities, such as toilet, eating, dressing etc.
3. Principles of occupational therapy including evaluation and goals for people with disability.

Books Recommended:
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