

**BIHAR UNIVERSITY OF HEALTH SCIENCES
MITHAPUR, PATNA- 800001**



**SYLLABUS
FOR
FIRST BACHELOR OF OCCUPATIONAL THERAPY
(B.Th.O.) EXAMINATION**

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BHAR UNIVERSITY OF HEALTH SCIENCES
MITHAPALKA PATNA-80001



DEPARTMENT OF OCCUPATIONAL THERAPY
FOR
PHYSIOTHERAPY

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Bihar University of Health Sciences. Patna
(Duration of Course 4^{1/2} Years including 6 months Internship)

First Bachelor of Occupational Therapy (First B.Th.O)

Paper	Subject	Theory			Practical			Total	
		Marks	Hours	Min. Pass Marks	Marks	Hours	Min. Pass Marks	Marks	Hours
Paper I	Human Anatomy	100	3	50	100	3	50	200	6
Paper II	Human Physiology	100	3	50	100	3	50	200	6
Paper III	Bio-Chemistry & Bio- Physics	050	2	25	-	-	-	050	2
Paper IV	Bio- Mechanics & Kinesiology	050	2	25	-	-	-	050	2
Paper V	Ergo dynamics	100	3	50	100	3	50	200	6
Grand Total		400	13		300	9		700	22

Second Bachelor of Occupational Therapy (Second B.Th.O)

Paper	Subject	Theory			Practical			Total	
		Marks	Hours	Min. Pass Marks	Marks	Hours	Min. Pass Marks	Marks	Hours
Paper I	Pharmacology	100	3	50	-	-	-	100	3
Paper II	Pathology & Bacteriology	050	2	25	-	-	-	050	2
Paper III	General & Social Psychology	050	2	25	-	-	-	050	2
Paper IV	Ergo therapeutics – I	100	3	50	100	3	50	200	6
Paper V	Applied & Experimental Psychology & Bio-Statistical	100	3	50	50	1 ^{1/2}	25	150	4 ^{1/2}
Grand Total		400	13		150	4^{1/2}		550	17^{1/2}

Clinical Training : -350 Hours

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Third Bachelor of Occupational Therapy (Third B.Th.O)

Paper	Subject	Theory			Practical			Total	
		Marks	Hours	Min. Pass Marks	Marks	Hours	Min. Pass Marks	Marks	Hours
Paper I	Medicine	100	3	50	50	1 ^{1/2}	25	150	4 ^{1/2}
Paper II	Surgery	100	3	50	50	1 ^{1/2}	25	150	4 ^{1/2}
Paper III	Psychiatry	050	2	25	-	-	-	050	2
Paper IV	Ergo therapeutics-II	100	3	50	100	3	50	200	6
Paper V	Bio- engineering & Ergonomics	100	3	50	100	3	50	200	6
Grand Total		450	14		300	9		750	23

Clinical Training : -350 Hours

Final Bachelor of Occupational Therapy (Final B.Th.O)

Paper	Subject	Theory			Practical			Total	
		Marks	Hours	Min. Pass Marks	Marks	Hours	Min. Pass Marks	Marks	Hours
Paper I	Medical Occupational Therapy	100	3	50	100	3	50	200	6
Paper II	Surgical Occupational Therapy	100	3	50	100	3	50	200	6
Paper III	Rehabilitation & Therapeutic management	100	3	50	-	-	-	100	3
Paper IV	Prosthetics & Orthotics	100	3	50	100	3	50	200	6
Grand Total		400	12		300	9		700	21

Clinical Training : -500 Hours

Total Marks : 700 + 550 + 750 + 700 = 2700

Total Teaching & Practical Hours: 4820

Total Clinical Training Hours : 350 + 350 + 500 = 1200

Compulsory Internship Hours : 1150



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PAPER I
HUMAN ANATOMY

SECTION I : GENERAL & SYSTEMIC ANATOMY

1. INTRODUCTION:

Scope of Anatomy, Cell as a structural and functional Unit, organization of tissue, organs and system; Anatomical position of the body.

2. Skin and the appendages of the skin.

3. MUSCLES:

Voluntary and involuntary muscles, short description of the structure of different muscles.

4. MUSCLES:

Classification of Voluntary Muscle, origin and Insertion Tendon; Isometric and isotonic contraction of the muscle.

5. BONES:

Hard connective tissue, composition and Function, classification of bone according to Morphology and Development, various terms as ridge, tuberosity and trochanter.

6. BONES:

Development of bones, Parts of long bones and blood supply of bones, central remarks about the bones of skull, thorax, vertebral column and extremities.

7. JOINTS :

Definition, classification of joints, structure of Fibrous and cartilaginous joints.

8. JOINTS:

Structures of synovial joint, Movements of joints, Blood supply of bone and joints.

9. NERVOUS SYSTEM:

Nerve cell, Synapse and Reflex Arc.

10. NERVOUS SYSTEM:

Organization of Central Nervous system, Spinal nerves and Nerve ending with demonstrations of various parts.

11. CARDIOVASCULAR SYSTEM:

Blood as a connective tissue, Functions in Short, Gross anatomy of Heart with demonstrations of various parts.

12. CARDIOVASCULAR SYSTEM:

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Arteries, Veins, Capillaries, Collateral circulation, Nervous control of blood circulation, with demonstration and surface anatomy.

13. RESPIRATORY SYSTEM:

General outline of Respiratory Passages, Gross; anatomy of Lung Pleura; with demonstration of Surface anatomy.

14. RESPIRATORY SYSTEM:

Broncho-pulmonary segments, Intercostal Muscle and Mechanism of Respiration.

15. DIGESTIVE SYSTEM:

General idea or outline of Gastro-intestinal tract and associated glands; Demonstration of organs.

16. EXCRETORY SYSTEM:

Structure and function of kidneys, General outline of Ureters, Urinary Bladder and Urethra, demonstration of organs.

17. REPRODUCTIVE SYSTEM:

General outline of male and female genital organs; detail in female, brief in male.

18. ENDOCRINES:

Definition, structure in general, control of secretion of pituitary, thyroid, Adrenal, pancreas with demonstration.

19. LYMPHATIC SYSTEM:

Lymph circulation, Lymph nodes and Lymphoid tissue in details.

20. GENERAL EMBRYOLOGY:

- (1) Female and Male Genital organs and development of ovum and sperm.
- (2) Fertilization and formation of three germ layers and their dominations.
- (3) Development of Bones, axial and appendicular skeleton and muscles.
- (4) Neural tube, brains vesicles and spinal cord.
- (5) Development of Brain and Brain stem structures.

DEMONSTRATIONS: Practical as per Syllabus.

- (1) Muscles of; the whole body.
- (2) Demonstration of organs in Thorax and abdomen.
- (3) Demonstration of viscera of Head, Face and Neck.
- (4) Demonstration of all the Glands in the body.
- (5) Surface marking on living body of lung, pleura, fissures and Lobes of Lungs, Heart, Abdominal viscera.

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- (6) Identification of body prominences on inspection and palpation in the body especially of extremities. Points to palpate nerves and arteries, Identification of prominent muscles.
- (7) Extra Ocular muscles and salient points about the eyeball.
- (8) Ear – Specially the Internal Ear.
- (9) Demonstration of Brain.

SECTION – II

MUSCULO-SKELETAL & NEURO-ANATOMY

1. SUPERIOR EXTREMITY:

Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals.

Soft Parts: Breast, Pectoral Region, Axilla, Front of Arm, Back of Arms, Cubital fossa, Front of Forearm, Back of forearm, Nerves and Vessels of Forearm, Palm, Dorsum of hand, Shoulder girdle, shoulder joint, Elbow Joint, Radio-Ulnar Joint, Wrist joint, Joints of hand.

2. INFERIOR EXTREMITY:

Osteology: Hip Bone, Femur, Tibia, Fibula and Patella, Tarsals Metatarsus.

Soft Parts: Front of thigh, Femoral triangle, Femoral canal & femoral hernia, Adductor Canal, Medial compartment of thigh, Gluteal region, Back of thigh, Popliteal Fossa, Anterior compartment of leg, Posterior compartments of leg, Sole of foot, Lymphatic drainage of leg, venous drainage of leg, hip joint, knee joint, Ankle joint, Tarsal joints.

3. Trunk:

Osteology: Cervical, Thoracic, Lumbar Vertebrae, Sacrum, Coccyx, and Ribs.

Soft tissue: Inter-vertebral joints, cost-vertebral joints, Inter-vertebral Disc, Ligaments and Muscles.

4. THORACIC CAGE: With muscles and Movements.

Head, Neck, Face region: Bones, Muscles, Nerves of face and neck, muscles.

Joints: Temporomandibular, Atlanto-occipital joint.

Dissection of Extremities and Demonstration of dissected: Parts of trunks; brain, thoracic and abdominal contents.

5. NEURO-ANATOMY: In details with applied and clinical aspect with demonstration of Brain and spinal cord

- 1. Sulci and Gyri and various areas of cerebral Hemispheres.
- 2. Thalamus, Hypothalamus, Basal Ganglion
- 3. Cerebellum
- 4. Pons, Medulla

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5. Spinal Cord
6. Ascending tracts
7. Descending tracts
8. Clinical application of knowledge of the tracts.
9. Autonomic nervous system
10. Nervous control of urinary bladder and bladder dysfunction
11. Vestibule cochlear System
12. Cranial nerves

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Human
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Answer

PAPER II
HUMAN PHYSIOLOGY
SECTION 1: GENERAL PHYSIOLOGY

GENERAL PHYSIOLOGY:

1. Cell Structure and organelles.
2. General Principles of Biophysics.
3. Body Fluid Compartments.

BLOOD:

1. Composition of blood, Plasma Proteins formation and their function.
2. Structure, formation and function of R.B.C.
3. Structure formation and function of W.B.Cs and Platelets.
4. Coagulation and its defects, bleeding, clotting time.
5. Blood group and their significance, Rh. Factor.
6. Reticule Endothelial system. Jaundice, Structure and functions of Spleen,
7. Hemoglobin and E.S.R.

CARDIOVASCULAR SYSTEM:

1. Structure, properties of Heart muscle and nerve supply of Heart, Structure and function of arteries, Capillaries and veins.
2. Cardiac cycle and heart sounds.
3. Cardiac output, measurement, factors affecting.
4. Heart rate and its regulation, cardio vascular reflexes.
5. Blood pressure, its regulations and Physiological Variations.
6. Peripheral resistance, factors controlling role in B.P.
7. Hemorrhage.
8. E.C.G.
9. Changes in muscular exercise.

RESPIRATORY SYSTEM:

1. Mechanism of respiration. Intra-pleural and Intra-pulmonary pressure.
2. Lung volumes and capacities.
3. O₂ and Co₂ carriage and their exchange in tissues & lungs.
4. Nervous chemical regulation of respiration – Respiratory centers.
5. Respiratory states– Anoxia, Asphyxia, cyanosis, Acclimatization.

DIGESTIVE SYSTEM:

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1. General outline and salivary digestion.
2. Gastric secretion & its mechanism of secretion & functions.
3. Mechanism of secretion of Succus entericus and pancreatic juice and its functions.
4. Structures and Secretions and functions of liver.

NUTRITION:

5. Digestion, absorption and Metabolism of carbohydrates.
6. Digestion, absorption and metabolism of Fats.
7. Digestion, absorption and metabolism of proteins.
8. Vitamins, sources functions and requirements.
9. Balanced diet in different age groups and occupation.

ENDOCRINES:

1. Anterior Pituitary.
2. Post Pituitary and Parathyroid.
3. Thyroid
4. Adrenal cortex.
5. Adrenal Medulla, Thymus.
6. Pancreas and Blood sugar regulation.

REPRODUCTION SYSTEM:

1. Sex determination and development, puberty.
2. Male sex hormones and their functions, spermatogenesis.
3. Female sex hormones and functions, Menstrual cycle, Ovulation and contraceptives.
4. Pregnancy, functions of placenta and lactation.

EXCRETORY SYSTEM:

1. Gross and minute structure of kidney and features of Renal circulation.
2. Mechanism of Formation of urine, GFR and Tubular function.
3. Renal function Tests.
4. Physiology of micturition.

SECTION – II

(NEURO-MUSCULAR PHYSIOLOGY)

MUSCLE AND NERVE:

1. Structure of neurons, membrane potential and generation of action potential.
2. Nerve impulse Neuro Muscular conduction, saltatory conduction.
3. Nerve muscular junction and drugs acting on it, Myasthenia gravis.

Human Physiol *muscle* *nerve* *action* *potential* *Myasthenia*

4. Degeneration and regeneration of peripheral Nerves, reaction of degeneration, Wallerian degeneration, Electro tonus and Pflueger's law.
5. Types of Muscle, Microscope structure of Muscle, Properties of muscle, comparison of various types of muscle.
6. Sarcomere, Mechanism of muscular contraction.
7. Thermal and chemical changes during muscular contraction.
8. Starling's law, Isotonic, Isometric contractions, chronaxie, Rheobase.
9. Action potential.
10. Motor Units and its properties, clonus, tetanus, Fatigue, summation, All or none law, Beneficial effect.
11. Electromyography, applied aspects.
12. Nerve fibers classification, spread or impulse.
13. Velocity of nerve conduction, factors affecting velocity.

NERVOUS SYSTEM:

1. Types and properties of receptors, types of sensations.
2. Structure of synapse, Reflex arc and its properties, occlusion summation, subliminal fringe etc.
3. Sensory tracts of spinal cord.
4. Motor tracts, Pyramidal and Extra pyramidal.
5. Hemi section and complete section of Sp. Cord, upper and lower motor neuron paralysis.
6. Cerebral cortex, areas and functions E.E.G.
7. Structure, connections and functions of cerebellum and Hypothalamus.
8. Basal ganglia and thalamus, connections and functions.
9. Reticular formation tone, posture and vestibular apparatus.
10. Autonomic Nervous system.

SPECIAL SENSES:

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

PRACTICALS AND DEMONSTRATIONS:

- A. 1. Haemoglobinometer and total R.B.C. count.
2. Total W.B.C. count.
3. Preparation and staining of blood smears, Determination of differential W.B.C. count.
4. Blood grouping.
5. Erythrocyte Sedimentation Rate

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6. Bleeding and clotting time.
- B. 1. Artificial respiration.
2. Pulmonary function tests.

HUMAN PHYSIOLOGY EXPERIMENTS:

- C.1. Heart sounds, Radial Pulse, Tracing, Basal Metabolic Rate.
2. Arterial Blood pressure in man.
3. Cardiac efficiency tests.
4. Recording and study of Electrocardiogram.
- D.1. Testing of peripheral sensations and cranial nerves.
2. Superficial and deep reflexes.
3. Test of cerebral and cerebellar Functions.
4. Study of special senses.

ANIMAL PHYSIOLOGY EXPERIMENTS

PRACTICAL

- E. 1. Electrical Reactions & Electro-diagnostic test.
2. Varieties of stimuli, Electrical Apparatus for Physiological Experiments.
3. Frog's Nerve-muscle preparation and demonstration of the following experiments on it.
4. Electromyography – Principle & application.
5. Simple muscle twitch.
6. Effect of load, Temperature and fatigue of Muscular Contractions.
7. Frog's normal cardiogram.

Effect of following on normal cardiogram of Frog:

- Temperature.
- Extra systole.
- Stimulation of vagal sympathetic trunk.
- Stannius ligature.
- Radial pulse tracing.
- Basal Metabolic rate.
- Work Physiology.

Physiological effect of Electrical stimulation & use of High frequency current and various heat therapy agents.

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PAPER III
BIO-CHEMISTRY AND BIO-PHYSICS

BIO-CHEMISTRY:

1. Biochemical characteristics of living matter.
2. Biochemistry morphology of cells physiology.
3. Nucleic acids.
4. Proteins.
5. The enzymes.
6. Metabolism-carbohydrates, lipids, proteins, vitamins.
7. Hormones.
8. Nutrition
9. Biochemistry of connective tissues, nerve tissue and muscles.
10. Water, electrolyte and acid base balance.
11. Chemistry of biological Materials-Blood, C.S.F., Milk.
12. Physio-chemistry phenomenon.
13. Common procedure used in biochemistry.
14. Laws of solutions : Diffusion and osmotic pressure; Permeability of membrane, colloids; surface tension; Absorption; Hydrogenation, concentration; enzymes. Digestion and absorption.
15. Chemistry of lipids; including sterols and phospholipids; chemistry of carbohydrates, Proteins; Nucleoproteins; Blood and lymph, hemoglobin and its derivatives, biles; urine; urinary deposite, faeces etc.

BIO-PHYSICS:

1. Molecular Biophysics, Structure thermodynamics.
2. Electro-chemistry.
3. Micro-bio, including electro microscopy, spectroscopy, configurations, chromatography, electro phoresies, tracer technique.
4. Cell biophysics.
5. Computers.
6. Reduction biology.

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PAPER IV
BIO-MECHANICS & KINESIOLOGY

1. Essential Concepts:

- (a) Matter and Measurements
- (b) Motion and Force-Classification of force-system.
- (c) Force distribution.
- (d) Newton's Law.
- (e) Moments.
- (f) Forces and moments in action.
- (g) Concepts of static equilibrium and dynamic equilibrium.
- (h) Gravity and effects on Human body.
- (i) Axes, Planes, Equilibrium Base and Balance.

2. Properties of non-metallic materials:

- (a) Plastics
- (b) Thermoplastics
- (c) Polymers.
- (d) Polyethylene.
- (e) Polymethyl.
- (f) Silicones.
- (g) Plaster of Paris.

3. Material properties of bones: Soft tissue and cartilage.

- (a) Bones:
 - (i) Preposition (ii) Strength properties (iii) Elastic properties, (iv) Visco-elastic properties, (v) Weight, v/s bones cancellous v/s cortical bone, (vi) Age changes.
- (b) (i) Tissues, (ii) Strength characteristics of tendon (iii) Physio-logical characteristics of tendon.
- (c) Cartilage:
 - (i) Properties (ii) Friction: Magnitude, sufficient of friction: viscosity. (iii) Lubrication: Types of Lubrication, Boundary Lubrication, Fluid film Lubrication, synovial Joint lubrication. (iv) Wear: Adhesive wear, abrasive wear, Fatigue, wear.

4. Functional Biomechanics:

- (a) Joint Motions and Forces.
- (b) Kinematic aspects.

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- (c) Instant centre concept.
- (d) Centre of Rotation
- (e) Types of Surface joint motions.

5. Kinetic aspects of motivation of limb movements:

- (a) Classification of levers.
- (b) Physiological significance of negative mechanical advantage
- (c) Muscle function and performance
- (d) Calculation of muscle and joint forces by:
 - (i) Lever approach (in detail)
 - (ii) Equilibrium Approach (in brief)
 - (iii) Muscle stabilization forces (in brief)

6. Lower Extremity:

- (a) **Hip and thigh.**
 - i. Hip joint motion and forces on hip joint.
 - ii. Two leg stances and one-leg stances.
 - iii. Calculation of hip joint forces by lever approach.
 - iv. Varus and Valgus of femoral neck.
 - v. Over all effect of Osteotomy.
 - vi. Other factors affecting hip joint forces.
 - vii. Effect of cane by lever approach.
- (b) **Knee and leg:**
 - (i) Motions of the knee joint.
 - (ii) Forces of the knee joint.
 - (iii) Calculation of knee joint forces by Lever approach.
 - (iv) Patella femoral joint.
- (c) **Ankle and Foot:**
 - (i) Motion of Ankle.
 - (ii) Forces of Ankle joint.
 - (iii) Stability of Ankle joint.
 - (iv) Weight-Bearing on foot.
 - (v) Arches of foot.

7. Biomechanics of Gait (Normal Human Locomotion)

- a. Principles of stability.
- b. Postural principles.

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8. Analysis of joint movements and muscle Action:

- (i) Normal joint range and variations within normal limits.
- (ii) Muscle action-agonist, antagonist, fixator, synergists.
- (iii) Isotonic and Isometric contractions.
- (iv) Group Action of Muscles.
- (v) Skilled movements.

9. Analysis of movement and A.D.L.:

- (i) Fundamental positions and their uses-lying, sitting, standing, kneeling and hanging.
- (ii) Derived positions of moving limbs, back, trunk and head.
- (iii) Analysis of pattern of movements from bed to walking.
- (iv) Developmental Sequence of movements from baby to adult
- (v) Common postures in yogic systems.

10. Prevention of postural strain and Occupational Hazards, Correct use of body mechanics at home, at school, at A.D.L., at work, at recreation etc.

11. Classification, definitions and effects of passive, assisted active and resistive movements.

12. Role of Occupational Therapy in Sports Medicine in Biomechanical Points of view.

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PAPER V ERGODYNAMICS

SECTION - I (BASIC PRINCIPLES)

- (a) History and development of Occupational Therapy.
- (b) **Rehabilitation** – Philosophy and need of Rehabilitation, Rehabilitation Team. Principles of Physical Medicine.
- 2. Current basis for Occupational Therapy, Definition of Occupational Therapy Philosophical base of Occupational Therapy.
- 3. Occupations as a major activity base of Human being.
- 4. **Form of Occupation:**
 - (a) Work
 - (b) Daily living Task
 - (c) Play
- 5. (a) Occupation as an evolutionary Trait.
 - (b) Occupation and Biological Dimensions.
 - (c) Psychological Dimensions of Occupation.
 - (d) Social Dimensions of Occupation.
 - (e) Occupation and Therapy
- 6. **Therapeutic Exercises:**
 - (a) Objective: To develop (1) Power (2) Endurance (3) Co-ordination (4) Range of Movement (5) Speed.
 - (b) Principles applicable to all forms of Exercises.
 - (c) Dosages, Principles and Effects.
 - (d) Types: (1) Passive (2) Active Assistive (3) Active (4) Progressive Resistive (5) Stretching (6) Isokinetic (accommodating resistive Exercises).
- 7. **Therapeutic application of Activities:**
 - (a) Characteristics
 - (b) Factors to be considered in selection.
 - (c) Activity Analysis
 - (d) Methods of Instructions
 - (e) Activities of Daily Living
 - (f) Prevocational Activities
- 8. Principles of Administration and Organization
- 9. **Exercise Therapy:**

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- I. Analysis of different involuntary movements and their importance in exercise therapy.
- II. (i) Mechanical anatomy of motion and postures.
(ii) Gait training and gait analysis.
- III. Relaxation; Re-education of posture, Balance and Co-ordination, Functional Re- education.
- IV. Mat exercises, group therapy; Recreational therapy; sport therapy, Yoga therapy, Breathing exercise, Pre and Postnatal Exercises.
- V. Hydrotherapy, Massage and manipulation- Definition, Classification, Contra-indication, indication etc.
- VI. Stability and Fundamental Derived positions.
- VII. Maintenance and Restoration of R.O.M. and Joint stability. Mobilizing and strengthening activities, Increasing Endurance and tolerance.
- VIII. Reduction of Hypertonicity and Rigidity and initiation and stimulation of Muscle contraction, study of various neuromuscular Re-education technique.
- 10. Role of Occupational Therapy in Sports Medicine in Ergonomical Points of view.

SECTION – II

EVALUATION METHODS

- 1. Basic principles of planning treatment.
- 2. **Evaluation / Assessment of** (a) Joint Range of Motion (b) Muscle Strength (c) Cognition (d) Co-ordination (e) Sensation (f) Perception (g) Selected developmental Reflexes and Reactions (h) Tissue Resistance.

3. Basic Concept of Human Development:

- i. Definition & factors influencing Human development.
- ii. Biological
- iii. Environmental
- iv. Inherited
- v. General principles of Development.

4. Principles of Maturity:

- i. Cephalocaudal pattern
- ii. Proximal, distal, Medial and lateral Patterns
- iii. Mass to specific pattern
- iv. Gross to fine.

5. Performance skills:

- i. Activities of Daily Living.
- ii. Prevocational
- iii. Vocational

Practical as per Syllabus.

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**BIHAR UNIVERSITY OF HEALTH SCIENCES
MITHAPUR, PATNA- 800001**



**SYLLABUS
FOR
SECOND BACHELOR OF OCCUPATIONAL THERAPY (B.Th.O.)
EXAMINATION**

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DEPARTMENT OF HEALTH SERVICES
MILWAUKEE, WISCONSIN



LABORATORY
FOR
SECOND DIVISION OF OCCUPATIONAL THERAPY (B100)
EXAMINATION

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PAPER I
PHARMACOLOGY

SECTION - 1

1. General Pharmacology
2. Detail study of Pharmacology.
3. Drug allergy and idiosyncrasy.
4. Drug Toxicity.
5. Metabolic fate of drug.
6. Method of administration of drugs.
7. Chemical characters of drugs.
8. Drugs acting on Central Nervous System- Anesthetics, Alcohols, Alkaloids, Narcotics, Antipyretics, Hypnotics, Sedatives, Anti-convulsants, Stimulants, Psychotherapeutics. Drugs acting on Autonomic Nervous systems. Drug acting on pain & inflammatory conditions.
9. Drugs acting on peripheral nervous system- Stimulating and/or inhibiting cholinergic and adrenergic activity.
10. Drugs acting on Neuromuscular junction and muscles; pupil, ciliary movement; skin etc.
11. Drugs acting on respiratory system, gastro intestinal system, kidney and uterus.
12. Drugs acting on cardio vascular system; blood & blood forming tissues, Blood vessels.
13. Chemotherapeutic agents, General anesthetics, study of effect of local and general anesthetic on eye and skin etc. and other physiological systems.
14. Hormones and drugs affecting endocrine functions.
15. Vitamins; Antibiotic; Sulpha drugs.
16. Metabolic and other inorganic compounds.
17. Immunological products / agents.
18. Diagnostic agents.
19. Study of clinical Pharmacology and Pharmacotherapeutics. Mode of actions of drugs; Pharmacological Principle of Medical Practice.
20. The chemical and Physical basis of Pharmacology.
21. Manifestations of Pharmacological actions.
22. Classification of drugs according to selective actions, General action of drugs.
23. Definition of pharmacological terms.
24. Conditions influencing absorption and excretion of drugs.

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- 25. Conditions influencing action of drugs e.g. allergy and idiosyncrasy; anaphylaxis, tolerance and cumulative action etc.
- 26. Action of sera and Vaccination.
- 27. Action of drugs on Mental conditions.
- 28. Detail study of Pharmacotherapeutics and clinical Pharmacology.
- 29. Pharmacodynamics- Principle of Drug Action, mechanism of Drug Action, Drug Dosage; factors modifying Drug action. Instruction in experimental pharmacodynamics, study of pharmacokinetic aspects.
- 30. Adverse Drug effects: Side effect, Secondary effects, toxic effects, Poisoning, Intolerance, Idiosyncrasy, Drug Allergy, Photo sensitivity: Drug dependence, Drug abuse (Addiction); Drug withdrawal reactions, Drug induced diseases.
Mechanism and types of Drug reaction:
- 31. Introduction of forensic Medicines and Toxicology; and Medico-legal aspect.
- 32. Chemotherapy.
- 33. Method of prescribing and treatment for common diseases or illness or any associated clinical problems of existing earlier or arising during or after the process of Therapeutic System of Physiotherapy and Occupational Therapy, with the use of modern scientific drugs / Medicine.
- 34. Principle Practice of Western Medical Science and Modern Scientific system of Medicine; its application in various clinical conditions.
- 35. Study of Pharmacology including Modern Medical and Pharmacological Chemistry and applied Pharmacology and therapeutics elaborating the rational basis of medical treatment of disease and illness and various clinical conditions use of drugs.

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PAPER II
PATHOLOGY AND BACTERIOLOGY

1. Aims and objects of study of Pathology, Meaning of the terms etiology, Pathogenesis, lesions and disease.
2. Various causes of disease and an approach to laboratory study and diagnosis of process of disease.
3. Brief outline of sick cells, degenerations, necrosis, gangrene etc.
4. **Inflammation:** Definition, Vascular and cellular Phenomenon, tissue changes, exudate and pus formation, Difference between acute and chronic inflammation.
5. Repair (bone, skin, nerves and muscles etc).
6. Circulatory disturbances with emphasis on ischemia, thrombosis, embolism, infarction. Diseases of cardio vascular system.
7. General approach to bacterial and viral infections, Emphasis on tuberculosis, syphilis, leprosy, fungal infections.
8. General approach to immunity and allergy.
9. Neoplasia, Benign and malignant, spread of tumors.
10. Diseases of nervous system, joints, bones and muscles.
11. Brief outline of blood disorders and parasitic infection.
12. Animal Parasites.
13. Deficiency diseases, pigments and pigmentation.
14. Physical irritants and chemical poisons.
15. Ionizing Radiations.
16. Medical Genetics.
17. Regional Pathology of heart, blood vessels, female reproduction system, Nervous system, the bones, the joints, the muscles, the skin etc.
18. Diseases of respiratory system and genitourinary systems.

No Practical

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PAPER III
GENERAL AND SOCIAL PSYCHOLOGY

(A) GENERAL PSYCHOLOGY

1. (i) Nature Of Psychology: Behavior and Experiences; Conscious, sub-conscious and Unconscious mind.
 (ii) Fields Of Psychology: Introspective and Experimental Methods.
 (iii) Schools Of Psychology: Associationism; Psychoanalytical theory, Behaviorism; Gestalt Psychology; Structuralism and Functionalism.
2. Heredity (Chromosome Theory); Environment – Physical, Psychological and Social Environment.
3. Motivation – Principle of Homeostasis; Need and its relation to structure and Environment. Kinds of Motives – Physiological, Psychological, Social and Unconscious Motives; Life goals and levels of Aspirations Interests and attitudes as motivational forces.
4. Emotion–Its nature and relationship with Autonomic Nervous System; James-Lange theory of Emotion; Mc Dougall’s theory of Emotion; sentiments and feelings; Pathological and Functional disorders of Emotions; Emotional Hygiene.
5. Conflict and frustration; common defensive mechanisms – Identification, Regression, Repression, Projection, sublimation and Rationalization.
6. Learning – Role of Learning in Human Life; Types of Learning
 (a) Thorndike’s Trial and Error Learning.
 (b) Associative (conditioning) Learning, Practical application of conditioning technique as in morbid fears, compulsion to steal and other neurotic behavior in eliminating undesirable behavior.
 (c) Learning by insight- Gestalt learning, Kolber’s experiments on animal learning; Transfer of Learning.
7. Memory (Retention) Types of memory – Recall, Recognition and Rose memory, Causes of forgetting; Retroactive inhibition, Disorders of memory- Amnesia, Paramnesia, Hyper amnesia.
8. Attention and Perception – Nature of attention, Factors determining attention; Nature of perception, principles of perceptual grouping, Illusions and Hallucinations.
9. Intelligence – Definition, Intelligence tests – their uses; How the Test is standardized; Intelligence Quotient (I.Q) General intelligence and special intelligence.

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10. Personality– Definition; Types approach and Trait approach, Measurement of personality – Interview, Questionnaire Rating, Performance, Projective methods, Factors contributing towards development of personalities – Biological and Social factors.

(B) SOCIAL PSYCHOLOGY

1. Nature and scope of Social Psychology.
2. Social Interaction – Primary and Social Stimulation.
3. Psychological groups and their classification.
4. Socialization of the Individual.
5. Social Control (Social Heredity) – Morals, Costumes. Fashions; Propaganda, its technique.
6. Leadership (Personal Social Control) – Functions, Role and Qualities of a Leader.
7. Personality – Culture and Personality.
8. Attitudes and prejudices – Classification of Attitudes; Evils and causes of prejudices. How to change Attitudes and prejudices.
9. Crowds and Public Opinion.
10. Social change and Progress.

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PAPER IV
ERGO-THERAPEUTICS - I

SECTION -I

1. Human development process:-

(a) **Posture and movements:**

- (i) Growth, development and maturation
- (ii) Spatiotemporal adaptation
- (iii) Sensory-Motor-Sensory integration (SMS)
- (iv) Reflex and Reaction maturation.

(b) (i) Learning theory

(ii) Behavioral therapy

(iii) Social learning theory

(iv) Psychoanalytical therapy, of Freud and Erik Erikson.

(v) Cognitive theory of Jean Piaget.

(vi) Humanistic Self Theory

(vii) Ethology

(viii) Maturational theory of Arnold Gesell.

2. **Frames of References:** Organizing system for occupational therapy Practice:

(a) Developmental frames of References.

(b) Sensory motor and Reference

(c) Overview of sensory motor approaches.

(i) Fay-Domane- Delacote.

(ii) Neuromuscular reflex therapy.

(iii) Bobath- Neuro developmental treatment

(iv) Road: Neurophysiological approach

(v) Kabat- KnottVoss: Proprioceptive Neuromuscular facilitation.

(vi) Brannstrom approach: Movement Therapy.

(vii) Ayres Sensory Integration approach.

(viii) Fuchs: Orthokinetic.

3. **Rehabilitation of hand:**

(a) Evaluation of hand

(b) Functional tests.

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(c) Hand Exercises, Activities and functional or those.

4. **Bio feedback:**

- (a) Bio feedback process.
- (b) Feedback concept in occupational therapy.

5. **Therapeutic Modalities:**

- Purposeful activity & characteristics

6. **Activity Analysis:**

- (a) Principles of activity analysis
- (b) Biomechanical & sensory motor
- (c) Adapting & grading activity
- (d) Selection of activity

7. **Activities to be analyzed –**

Shoulder wheel Exerciser, Bicycle fretsaw, Inclined sanding, Overhead sanding, Beads Counting, Overhead Pulley, Multiple Exerciser, Therapy ball, Pegs activities, Static Cycle, Ankle Exerciser, Nirmal Finger Exerciser, Gym Kit Exerciser, Grip Exerciser, Medicine ball kicking, Trampoline, Swing Activities etc.

Practical as per syllabus

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PAPER V
APPLIED & EXPERIMENTAL PSYCHOLOGY & BIO-STATISTICAL

SECTION - I
APPLIED PSYCHOLOGY

(A) Developmental (Child) Psychology:

1. Factors influencing development, Developmental periods..., pre-natal, infancy, Babyhood, Childhood, Adolescence, Physiological and motor Development, Development of speech, Emotional and social development, moral development, Child's family relationship, play... different theories and its role in building moral development.
2. Problems in Emotional development Nail biting, Lonely behavior, bedwetting, thumb-sucking, Aggressive and harmful behavior, relationship of child parent-Teacher.

(B) Industrial Psychology:

1. Efficiency in production: Work curve, factors affecting the work-curve, moral and rewards for work, financial rewards, non-financial rewards, ways of measuring the effectiveness of psychological rewards.
2. Industrial and Highway Accidents: Causes of Accidents Personal and Environmental, Accident prevention.

(C) Clinical Psychology:

1. Diagnosis and treatment, outlook of the clinician, open mind experimental outlook, and dispassionate observation.
2. Study of behavior problems, mental deficiency, problem of rehabilitation. Bad child and a gifted child, Importance of Report with the patient.
3. Juvenile delinquency, Etiology, prevention, Treatment.

(D) Mental health and therapy:

1. Concept of mental health, Guidance and Learning, Parental attitudes affecting guidance-over protection, Regarding some behavior problems -feeding problems, Jealousy and sex-problem, sex education.
2. Treatment of mala- djustments- shock therapy, lobotomy Psychotherapy (Psycho-analysis) - Directive and Non-Directive therapy, Group Psycho-therapy and vocational guidance.

Types of Physically handicapped children: Physically handicapped child in a mentally crippled child.

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EXPERIMENTAL PSYCHOLOGY PRACTICABLES

A. Learning and Retention:

1. Serial position effects under Massed and distributed practical.
2. Speed of learning different amounts of materials.
3. Visio-motor co-ordination (Mirror Drawing experiment)
4. A study of habit formation and effect of Reversal of habit.
5. Study of the process of committing to memory nonsense material (See-Sam figures).
6. Retroactive inhibition.
7. Memory changes in serial reproduction.
8. National learning.
9. Rational learning
10. Bilateral transfer in Mirror drawing.
11. Memory and Attention value in Advertisements.
12. Progress in learning (Maze learning)
13. Substitution learning.
14. Memory Preservation.

B. Psycho-Physics:

1. Measuring of differential threshold (lifted weights) by the method of minimal changes and the method of constant stimulus differences.
2. Mapping of cutaneous sense spots.
3. Determining spatial threshold or Aesthesiometric Index on the back of the hand.
4. Method of mean error (Galton's meter rod).
5. To determine the "Illusion effect" for a muller- Layer figure (Method of Average) Mean error.

C. Attention and other fields:

1. Span of Attention
2. Influence of SET on Attention.
3. Measuring Muscle Steadiness.
4. Muscular work (Ergo-graph) Measurement of Fatiguability.
5. Localization of sounds.
6. Colour Preferences.
7. Reaction time and Association.

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D. Intelligence and Personality:

1. Koh's Block Design Test.
2. Alexander's pass. Along test.
3. Caw's cube construction test.
4. Pinter Patterson test of Intelligences.
5. Callins Draven test of Intelligence.
6. Bhatia's Battery of Intelligence.
7. Colonel cox test of Intelligence.
8. Introversion Extroversion (Neyman Kohlstad Diagnosis test)
9. Measurement of Serial Attitudes.
10. Personality Characterization with the TAT (Thematic Appreciation Test)
11. Non-verbal mental Deficiency Diagnosis Test.
12. Progressive matrices.
13. Measurement of mechanical aptitude of an individual.
14. Measurement of Aesthetic personality score.

Notes:

1. Every student will be examined in Three exp. One from section (A) One from Section (B) and (C) of from Section (D).
2. Minimum 20 exp. Have to be performed during the academic section, at least 2 from the section (A) from the Section (B), 1 from section (C) and 2 from the section (D) must be selected.
3. Distribution of marks in practical's-

S. No.	Procedure	Tabulation Interpretation and graph work.
1.	One (01) Experiment from section- A	3 + 7 = 10
2.	One (01) Experiment from section B & C	3 + 7 = 10
3.	One (01) Experiment from section- D	3 + 7 = 10
4.	Viva on each Experiment	5 x 3 = 15
5.	Practical record book	05
TOTAL		50

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SECTION- II
BIO-STATISTICS

1. Frequency distribution, Normal distribution Curve, Histogram.
2. Measures of Central value- mean, median, mode.
3. Measures of variability – Range, semi- inter- quartile range (siqe), standard deviation, variance, coefficient of variation.
4. Finding percentile norms, Percentile Rank by Interpolation in cumulative distributions.
5. Correlation – Product – movement coefficient of Correlation, Rank – Difference correlation.
6. Reliability and significance-standard error of a mean and its interpretation, reliability of a difference between means.
7. Testing Hypothesis – ‘t’ and ‘F’ tests.
8. Computation of Chi Square from a contingency table and its Interpretation.

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**SYLLABUS
FOR
THIRD BACHELOR OF OCCUPATIONAL THERAPY (B.Th.O.)
EXAMINATION**

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PAPER I
MEDICINE

SECTION – 1 : GENERAL MEDICINE

1. **Diseases of Cardio-Vascular System:** Ischemic Heart Disease, Hypertensive Heart Disease, Rheumatic Heart Disease, Congenital Heart Disease, Hypertrophic heart disease, Syphilitic heart disease, vascular disease, Thrombosis, Embolism.
2. **Rheumatic Disease:** Rheumatoid arthritis, Rheumatic Fever, Still's Disease, Collagen disease.
3. **Diseases of Endocrine System:** Emphasis on diabetes Mellitus and outline of Hypopituitarism, Goitre, Hyperthyroidism & Hypothyroidism.
4. **Disease of Respiratory System:**
 - (a) Disease of lung, Bronchitis, Bronchial Asthma, Bronchiectasis, Pulmonary embolism, Pulmonary Tuberculosis, Lung Abscess, Emphysema
 - (b) Disease of Pleura- Pleurisy, Empyema.
5. **Diseases of Digestive System:** Gastric and Duodenal Ulcers, Hematemesis.
6. **Deficiency Disease:** Rickets, Protein deficiency.
7. Leprosy, Elementary Knowledge of skin and venereal diseases and Infectious diseases.
8. Study of other medical conditions.
9. **Dermatology:**
 - (i) Characteristics of normal skin.
 - (ii) Abnormal changes.
 - (iii) Types of skin lesions.
 - (iv) **Conditions:** Leprosy, Acne, Boil, Carbuncles, Impetigo, Parasitic Infections of skin, Herpes, Urticarial, Pityriasis, Skin Disorders, Associated with circulatory disturbances, Water Born, defects in pigmentation, psoriasis, Leucoderma, Fungal Infections, Alopecia, Dermatitis, Eczema, skin allergies, venereal disease, Syphilis etc.
10. Brief Study of Preventive & Social Medicine
11. Excretory Diseases – Renal failure, Glomerulonephritis, Renal Bone Disease.

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SECTION -II: NEUROLOGY

1. General principles of Neurological Diagnosis.
2. Vascular Disorders of Brain.
3. Space occupying lesions within the skull Tumors, Hematomas and Abscess.
4. Acute Infections of Nervous system: Encephalitis, Meningitis, Poliomyelitis.
5. Common Infections of Peripheral, spinal and cranial Nerves.
6. Injuries of brain and spinal cord.
7. Vertebral disc lesions and low back pain.
8. Cerebral Palsy, Hydrocephalus, Spina bifida & Myopathies.
9. Introduction to degenerative Neurological conditions: Syringomyelia, Parkinsons, Disease, sub-acute combined degeneration of cord, Disseminated Sclerosis; Lateral Sclerosis.
10. Functional Neurology.
11. Study of other Neurological conditions.

Practical – As per Syllabus.

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PAPER II SURGERY

SECTION – 1: GENERAL SURGERY

1. Description of events Frequently accompanying surgery in General Anesthesia, Blood Transfusion and Physiological response of the body to surgery.
2. **Common Pre And Post-Operative Complications**– Clinical picture, treatment and prevention.
3. **Wounds, Sinuses And Ulcer**: Incisions, healing and principles of treatment.
4. **Major Abdominal Surgery**: Management and complications.
5. **Thoracic And Cardiac Surgery**: Thoracotomy, Tubectomy, Pneumonectomy, Thoracoplasty, Mitral Valvotomy.
6. **Neuro-Surgery**– Surgery of peripheral Nerves and outline of cranial and spinal cord Surgery.
7. **Plastic Surgery**: Principles of cineplasty, tendon transplant, Cosmetic surgery. Types of grafts, Surgery of hands with emphasis on management of traumatic and leprosy hand.
8. **Burns**: Classification, early and late complication and management and reconstructive surgery.
9. **Ophthalmology**: Errors of refraction, Conjunctivitis, Trachoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, glaucoma, ptosis, defects of External Rectus and Hysterical blindness.
10. **E.N.T.**: Sinusitis, Rhinitis, Otitis media, Otosclerosis, Functional amphonia and deafness.
11. **Obstetrics And Gynecology**: Review of the system, Pregnancy, labour; common complications and their treatment, common Gynecological disorders and their management.

SECTION – II : ORTHOPAEDICS

1. Fractures, Dislocations And Soft Tissue Injuries :

- (a) Pathology of Fractures and Repair of bones, reasons for Union, Non-union, delayed union, fibrous union, excess callus myositis. General Principles of treatment, common fracture of upper extremity, Lower Extremity and fractures of the vertebrae. Newer methods of fracture Stabilization, Special reference to post operative exercises and prevent joint stiffness, spinal exercises for prevention of deformities.

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- (b) Dislocation of Shoulder, Elbow, Hip, Knee and Spine.
- (c) Soft tissue injuries: Rupture, contusion and sprains of muscle; Tendons and ligaments.

2. Deformities:

- (a) Common foot deformity: Congenital torticollis, Cervical Rib, Spina Bifida.
- (b) Acquired: Scoliosis, Kyphosis, Lordosis, Genu Valgum and Varum, Flat foot, Genu recurvatum, Pes cavus, Matatarsalgia, Claw hand, Mallet-Finger, Contractures.

3. Operative Procedures And Orthopedics Appliances:

- (a) Reconstructive Operations - Arthroplasty, Arthrodesis, Cineplasty, Tendon Repairs and Transfers.
- (b) Amputations: Common sites of amputations, Advantages and Disadvantages, Amputation of upper and lower Extremities.

4. Inflammatory Diseases And Other Affections Of Bones:

- (a) Bone- Osteomyelitis, T.B. Bone.
- (b) Joints Osteoarthritis, Rheumatoid Arthritis, T.B. Joints, Synovitis.
- (c) Tendon Sheath and Bursa –Tenosynovitis.
- (d) Osteomalacia Osteoporosis

5. STUDY OF OTHER CONDITIONS IN ORTHOPAEDICS.

RADIOLOGY

Practical knowledge of X-ray reading-X-rays of the following conditions-Fractures, dislocations, Arthritis, Tuberculosis, Bronchiectasis, Abnormalities of vertebral column.

Practical as per Syllabus.

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PAPER III
PSYCHIATRY

1. (a) **Mental Health:**

- (i) Normal Mental Health.
- (ii) Criteria or normality of matured personality.
- (iii) Factors contributing to Normal Mental Health.
- (iv) Self-actualizing individual.

(b) **Study Of Abnormal Personality:**

Neurotic, Hysterical, Psychotic, Paranoid, Schizoid, Psychopathic etc.

2. **General Etiological Factors:**

Hereditary, Genetic, Constitutional, Acquired Traumatic, Inductive, Toxic, Degenerative, Social and Environmental including pathogenic family pattern, Precipitating causes, frustration & conflicts.

3. **Symptomatology And Treatment Of:**

(a) **Psychosis:**

- (i) Functional: Functional Schizophrenic, Reaction Group Simple, Paranoid, Catatonic, Hebephrenic, Paranoid, State, Paranoia, Juvenile. Schizophrenia, Autistic thinking, Dementia.
- (ii) Organic- toxic confused status, senile Psychosis, Arterio-Sclerotic Degenerative, G.P.I.

(b) **Affective Disorders:**

Dynamics of Mania, Hypomania, Chronic Mania, M.D.P. Involutional depression, Senile depression, Postpartum depressive reactions, Reactive and Neurotic depression, Endogenous depression, Suicide (Egoistic, Altruistic, Anomic).

(c) **Epileptic Disorders:**

Epileptic Psychosis.

4. **Neurosis:**

Symptomatology, Diagnosis and treatment and Psychodynamics of Anxiety State, Hysteria, Conversion reaction, Dissociative reaction, Dual personality, Obsessional, Neurosis, Phobias, Hypochondriasis, Neurasthenia and Mental fatigue.

5. **Mental Retardation:**

- (i) Definition
- (ii) Etiological factors: Pre-natal, Post-natal, Inceptive, Hormonal, Congenital.

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(iii) Types of Mental retardation clinical types- Microcephaly, Hydrocephalus, Mongolism, Family idiocy, Phenylketonuria, etc.

(iii) Symptomatology of various grades of retardation, Differential diagnosis and treatment.

6. Child Psychiatry:

Behavior disorders- Nail biting, Enuresis stealing, Truancy, Thumb sucking, Speech difficulties, Pica, Vomiting, Anorexia, Delinquency.

7. Introduction To The Dynamics of Psychophysical Disorders:

Asthma, Skin, Rashes, Hypertension, Bowel disorders.

Introduction to treatment Psychiatry.

- (a) E.C.T.
- (b) Insulin coma Therapy.
- (c) Drug Therapy - (Tranquilizers, Mood elevators, hypnotics and sedatives).
- (d) Psychotherapy- Deep and superficial , individual and group, expressive, suppressive, environmental manipulation, reductive.
- (e) Psychodrama.
- (f) Psychoanalysis.
- (g) Play-therapy.
- (h) Occupational Therapy and Physiotherapy.

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PAPER IV
ERGO- THERAPEUTICS - II

1. **Hand Splints** : Definition, Classification, principles, use of splints, material used in designing & fabrication, Indication and Contra- indications.

2. Functional Bracing:

- a) Definition and concept of Functional bracing.
- b) Factors to consider while using functional bracing (F.B)
- c) Objectives.
- d) Fracture healing and use of F.B.
- e) Basic consideration and design for long bone Fractures.
- f) Material used.
- g) Advantages over other conventional treatment.

3. Pylon:

- (a). Definition, description, design, material and application.
 - (i) Below knee
 - (ii) Above knee
- (b). Advantages and disadvantages of Pylon.
- (c). Rigid dressing.
 - (i) Instant fitting of pylon.
 - (ii) Early fitting of pylon.
- (d). Pathological gait.

4. Play Therapy:

- a) Functional of play.
 - (i) Social
 - (ii) Physical
 - (iii) Sensory
 - (iv) Emotional
 - (v) Perceptual
 - (vi) Cognitive
- b) Content and Structure of play
- c) Therapeutics of play
 - (i) Erikson
 - (ii) Anna Freud
 - (iii) Jean Piaget
 - (iv) Reilly

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d) Role of play in occupational therapy process.

5. Mental Health Therapeutics:

- (a) Millieu-Therapy
- (b) Group Therapy
- (c) Recreational Therapy
- (d) Art and Activity Therapy
- (e) Perceptual motor therapy
- (f) Industrial therapy
- (g) Biblio therapy
- (h) Behavior therapy
- (i) Attitude therapy
- (j) Music therapy
- (k) Somatic therapy
- (l) Creative-therapy (Art, music, creative writing, body work)

6. Yoga Principles objectives and aspects of following Yogic asanas and various other systems of Yoga.

Practical

Hand Splints:

(1) Design a model of following hand splints a. Finger Gutter b. Resting pan c. Long opponence d. Short opponence e. Radial bar cock-up f. Radial nerve splint using extension outrigger and other splints used for upper extremity

(2) Identify tools & equipments, their parts, uses & therapeutic uses.

Adaptive Devices:

1. Design & fabricate adaptive devices viz. universal cuff, writing device, long handled scrubber, enlarged handle spoon, tap opener.

2. Demonstration of standardized procedure of Hand function test viz. Jebson Taylor, Crawford small part Dexterity test, Purdue Peg board, Complete Minnesota Dexterity Test.

3. Transfers techniques.

4. Orientation file.

Practical as per syllabus

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PAPER V
BIO-ENGINEERING AND ERGONOMICS

SECTION – I : BIO-ENGINEERING

1. Physical properties of Material including basic principles of solid mechanics:
 - (a) **Solid Machines:**
 - (i) Definition of strain and stress. Experimental relation between strain and stress.
 - (ii) Failure of materials-Brittle failure, ductile failure and fatigue failure-Entrance limit.
 - (iii) Stress in complex loading situation Bending, torsional loading, concepts of Rigidity including plastic materials, properties, section and length considerations, energy concepts in loading.
2. Materials: Steel aluminum, Titanium, Magnesium, Plastic, Rubbers, Cellular Rubbers and Plastics, Leathers, Fabrics, and Plaster of Paris.
3. Canes, Crutches, Walkers, Rollators: types of gait patterns of crutch, Methods of Measurement for crutch, cane, walker.
4. (a) **Wheel Chair:** Types, components, specifications, Modifications, stair climbing, wheel chair and other mobility aids. Wheel chair check outs, operations check of wheel chair, wheel chair cushion, and related protective devices.
(b) **Tricycles:** Hand driven and power driven.
5. Assistive Devices, Mobile Arm support and slings.

SECTION – II : ERGONOMICS

1. Definition and objectives.
2. Principles and methods of Ergonomics.
3. Substance and Psycho Physiological structure of Activity.
4. Analysis of work Activity.
5. Design of Hardware of handicapped persons.
6. Ergonomic design of work place.
7. Optimizing of working movements and controls.
8. Occupational Therapy base in Occupation.
9. Occupational Therapy base in Activity.
10. Computer: Basic concepts and its use for the Handicapped.

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SYLLABUS
FOR
FINAL BACHELOR OF OCCUPATIONAL THERAPY (B.Th.O.)
EXAMINATION

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REQUIREMENTS
FOR
FINAL BACHELOR OF OCCUPATIONAL THERAPY (B.O.T.)
EXAMINATION

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PAPER I
MEDICAL OCCUPATIONAL THERAPY
SECTION - I
PEDIATRIC AND GENERAL MEDICINE

1. Review of methods of evaluation and Therapeutic principles.
2. Therapeutics in Community Medicine preventive and remedial aspects.
3. Specific Pediatric conditions:
 - (a) Neonate and Infant Service.
 - (b) Direct special care nursery service.
 - (c) Counselling services to house, staff and discharge planning.
 - (d) Post discharge follow up.
4. Congenitally blind and visually impaired child.
 - (a) Occupational Therapy Programme
 - (b) Re-evaluation
 - (c) Therapeutic goals, and objectives
 - (d) Methods, models and procedure
5.
 - (a) Cranial Nerve affection – Bell’s palsy.
 - (b) Brachial plexus injury + Erb’s palsy & Klumpke's.
6. Congenital dislocation of Hip.
7. Spina bifida.
8. Down’s Syndrome.
9. Autism.
10. Sensory Integrative dysfunction:
 - (a) Clinical evaluation of sensory integrative dysfunction (Brief).
 - (b) General principles and methods of intervention in brief.
 - (c) Learning Disorders:-
 - (i) Disorders in form and space perception.
 - (ii) Tactile defensiveness and related behavior responses.
 - (iii) Unilateral disregard and function of right cerebral hemisphere.
 - (iv) Auditory language disorders.
 - (v) Developmental Apraxia.
 - (vi) Disorder in postural and Bilateral integration.
11. Hand dominance and lateralization of Cerebral function.

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12. Child Abuse and neglect:

- (a) Definition.
- (b) Normal and Abnormal blocks in development.
- (c) Classification of cerebral palsy by muscle tone.
- (d) Associated Neurological abnormalities and Problems.
- (e) Intervention.
- (f) Treatment general principles, techniques and applications of basic concepts of Occupational Therapy.
- (g) Specific remediation techniques:
 - (a) Gross-motor movement.
 - (b) Fine – motor movement
 - (c) Handling the child
 - (d) Feeding: (i) Oral motor (ii) Food intake & self feeding.
 - (e) Dressing
 - (f) Chair adaptations.

13. Lower motor Neuron dysfunction:

- (a) Poliomyelitis.
- (b) Guillain– Barrie Syndrome.

14. Upper Motor Neuron Lesions:

- (a) Meningitis.
- (b) Encephalitis.

15. Mental Retardation.

16. Epilepsy.

17. Muscular dystrophies.

18. Nutritional deficiency disorders:

- (a) Protein Energy Malnutrition (PEM)
- (b) Marasmus.
- (c) Rickets.

19. Still's Disease.

20. Behavior Disorders.

- (a) Nail Biting
- (b) Thumb sucking
- (c) Enuresis
- (d) Temper Tantrums
- (e) Juvenile delinquency
- (f) Truancy

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- (g) Sibling rivalry
- 21. Excretory Diseases
 - Renal Failure
 - Renal Bone Diseases
- 22. Review of Methods of Evaluation and treatment.
- 23. Occupational Therapy in:
 - (a) Gerontology
 - (b) Cardiac dysfunction
 - (c) Cardiovascular episodes
 - (d) Leprosy
 - (e) Blind and Visually Impaired Adults.
 - (f) Diabetes mellitus
 - (g) Cancer
 - (h) Rheumatoid Arthritis
 - (i) Guillain Barre Syndrome
 - (j) Peripheral Nerve Infections.
 - (k) Transverse myelitis
 - (l) Multiple Sclerosis & Disseminated Sclerosis.
 - (m) Parkinson's disease
 - (n) Deaf Mute and Hard of Hearing.
 - (o) Psycho-Somatic Disease
 - (p) Respiratory Disease: Pulmonary Tuberculosis.

SECTION – II

MENTAL HEALTH OCCUPATIONAL THERAPY

PSYCHIATRIC OCCUPATIONAL THERAPY

- 1. (a) Introduction and brief Review of Development of Psychiatric Occupational Therapy.
- (b) Major Streams of Thoughts in Psychiatry.
- (c) Brief Review of Methods of evaluation in Psychiatry.
- 2. **Mental Health:**
 - Characteristics of mentally health person.
 - Characteristics of mentally ill person.

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Factors adversely affecting mental health.

Community Mental Health.

3. Psychiatric Occupational Therapy:

(a) Principles and Functions.

(b) Psychiatric O.T. Problems:

Sensory Integrative Perspective.

Behavior Therapy Perspective.

Developmental Perspective.

Occupational Behavior Perspective.

Humanistic approaches.

Psychoanalytical perspective.

(c) Elements in Psychiatric O.T. Process.

The Clinical therapist, Activity –

Treatment, prevention, maintenance, and Rehabilitation.

4. Types of Therapeutic Medias.

Therapeutic Activity –

Milieu Therapy, Group Therapy, Creative Therapy

(Art, Music, Creative Writing, Body work)

Recreational Therapy, Perceptual – motor therapy

Projective Technique, Industrial Therapy

Biblio Therapy, Behavior Therapy

Attitude Therapy, Yoga, Somatic Therapies.

Social Skill Training.

Anxiety Management Training.

5. Therapeutics in the following: Management Goals and Methods in:

(a) Psychosis –

- Organic Psychosis
- Schizophrenia
- Manic Depressive Psychosis
- Involutional Melancholia
- Functional Psychosis.

(b) Psychoneurosis or Neurosis

Anxiety Reaction

Phobic Reaction

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Obsessive compulsive Neurosis, Hysteria.

(c) Psychoneurosis or Neurosis

Personality and Character disorders.

Drug dependence (Addiction, Abuse) & Alcoholism stress & its management.

(d) Mental Deficiency:

(e) Psychological disorders of childhood and adolescence

(f) Psychiatric disorders of old age

(g) Epilepsy.

6. Hospital Administrative Procedure for Admission and Discharge of a patient.

- **Practical as per Syllabus.**

OCCUPATIONAL THERAPY PRACTICAL EXAMINATION

Evaluation of

To examine and evaluate the patients suffering from Musculo-skeletal, Neurological, Psychiatric conditions and Mental Retardation.

1. Examination

1. Motor

- Muscle Tone
- Muscle power grading
- Measurement of Girth.

2. Range of Motion

- Goniometry
- Contracture, Deformity and measurement of limb length.

3. Sensory

Touch, Pain, Temperature, Pressure and Kinesthetic sense.

4. Neurological

- Primitive Reflexes, motor development, Superficial and deep tendon reflexes.
- Involuntary movement.
- Inco-ordination
- Gait.

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5. Functional Evaluation of Activities of Daily Living

- I. - Prescription of Aids-Devices.
- Home Management
- II. The aims and plan of treatment of the patients suffering from the disease (as per theory syllabus).

III. Equipment/ Machines Therapeutic Activities

- Handling of the Equipment and Machinery.
- Prescription of Therapeutic Activities according to the need of the patient.

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PAPER II
SURGICAL OCCUPATIONAL THERAPY

SECTION - I : SURGERY

1. Review of Methods of evaluation and therapeutic principles.
2. Therapeutics in community Medicine – Preventive and Remedial aspects.
3. Burns:
 - (a) Types of Burns and 9 course of Recovery
 - (b) Review of anatomy and Physiology
 - (c) Classification of Burns
 - (d) Other major Burns damages.
 - I. Heterotopic Ossification
 - II. Peripheral injuries.
 - III. Decubitus ulcer
 - IV. Hypertrophic Scarring
 - V. Contracture Formation.
 - (e) Role of Occupational Therapy in -
 - (i) Pre- grafting period
 - (ii) Post-grafting period.
 - f) Positioning and Splinting
 - (g) Exercise
 - (h) Pressure stretch techniques.
 - (i) Burnt Hand:
 - (a) Dermal Burns
 - (b) Pulser Burns
 - (j) Treatment plan
 - (k) Psychological Consideration
 - (l) Follow-up
4. Hand injuries:
 - (a) Review of evaluation of Hand.
 - (b) Nerve Injuries.

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- (i) Haematoma and classification of Nerve injury.
- (ii) Process of nerve injury and repair
- (iii) Median Nerve injury
- (iv) Ulnar Nerve injury
- (v) Median Nerve Ulnar Nerve injury
- (vi) Radial Nerve injury
- (c) Tendon Injuries:
 - (i) Process of Repairs
 - (ii) Flexor Tendons
- (d) Fractures:
 - (i) Process of bone healing
 - (ii) Carpal Fractures
 - (iii) Metacarpal fractures
 - (iv) Ligament Injuries
 - (v) Modalities for range of movement, functional activities and splinting.

5. Spinal Cord Injuries:

- (a) Introduction
- (b) Results of spinal cord injury
- (c) Levels of lesion
- (d) Prognosis
- (e) Medical and Surgical Management (Review)
- (f) Complications and Concomitant Problems
- (g) Sexual functions
- (h) General Treatment considerations
- (i) Positioning
- (j) Self- Care
- (k) Assistive equipment
- (l) Allocational (Avocational)
- (m) Educational
- (n) Prevocational
- (o) Paraplegic Patient:
 - (i) Evaluation
 - (ii) Treatment: Bed phase, self-care, for mobile bed, patient and wheel chair user, Assistive devices, Transfer Activities and skills.
- (p) Quadriplegic Patient:
 - (i) Evaluation

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- (ii) Treatment: Bed phase wheel/ chair phase Adaptation of activities, self-care, functional restoration, functional splints, Environmental control system and community Re-entry.
- 6. Head Injuries:
 - (a) Mechanism of Head Injury
 - (b) Medical and Surgical Management
 - (c) Description of dysfunction
 - (d) Description of clinical picture
 - (e) Evaluation.
 - (f) General aims and Methods of treatment
- 7. Common Spinal Nerve Injuries:
 - (a) Review of Neuroanatomy and Neurophysiology in brief
 - (b) Lesions of Brachial Plexus and cranial nerves
 - (i) Classification
 - (ii) Signs and Symptoms
 - (iii) Therapeutic Application
 - (c) Lesions of Lumbar Plexus:
 - (i) Classification
 - (ii) Signs and Symptoms
 - (iii) Therapeutic Application
 - (d) Lesions of Sacral Plexus:
 - (i) Classification
 - (ii) Signs and Symptoms
 - (iii) Therapeutic Application
- 8. Cancer: Therapeutic Principles and Management of patients of Radical Mastectomy.
- 9. Chronic obstructive Pulmonary Diseases
- 10. Disability Evaluation and Calculation of percentage loss for the purpose of compensation based on Mebriday scale.

SECTION - II
ORTHOPAEDIC OCCUPATIONAL THERAPY

- 1. Review of methods of evaluation and treatment.

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2. Principles in the use of upper and lower extremity prosthesis.
3. Therapeutics in Amputations and Prosthesis (Upper & Lower extremities):
 - (i) Aetiology
 - (ii) Surgical Managements
 - (iii) Special consideration and problems
 - (iv) Stump Care
 - (v) Levels of Amputation and functional loss in upper extremity and lower extremity amputation.
4. Fractures of upper and lower extremities and its complications.
5. Fracture spine and spinal deformities.
6. Congenital deformities:
 - (a) Congenital dislocation of Hip
 - (b) Talipes equinus
 - (c) Talipes varus
 - (d) Genu Valgum -Varus & Genu Recurvatum.
 - (e) Arthrogryposis
 - (f) Torticollis
7. Foot deformities and their management.
8. Orthopedic diseases
Short review of orthopedic disease:
 - Osteomyelitis
 - Arthritis
9. Orthopedic problem in Neurological disorders:
 - (a) Poliomyelitis
 - (b) Spina Bifida
 - (c) Peripheral Nerve injuries
10. Orthopedic conditions and their management:
 - (a) Spine:
 - (i) Cervical spondylosis
 - (ii) Cervical Rib
 - (iii) Ankylosing Spondylitis
 - (iv) Prolapsed lumbar disc

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- (v) Acute Lumbago
- (vi) Spondylosis
- (vii) Spondylolisthesis
- (viii) Spinal Stenosis
- (b) Shoulder Joint:
 - (i) Dislocation
 - (ii) Periarthritis (Frozen Shoulder)
 - (iii) Painful arc syndrome
- (c) Elbow Joint:
 - (i) Tennis elbow
 - (ii) Friction neuritis of Ulnar nerve
 - (iii) Olecranon bursitis
- 11. Neurological disorders:
 - (i) Compression of the Median nerve in Carpel Tunnel (Carpel Tunnel Syndrome)

Practical: As per Syllabus.

OCCUPATIONAL THERAPY PRACTICAL EXAMINATION

To examine and evaluate the patients suffering from Musculoskeletal, Neurological, Psychiatric conditions and Mental Retardation.

Examination

1. Motor
 - Muscle Tone
 - Muscle Power grading
 - Measurement of Girth
2. Range of Motion
 - Goniometry
 - Contracture, deformity and measurement of Limb length.
3. Sensory
 - Touch, Pain, Temperature, Pressure, and Kinesthetic Sense
4. Neurological

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- Primitive Reflexes, motor development, Superficial and deep tendon reflexes.
- Involuntary movement
- Inco-ordination
- Gait

5. Functional Evaluation of Activities of Daily Living.

- I. - Prescription of Aids-Devices.
 - Home Management
- II. The aims and plan of treatment of the patients suffering from the diseases (as per theory syllabus.)
- III. Equipment/Machines Therapeutic Activities
 - Handling of the Equipment and Machinery
 - Prescription of Therapeutic Activities according to the need of the patient.

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PAPER III
REHABILITATION AND THERAPEUTIC MANAGEMENT

1. REHABILITATION: Concept and Principle.

- (a) The Philosophy and Need of Rehabilitation.
- (b) Principles of Rehabilitation Medicine.
- (c) Basic Principles of Administration and Organization.

2. REHABILITATION APPROACH:

- (i) Nursing.
- (ii) Communication problem.
- (iii) Social Problems.
- (iv) Psycho-social aspect.
- (v) Vocational problems and vocational placement.
- (vi) Community Based Rehabilitation Programme & Community Resources.
- (vii) Other aspects of Rehabilitation
- (viii) Sports Rehabilitation

3. Rehabilitation programme for Medical, Surgical, Orthopedic, Neurological conditions and various other clinical conditions, and in specific conditions.

4. COMMUNITY MEDICINE:-

- Concepts of preventive Medicine, Social Medicine, Public Health & Community Medicine.
- Social Factors relating to Health & Disease.
- Concepts of Health & Disease: Natural History of Disease; Disease causation.
- Principals of Prevention & Control of Diseases.
- General Epidemiology & Epidemiological Methods. Uses of Epidemiology.
- Study of various Vaccines & Immunizations.
- Health Education, Communication and Counselling.
- Occupational and Industrial Health & Hygiene.
- Maternal & Child Health Care; Infant Care; Normal Growth & Development.
- Community Paediatrics & Geriatrics; School Health Service.
- Sexually transmitted Diseases (STD) & HIV; Prevention of Blood born Disease.
- Primary Health Care, Setup Organization & Functions.
- Comprehensive Health Care including Rehabilitation of Disabled & Handicap India.
- Disaster Management.

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THERAPEUTIC AND CLINICAL MANAGEMENT
(PRINCIPLE & PRACTICE)

The students are required to undergo detail study and extensive Practical Training and Clinical Practice in the following areas to qualify and authorize them to practice Physiotherapy or Occupational Therapy system and Western Medical Science for Preventive, Curative, Restorative treatment and Rehabilitative management as well as Health Care of the patients and disability groups.

1. Clinical evaluation and investigation.
2. Diagnosis and differential diagnosis.
3. Prescription writing and treatment planning.
 - (a) Use of Physiotherapy or Occupational Therapy system for functional, Physical and Mental Restoration or other desired achievement.
 - (b) Principle and Practice of Western Medical Science and Modern Scientific System of Medicine and its application in various clinical conditions.
 - (c) Method of Prescribing the treatment of general or common diseases or illness or any associated clinical problems existing earlier or arising during or after the process of Physiotherapy or Occupational Therapy System; through Modern Scientific Medicine.
4. Referral approach for specialized diseases or clinical conditions
5. Rehabilitative approach and management.
6. Disability percentage & Certification, Physical fitness condition and certification.

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PAPER IV
PROSTHETICS AND ORTHOTICS

SECTION - I : ORTHOTICS

1. Orthotic component and system:
Terminology, Objectives, Types of Hand, Orthotics, U.E. (Upper Extremity) Shoulder, elbow, wrist)
2. Orthotic component and system Terminology, Description, Fabrication and fitting and types- Hip, Knee, Ankles and foot.
3. Shoe and shoe modification.
4. Spinal Orthosis:

Components:

- (a) Pelvic band
- (b) Thoracic band.
- (c) Anterior extension of Thoracic band with subaxillary extension.
- (d) Lumbo Sacral and thoracic uprights.
- (e) Lateral uprights.
- (f) Oblique lateral uprights.
- (g) Infra and capsular band.
- (h) Full front abdominal support.

Types:

- (i) Chair back (ii) Knight (iii) William (iv) Taylor (v) Knight Taylor (vi) Collars (vii) Flexible Spinal Corsets & belts (viii) Jewitt (Ash Brace) (ix) Cervical Orthotics (x) Milwaukee's Principle & indication (xi) For treatment.

SECTION - II : PROSTHETICS

1. Prosthetic Component Parts And System:

- (a) Terminal device, wrist unit and elbow unit, upper arm cuff,, sockets, cable components and harness, stump sock.
- (b) Pre-prosthetic training.
- (c) Prosthetic training – (i) Check out (ii) Control system & Efficiency.

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2. Prosthetic training programme.

- (a) Foot Amputation
- (b) Symes
- (c) Below knee
- (d) Through knee
- (e) Above knee
- (f) Hind Quarter.

3. Prosthetic Components For Below Knee:

- (a) Post Ankles Assembly
- (b) Conventional foot
- (c) Sach foot
- (d) Internal keel
- (d) Shank
- (e) Socket, P.T.B. Socket, Air Cushion Socket, Suspension System, Supra condylar Calf, Supra condylar Walls on Flare, Supra Patellar Walls on Socket.
- (f) Biomechanics of Below Knee Prosthesis;

4. Prosthetic Components Of Through Knee:

- (i) Conventional
- (ii) Suction Socket
- (iii) Quadrilateral Socket
- (iv) Hip disarticulation

5. Prosthetic For Hind Quarter & very short above knee stumps,

- (a) Saucer socket
- (b) Tilting Table
- (c) Canadian.

6. Prosthetic joint deviations in A.K. & B.K. Prosthesis.

7. Prosthetic gait and gait analysis.

8. Self help devices, Rehabilitation aids.

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