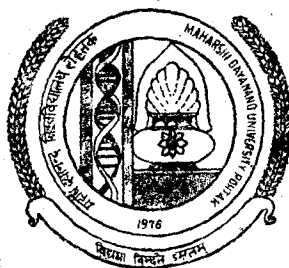


# Maharshi Dayanand University Rohtak



## Ordinances, Syllabus and Courses of Reading for B.Sc. Physiotherapy Examination

Session—1999-2000

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*Available from :*

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## ORDINANCE : B.Sc. PHYSIOTHERAPY

1. A candidate seeking admission to the B.Sc. Physiotherapy must have passed one of the following examinations :-

a) Senior School Certificate Examination (*12 years Course*) of Haryana Board of School Education, Bhiwani.

or

An examination recognised as equivalent thereto with the following subjects.

Biology, Physics, Chemistry & English.

b) Indian School Certificate Examination (*12 years Course*) of the Council for the Indian School Examination, with the following subjects :-

Biology, Physics, Chemistry & English.

c) Pre-Medical/Intermediate Exams. in Science with the following subjects :-

Biology, Physics, Chemistry & English.

d) Any other Examination recognised as equivalent to any of the aforesaid examinations.

Cut Score for admission 50%.

To be eligible to appear in entrance test candidate must have 50% marks in Sr. Secondary Examination in Physics, Chemistry & Biology.

2. **Duration** of the Course shall be 3½ years. The Course shall extend over a period of three academic years and the candidates will be full time students on the Course.

After having Passed all the Examinations prescribed in the Scheme of Examinations, there shall be compulsory rotating full time internship extending over a period not less than six months in approved Institution/Hospital or Centres for Rehabilitation.

3. **Age** : No candidate shall be qualified for admission to the course unless he/she is 17 years age before 1st of October in the year in which he/she seeks admission.

4. **Examination** : There shall be an examination at the end of first year after a regular course of study.

Following shall be the distribution of teaching hours for the course of study :-

### First Year

Main Subjects	Theory	Practical
	(hrs.)	(hrs.)
Anatomy	120	60
Pysiology	120	60
Pathology & Pharmacology (60+20)	80	-
Exercise Therapy & Massage (Theory)	80	-
Exercise Therapy & Massage (Practical)	-	320
Electro Therapy & Actino Therapy (Theory)	80	-
Electro Therapy & Actino Therapy (Practical)	-	320

### Subsidiary

Mathematics & Statistics	50	-
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In order to pass subsidiary subject candidates will be required to obtain atleast 40% marks.

Such a candidate who fails in subsidiary subject may appear again at any subsequent examination in the subject he/she has failed in. No candidate shall be declared to have passed the IInd year examination unless he/she has passed in the subsidiary subjects.

*Note : In the teaching of main subjects, stress shall be laid down on the fundamental and basis principles of the sciences and their practical application.*

(For detailed course please see the syllabus at Annexure-II).

### Second Year

There shall be an examination at the end of second year after a regular course of study.

Subjects	Theory(hrs.)	Practical (hrs.)
Psychology	80	-
Medicine	175	-
Surgery	125	-
Physio Therapy in Medical Cont'd (Part-I)	80	120
Physio Therapy in Surgical Cont'd. (Part-I)	80	120
Physiotherapy Clinic	-	585

During the second year the Clinical posting of the students will be for a period not less than 3 hours per day.

Teaching of Second year will be followed by the second year examination in May.

#### Final Year

There shall be an examination at the end of final year after a regular course of study.

Subjects	Theory(hrs.)	Practical (hrs.)
Bio-Mechanics & Kinesiology	120	
Physio Therapy in Medical Cont'd(Part-II)	80	140
Physio Therapy in Surgical Contd.(Part-II)	80	140
Disability Prevention & Rehabilitation	80	140
Physio Therapy Clinic		585

During the final year the Clinical posting of the students will be for a period not less than 3 hours per day.

Teaching of final year will be followed by the final examination in May.

#### 4.(a) Examination

During the entire course of study in Physio Therapy there shall be three annual and three supplementary examinations to be held in May and July, respectively each year as stated below :-

- i) **I-Year** : Every candidate seeking admission to the examination to be held at the end of the 1st academic year must have pursued a regular course of study for one academic year.
- ii) **II-Year** : Every candidate seeking admission to the examination to be held at the end of the second academic year

must have passed the first year examination and must have pursued thereafter a regular course of study for one academic year.

- iii) **III-Year:** Every candidate seeking admission to the examination to be held at the end of the final academic year must have pursued thereafter a regular course of study for one academic year.

No candidate shall be allowed to appear in the 1st physiotherapy examination for more than four times or be allowed to remain on rolls of the University for a period not longer than a period covering four such consecutive examinations (Annual & Supplementary).

The candidate, after the final year results, shall have to undergo a certified internship for a period not less than six months in such approved Institutions/Hospitals or centres for rehabilitation catering to one or more category of Physical handicapped such as Neurology & orthopaedic, cardiotherapeutic etc. in the form of compulsory rotating full time internship.

#### **4.(b) Supplementary Examinations**

In addition to the Annual Examination there shall be supplementary examinations for first year, second year and final year physiotherapy students which shall be held in July. Candidates who fail to pass or fail to present themselves at the Annual Examinations may be admitted to these supplementary examinations on payment of the prescribed fees. Only those candidates shall be declared to have passed the supplementary examinations who obtain the requisite percentage of pass marks.

Candidate who fail to pass, or fail to present themselves at the supplementary examination of First Year, Second Year, and Final Year in Physiotherapy may be permitted to appear at the

next Annual Examination after pursuing a further course of prescribed study.

**4. (c) Six Months Full-time Internship in Physio therapy**

There shall be six months internship after the final examinations.

No candidate will be awarded degree/certificate without successfully completing the 6 months internship and has been declared to have passed the examination in all the subjects.

**4. (d) Exemption of the candidates from the examination in the subjects passed**

Candidate obtaining 50 percent marks in each of the subjects of first year, second year and final year examination in Physio therapy course may be exempted from appearing in these subjects in the subsequent examination.

**5.(a) Attendance**

A candidate admitted to B.Sc.Physio therapy course shall not be deemed to have satisfied the required conditions of attendance unless he/she has attended not less than 3/4 of the lectures and practicals separately in each subject in each academic year. In addition, attendance at the study tours, wherever prescribed in the course shall also be compulsory.

**5.(b) Attendance for Re-admitted Students**

A candidate having failed to pass the supplementary of the 1st year, 2nd year and Final year examination in physiotherapy may be registered for re-admission to the same class at the discretion of the Head of the Deptt. within 15 days of the announcement of the results of the University Examination. The candidates will be required to pay enrolment fee, special University fee etc. and the Department will inform the University of his/her re-admission.

In the case of re-admitted student the attendance of lectures and practicals etc. taken together will be required for the

period to be accounted from the date of re-admission to the course till the next annual examination.

For the re-admitted students the subject for each of the examinations, the number of written papers, practicals and oral tests and the marks assigned to each subject shall remain the same as that of regular students.

**6. Scheme of examination for the course shall be as mentioned in the Scheme of Examination B.Sc. Physio therapy (Annexure-I).**

- (a) A regular record of Theory, Practical & Clinic Periodic tests conducted in the academic year shall be maintained for each student and sessional (internal assessment) shall be awarded as given below :-

	I-year	II-year	III-year
Theory Paper	25 %	25%	25%
Practical	25%	25%	25%

- (b) There shall be one sessional examination during the year and the above percentage of the total marks for each subject shall be awarded as the sessional marks. The following system shall be followed in awarding marks for the sessional practical examinations:

Actual performance in the sessional examination : 50%  
 Day to day class work including record ∴ 50%

- (c) The students shall be required to maintain the tour report of the study tours and these reports shall be approved by the teachers conducting the tours in each case.
- (d) The medium of instructions and examination shall be English.

The marks awarded by the teacher on interanl assessment will be submitted to the Principal of the College who would forward the same to the University before the commencement of the examination in the written papers in each case:

In case there are more than one Institution imparting instruction in this course, there shall be a Co-ordinating Commit-

tee consisting of two teachers from each institution presided over by the Head of the Department of Physiotherapy of the University.

It shall be the function of this Committee to ensure uniformity in the award of internal assessment marks among the Institutions concerned.

The Institutions concerned shall maintain the record of material on the basis of which the Internal assessment are awarded which will have to be made available to the Coordinating Committee for inspection by them, if required.

### **7. Minimum Pass Marks**

The minimum marks to pass the examination at the end of the each year shall be 50% in the theory paper and 50% in the practicals including oral when provided, taken together in each subject and 50% of marks in the study tour as also 50% marks in the aggregate of the year.

### **8. Classification of Successful Candidates**

(a) There shall be no classification of division in respect of successful candidates in the Physiotherapy examinations. Candidates securing 75% of the marks in any subject in one attempt shall be treated to have secured distinction.

(b) The result of the successful candidates the course shall be classified at the end of the final year examinations on the basis of the aggregate of all subjects theory and practical, secured by the candidate in the I, II & III year examinations, taken together as indicated below :

First Division	60% and above
Second Division	50%

(c) **Distinction** : Candidates securing 75% of marks or above in any subject or subjects shall be declared to have obtained distinction in that subject or subjects, provided the candidate passes in all the subjects in the same examination.



**9. Other Conditions**

- (a) The candidates will retain the internal assessment marks of the previous examinations.
- (b) A candidate who fails to pass or fails to qualify for promotion to the next higher class on the result of the supplementary examination shall be required to re-join the college in the same class as a regular student and pursue fresh studies for another academic year in the subjects in which he/she could not secure the minimum pass marks at the last examination.
- (c) Candidates must pass the 1st year examination within the years of their first admission to the course.
- (d) Candidates must pass the Final Year examination within five years of their admission to the 1st year of the course.

**Scheme of Papers****B.Sc. Physio Therapy :**

The Degree Course comprises the following papers :-

**Ist-Year****Main Subjects**

1. Anatomy.
2. Physiology.
3. Pathology & Pharmacology.
4. Exercise Therapy & Message (Theory).
5. Exercise Therapy & Message (Practical).
6. Electro & Actino Therapy (Theory).
7. Electro & Actino Therapy (Practical).

**Subsidiary**

1. Mathematics & Statistics.

**II-Year**

1. Psychology.
2. Medicine.
3. Surgery.
4. Physio Therapy in Medical Conditions Part-I.
5. Physio Therapy in Surgical Conditions Part-I.
6. Physio Therapy Clinic.

**Final Year**

1. Bio-Mechanics & Kinesiology.
2. Physio Therapy in Medical Conditions Part-II.
3. Physio Therapy in Surgical Conditions Part-II.
4. Disability Prevention & Rehabilitation.
5. Physio Therapy Clinic.

## Scheme of Examinations

**B.Sc. Physio Therapy :**

<b>I-Year</b>	Examination Marks	Internal Assessment	Total Marks	Duration Hours
<b>Main Subjects</b>				
1. Anatomy (Theory 50) (Practical 25)	75	25	100	3
2. Physiology	75	25	100	3
3. Pathology & Pharmacology	75	25	100	3
<i>N.B. Anatomy practical will be for 2.00 hrs. duration.</i>				
<b>Subsidiary Subjects</b>				
1. Mathematics & Statistics	75	25	100	3
<b>Physio Therapy Subjects</b>				
1. Exercise (Therapy & Message (Theory)	75	25	100	3
2. Exercise Therapy & Message (Practical)	75	25	100	3
3. Electro & Actino Therapy (Theory)	75	25	100	3
4. Electro & Actino Therapy (Practical)	75	25	100	3
<b>II-Year</b>				
1. Psychology	75	25	100	3
2. Medicine	75	25	100	3
3. Surgery	75	25	100	3
<b>Physio Therapy Subjects</b>				
1. Physio Therapy Medical Conditions (Theory) Pt. I	75	25	100	3
2. Physio Therapy in Surgical Conditions (Theory) Pt. I	75	25	100	3
3. Physio Therapy Clinic	75	25	100	3
<b>Final Year</b>				
1. Bio-Mechanics and Kinesiology	75	25	100	3
2. Physio Therapy in Medical Conditions Part-II	75	25	100	3
3. Physio Therapy in Surgical Conditions Part-II	75	25	100	3
4. Disability Prevention and Rehabilitation	75	25	100	3
5. Physiotherapy Clinic	75	25	100	3

1. 25% marks are reserved for Internal assessment in each paper during I, II & III Year examinations which will be done by teachers concerned.

## ANATOMY

### Section-I

1. Histology-cell, tissue of the body, epithelium, connective tissue, cartilage, bone, blood, lymph, muscles, nerves.
2. Osteology-Formation, classifications, function, growth and repair of bones.
3. Embryology-ovum, spermatozoz, fertilisation, differentiation, development of various systems.
4. Blood Vascular system-arteries, oapillaries, veins, lymphatic system.
5. The Respiratory system-Anatomy of Larynx, Traches and Branchi, the Fleura, the Lungs.
6. The digestive system.
7. The urogenital system.
8. Surface Anatomy.

### Section-II

#### Neuro-Anatomy : Microscope and gross study of :-

1. Peripheral Nerves.
2. Neuromuscular Junction.
3. Sensory and Organs.
4. Spinal Cord-segment & areas.
5. Brainstem.
6. Cerabellum.
7. Inferior colliculi.
8. Superior colliculi.
9. Diencephalon.
10. They hypothalamus.
11. The epithalamus.
12. The thalamus.
13. The Cerebral hemispheres.

14. The corpus striatum.
15. The rhinencephalon.
16. The lateral ventricles.
17. The meninges.
18. The blood supply of the brain.
19. Internal capsule.
20. The visual radiation.
21. The auditory radiation.
22. Thalamocortical radiations.
23. The pyramidal system.
24. The extra-pyramidal systems.
25. Anatomic integration.
26. Intra-cortical integration.

### **Section-III**

#### **Muscles and Joints :**

1. The facie and muscles of head, neck & face.
2. The facie and muscles of trunk.
3. The facie and muscles of upper limb.
4. The facie and muscles of lower limb.
5. Classification of joints.
6. The movements of joints.
7. Factors permitting and limiting movements at joints.
8. Joints of Head and Neck
9. Joints of Trunk.
10. Joints of Upper limb.
11. Joints of lower limb.

### **PHYSIOLOGY**

#### **Section-I**

1. The Cell function.
2. Cell membranes.
3. Digestion-Control of food and water intake and secretion and absorption, movements of the alimentary canal.

4. Circulation-Cardio Vascular system, mechanical and electrophysiological activity of the heart, regulation of heart, coronary circulation; haemodynamics, circulation through brain, skin and skeletal muscle.
5. Blood and lymph-cell renewal system, haemoglobin, thocyte granulocyte, lymphocytie, coagulation, reaction of hydrogen within concentration of body fluids distribution and exchange.
6. Renal function.
7. Respiration-respiratory gases, pulmonary gas-exchange control and mechanics of breathing, hyposia, asphyxia, dyspnea, oxygen therapy and resuscitation.
8. Fodocrine systems-pituitory gland, thyroid, parathyadrenal glands, gonads.
9. Carbohydrates metabolism, food metabolism and protein metabolism.

### Section-II

Neuro-physiology and muscle mechanisms :-

1. Cell membrane ionic and potential gradients and tran.
2. Action potential.
3. Special properties of nerve trunks and tracts.
4. Muscle-contraction, mechanics, Chemistry and Bio-Phy.
5. Motor units.
6. Reflex Physiology.
7. Synapse.
8. Supraspinal control.
9. Cortical control.
10. Cerebellum and basal ganglia.
11. Autonomic nervous system.
12. Somatic sensation.
13. Pain.
14. Taste, olfaction and visceral sensations.
15. Auditory system.
16. Vision.
17. Neuro Physiological Psychology.

**Section-III**

Physiology of exercise and work.

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

**PATHOLOGY AND PHARMACOLOGY****Section-I****PATHOLOGY**

(60 hrs.)

1. Inflammation.
2. Repair.
3. The inter-celular substance and its reactions.
4. Immunity and Hypersensitivity.
5. Coagulation, Thrombosis and embolism.
6. Derangements of body fluids.
7. Neoplasia.
8. Growth and its disorders.
9. Bacterial infection.
10. Fungal infections.
11. Animal parasites.
12. Deficiency diseases.
13. Pigments and Pigmentation.
14. Physical irritants.
15. Ionizing radiation.

16. Chemical, poison.
17. Regional pathology of the heart, the blood vessels, the female reproductive system, the nervous system, the bones, the joints, the muscles, the skin etc.
18. Pathology of neuro-muscular system.
19. Pathology of cardio-vascular system.
20. Pathology of bones and joints.

**Section-II PHARMACOLOGY (60 hrs.)**

1. General action of drugs.
2. Drug allergy and idiosyncrasy.
3. Drug toxicity.
4. Metabolic fate of drugs.
5. Methods of administration.
6. Chemical character of drugs.
7. Drugs action on central nervous system-anaesthetics, alcohols, alkaloids, narcotics, analgesics, antipyretics hypnotics sedative, anticonvulsants, stimulants, psycho therapeutics.
8. Drugs acting on peripheral nervous system, stimulating/or inhibiting cholinergic and adrenergic activity.
9. Drugs acting on neuro-muscular juncture and muscle.
10. Drugs acting on cardio-vascular system.
11. Drug acting on respiratory system.
12. Chemo-therapeutic.
13. Hormones and drugs affecting endocrine function.
14. The vitamin.
15. Metallic and other inorganic compounds.
16. Immunologic agents.
17. Diagnostic.

**EXERCISE THERAPY AND MESSAGE**

1. Mechanical anatomy of motion and posture.
2. Exercise of the shoulder and hip and evaluation.
3. Exercise of the hand and foot and evaluation.
4. Exercise of the knee and elbow and evaluation.
5. Vicarious motions (trick movements).



6. Joint motion assessment.
7. Manual muscle examination.
8. The therapeutic gymnasium.
9. Exercise in water.
10. Resistance exercise.
11. Brief isometric exercise.
12. Exercise based on neuro-physiological principles.
13. Crutch and Cane exercises.
14. Gait training.
15. Principles of therapeutic exercises.
16. Posture.
17. Exercise for spine.
18. Exercises for healthy persons.
19. Activities of daily living.
20. Massage.
21. Suspension therapy.
22. Neuro-muscular coordination.
23. Starting positions.
24. Cryotherapy.

## **ELECTRO THERAPY & ACTINO THERAPY**

### **Section-I Medical Electronics**

1. Electrical fundamentals.
2. Electron tubes.
3. Power supplies.
4. Amplifiers.
5. Oscillators.
6. Cathode Ray Tubes.
7. Transistors.
8. Recorders.
9. Transducers.
10. Radiation.
11. Principles of designs and circuits of infra-red and ultra violet generators, short-wave diathermy, microwaves, ultrasonics, and electrical stimulators.

12. Signal processes.
13. Display devices and indicators.
14. Magnetic tape recorders.
15. Data transmission and processing.

### **Section-II**

1. Physics of heat.
2. Thermometry.
3. Biophysics of diathermy.
4. Physiology of heat and cold.
5. Thermal radiation, pain and injury.
6. General principles of thermotherapy.
7. Conduction heating.
8. Luminous and Infra-red Heating.
9. High frequency instrumentation.
10. Short wave diathermy.
11. Microwaves.
12. Ultrasound therapy.
13. Instrumentation of electrotherapy.
14. Therapeutic electro-stimulation.
15. Iontophoresis.
16. Electrosleep therapy and anaesthesia.
17. Instrumentation for ultra violet therapy.
18. Physiological affects of Ultra-violet Radiation.
19. Low frequency currents.
20. T.N.S.
21. Interferential therapy.
22. Wax therapy.

### **Section-III      Electro-Physiology**

1. Bio-Electricity.
2. Electric potentials generated by cell.
3. Electrogenic membrane response.
4. Chemoresponsive electrogenic system.

5. Propagation of nerve impulse.
6. Neuromuscular junction.
7. Synapse.
8. Muscle electrogenic.
9. Electrophysiology of C.N.S.
10. Chronaxy.
11. Strength duration curves.
12. Electrical Skin resistance.
13. Electromyography.
14. Nerve conduction studies.
15. Microneurography.
16. Reflex physiology-monosynaptic and polysynaptic reflexes, microreflexes.
17. Spinograms.
18. Cerebral evoked potentials.

### MATHEMATICS AND STATISTICS

#### Mathematics :

**General Algebra** : Factorials-Logarithms-Meaning of 'e'-Basic ideas of probability.

**Calculus** : Some definite integral-Taylor's theorem-differential equation-equation for wave motion-linear differential equations.

**Vector Algebra** : Vector addition, subtraction and products-Grade Curl-Divergence in Cartesian; spherical and polar co-ordinates.

**Graphs** : Representation of data by graphs-linear and non-linear relations sample, semi-log and radial type-polts-slopes and intercepts-frequency distribution curves integration by graphs.

#### Statistics :

1. Questionnaire for use in planning investigations and in evolutionary reports.
2. Purpose and general method of investigation.
3. The population and sampling.

4. Sub-division of population and samples.
5. Skeleton layouts for results.
6. Interpretation after an experiment.
7. Measures of central tendency.
8. Dispersion.
9. Measures of Skewness, Kurtosis.
10. Correlation and Regression.
11. Probability-Expectations.  
-Condition probability.
12. Interpretation after a survey.
13. Sample sizes.
14. Collecting, recording and examining the data.
15. Last information.
16. Estimating population percentages from samples of frequency data on introduction to random/processes.
17. Comparison of samples of frequency data.
18. Variation between measurements.
19. Comparison by measurement.
20. Concomitant variation and trends.
21. Special lectures on Computer Sciences.

### PSYCHOLOGY

1. Definition and scope of Psychology in relating to Occupational therapy/Physiotherapy.
2. Methods of studies in Psychology.
3. Psychological development of human individual from conception to birth and birth to old age.
4. Special needs, characteristics and problems of the various groups of handicapped.
5. Learning, factors affecting learning, learning disabilities and techniques to deal with. Implications of various handicaps in the learning process. Principles of learning for various handicapped groups. Technique of motivating the handicapped children.
6. Adjustment, criteria of mental health, adjustment problems faced

- by handicapped children, counselling and guidance with special reference to the physically and mentally handicapped.
7. Interaction with the family, community and poor groups  
Communication patterns, specific problems faced by handicapped, development of social skills and sensitivity training.
  8. Role of psychologist in Rehabilitation of the Handicapped.

### MEDICINE

General Medicine including respiratory diseases.

1. Infection and antibacterial agents.
2. Infections and diseases.
3. Poisons and venoms.
4. Chemical and Physical agents carrying disease.
5. Diseases of metabolism.
6. Deficiency diseases.
7. Diseases of endocrine glands.
8. Diseases of digestive system.
9. Diseases of the Lymphatic system.
10. Diseases of the blood.
11. Diseases of the cardio vascular system, circulatory failure  
ischemic heart diseases, hypertension pulmeonary heart diseases, congenital heart disease, peripheral vascular diseases, embolism and thrombosis, collagean diseases.
12. Diseases of the respiratory system-the trachea, the bronchic, the lungs, the disaphragm, the pleura.
13. Diseases of the kidney.
14. Diseases of the Skin-sensory disorder, disorders, pigmentary anomalies, vesomotor disorders, dermatitis, cocalinfections, fungus infections, cutaneous, tuberculosis, virus infections, parasitic infections, erythmatous conditions, scleroderms and allied conditions, Artrophy and Hypertrophy, Diseases of the Hand, Trepical skin diseases.
15. **Psychiatry** :
  - i) Definition and introduction to Psychiatry in relation to OT & PT.
  - ii) Concept of normal and abnormal.
  - iii) **Behaviour disorders** : causes & management.

- (a) Psychoneurotic disorders.
- (b) Psychotic disorders.
- (c) Psychosomatic disorders.
- iv) Techniques of Therapy :
  - (a) Psychotherapy :
    1. Group Therapy.
    2. Psychodrama.
    3. Behaviour modification.
    4. Family Therapy.
    5. Play Therapy.
  - (b) Drug Therapy :
  - (c) E.C.T.
  - (d) The role of Psychiatrist in dealing with the problems of mental health.
- 16. Paediatrics.
- 17. Geriatrics.
- 18. Nursing and Bandaging.

## Section-II

1. Disorders of function in the context of Pathophysiology & Anatomy.
2. The Cranial Nerves.
3. Infections of the nervous system.
4. Disorders of the Cerebral circulation.
5. Demyelinating diseases of the nervous system.
6. Extrapyramidal syndromes.
7. Tumours and the nervous system.
8. Trauma and the nervous system.
9. Congenital and degenerative disorders.
10. Disorders of the spinal cord and cauda equina.
11. Toxic disorders.
12. Metabolic disorders.
13. Deficiency disorders.
14. Disorders of the Peripheral nerves.
15. Disorders of the Muscles.
16. Disorders of autonomic nervous system.
17. Psychological aspects of neurology.

**SURGERY**

General Surgery and Cardio-Vascular and Throasic Surgery.

1. Surgical wounds haemorrhage, shock water and electrolyte balance, burns.
2. Surgery of head and neck, elimetary system and genit-ourinary system.
3. Neurosurgery.
4. Cardio vascular and thoraic surgery.
5. Gynaecology and Obstetrics : Pelvic inflammatory conditions complications during & following frequency, prolapse uteruse.
6. E.N.T.

**Section-II : Orthopaedics**

1. Postural defects-entroposterior and lateral curve of the spine, the feet genu velgum, genu-varum.
2. Back pain.
3. The spine the intervertebral disease,osteoperosis,ankylosing spondylities, spine bifida, tortocollis, tuberculosis of the spine and sacro-iliac joints obsteomyelities tumours.
4. The Hip-congenital dislocation,coxa vara,tuberculosis bur-sitis.
5. The knee-injuries to medical ligament, lateral ligament, semilunar cartilages, cruciate ligament, chronic strain, condromalaciapatella, locking, rheumatoid arthritis, osteoarthritis, synovites, clicking knee, tuberculosis, strain tuberculosis.
6. The foot and ankle painful feet, pescavus, hallux valgus, gound, heeling, painful heel, the ligaments of the ankle, tuberculosis, strain fractures.
7. The shoulder girdle pain the shoulder, cervical spondylosis, carpal tunnel syndrome, cervico-brachial, junction, recurrent dislocation of the shoulder, tuberculosis.

8. The elbow tennis elbow, myositis-ossificans, ulnar palsy, tuberculosis.
9. The wrist and hand-tenosynovitis tuberculosis, ganglion, rupture of tendons, contractures.
10. Pyogenic infection.
11. Tuberculosis.
12. Chronic arthritis, rheumatoid and osteoarthritis.
13. Diseases of nervous system, poliomyelitis, cerebral palsy.
14. Common fractures of spine and extremities.

### Physical Therapy in Medical Conditions

#### Part-I

#### Physical Therapy in Neurological Conditions

1. Examination of Neurological disorder and principles of treatment.
2. Hemiplegia, Paraplegia; Cerebral Palsy, Tabes dorsalis, Cerebellar ataxia, extra pyramidal lesions (in detail).
3. Disseminated sclerosis, peronsal muscular atrophy, Amyotrophic lateral sclerosis, progressive Muscular Atrophy, Syringomyelia, Sub-acute combined degeneration of Cord.
4. Peripheral Nerve Lesions (in details).
5. Neuritis and Neuralgia-Brachial, Sciatics and facial Palsy (in detail).
6. Infections-Poliomyelities; Meningitis, Encephalitis, Polyneuritis.
7. Myopathies.
8. Paediatrics and Geriatrics
  - i) Special problems of elderly and children related to special conditions to which they are prone.
  - ii) Treatment as modified to their particular needs of each age group.



## Physical Therapy in Surgical Conditions

### Part-I

#### I. Orthopaedics and Fractures :

- i) Fractures and dislocations.
- ii) Types of displacement.
- iii) Classifications.
- iv) Immediate and late signs and symptoms.
- v) Changes at fracture site and its surrounding tissues.
- vi) Reasons for Union, Non-Union, delayed Union.
- vii) Methods of reduction and fixation.
- viii) Healing of fractures and factors influencing it.
- ix) Common fractures of Upper and Lower extremity and their complications.
- x) Corrective Surgery:
  - (a) Arthroplasty, Arthodesis, Osteotomy, Tendon, Transplant, Soft tissue release, grafting.
  - (b) Physio Therapy treatment as applicable to above conditions.

#### II. Injuries:

- i) **Soft tissue injuries** : Synovitis, capsulitis, volkman's ischemic contracture etc.
- ii) Crush Injuries.
- iii) Repair of injured tendon and nerves.
- iv) **Injuries of Semilunar cartilage and cruciate ligaments of knee** : Physical Therapy treatment as applicable to above conditions.

#### III. Deformities :

- i) Congenital, Torticollis, cervical rib, Sprengels Shoulder, spinabifida Talepes Equino Varus & Valgus, Hallux Valgus, pes- Cavus, pes-planus and other common deformities.
- ii) **Acquired** : Sceliosis, Kyphosis, Lordosis, Coxa-vara, Genu valgum, Genu Varum and Recurvatum, Planus and other common deformities.

- iii) Other miscellaneous Orthopaedic conditions commonly treated by Physical Therapy.

Physical Therapy treatment related to above conditions.

#### IV) Amputations :

Traumatic, Elective, common sites of amputation in Upper & Lower Extremities. Advantages and disadvantages.

Physical Therapy treatment as applicable to care of Prosthetic Training with emphasis on Lower Extremity.

**Note :** Emphasis should be on the assessment of disability with the selection of treatment based on these. Wherever possible treatment should be related to the activities of daily living and patients occupation and directed towards the development of self confidence and independence.

#### BIOMECHANICS AND KINESIOLOGY

1. General Principles.
2. Force, axis, planes, centre of gravity levers.
3. Classification of force systems.
4. The linear force system-resultant force, equilibrium.
5. Parallel forces in one plane.
6. Composition and resolution of forces.
7. Concurrent and general force system.
8. Friction.
9. The fundamental principles of motion: Causes and kinds of motion, kinds of motion experienced by body and factors determining it, laws of motion, circular motion etc.
10. Locomotion.

#### PHYSIOTHERAPY IN MEDICAL CONDITIONS

##### Part-II

#### 1. Pathological Changes :

Review of Pathological changes and principles of the treatment by Physiotherapy of :

- i) Inflammation acute, chronic and suppurative.
- ii) Oedema-Traumatic obstructive, Paralytic, Oedema due to poor muscle and laxity of the fascia.

2. **Arthritis and Allied conditions** (in details):

- i) Osteo-arthritis-generalised, Degenerative and traumatic, Spondylosis and disorder.
- ii) Rheumatoid Arthritis, Stills disease, infective Arthritis.
- iii) Spondylitis, Ankylosing Spondylitis.
- iv) Non-Articular Rheumatism-Fibrasitism, Myalgia, Bureitis, peri-arthritis etc.

3. **Diseases of the Respiratory System**

- i) Mechanism of Respiration.
- ii) Examination of Chest of Patients and principles of Physio therapy treatment.
- iii) Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema.
- iv) Pleurisy and Empyoma, Pneumoni.
- v) Bacterial Disease-Tuberculosis.
- vi) Rheumatic fever-carcinoma of respiratory tract.

4. **Common conditions of Skin**

Acne, Psoriasis, Alopecia, Leucoderma, Leprosy.

5. **Common Cardiac Disorders:**

Thrombosis, Embolism, Burger's diseases, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congentive Cardia-ofailure, hypertension.

6. **Deficiency Diseases:**

Rickets.

**PHYSIO THERAPY IN SURGICAL CONDITIONS**

**Part-II**

1. Complications common to all operations : pre and post operative physio therapy.
2. Wounds, Local Infections, Ulcers, Surgical procedures related to peripheral vascular diseases.
3. Burns, Degree of Burns, Skin Crafts.
4. General abdominal surgery and obstetrics and Gynaecology :
  - i) Abdominal incisions: Its pre and post operative Physiotherapy.

- ii) Operations on stomach, intestines, appendectomy, Splenectomy, Cholecystectomy.
- iii) Operations on abdominal wall, Hernia.
- iv) Operations of Genito-urinary system, proctectomy, Nephrectomy.
- v) Antenatal and Post natal training.
- vi) Prolapse rectum.
- vii) Weak abdominal and Pelvic floor muscles.
- viii) Complications of Pregnancy.
- ix) Stress incontinence.
- x) Prolapse Uterus.
- xi) Special points related to Pelvic Surgery.
- xii) Pelvic inflammatory conditions.
- xiii) Surgery of the Breast Radical mastectomy.  
Physio therapy related to above conditions.

#### 5. **Thoracic Surgery**

- i) Thoracic incisions, pre and post operative treatment and later rehabilitation of the patients.
- ii) Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty.
- iii) Operations on Chest wall.
- iv) Common complications with emphasis to atelectasis, pneumothorax, Bronchopulmonary fistula, pre and post operative Physio therapy related to Cardiothoracic Surgery.
- v) Operations on pericardium and Heart, Chronic constrictive pericarditis, Valvular incompetence and stasis, Mitral Valvotomy, Congenital heart defects: Patent ductus arteriosus, Tetralogy of Fallot.

#### 6. **Ear, Nose and Throat Conditions**

Otitis media, Sinusitis, Acute Rhinitis, Adenoids, Tonsillitis, Physio therapy related to above conditions.

#### 7. **Neuro-Surgery**

- i) Cranial Surgery :  
Head injuries, Intra cranial abscess, Intracranial Tumours.

- ii) Surgery of Spinal Cord and cauda equina, Spina Bifida and its complications, infections of the spine, Epidural abassess, Tuberculosis, Lumber Disc Herniation, Cervical Disc Herniation, Laminectomy, Pre and Post operative physiotherapy treatment related to above conditions.
- iii) Surgery of peripheral Nerves, Peripheral Nerve injuries, pro and post operative physio therapy treatment as applicable to above conditions.

**8. Pre and Post operative Physiotherapy, related to Plastic Surgery :**

Tendon transplantation in Leprosy, Polio etc. Pre and Post operative Physio therapy related to above conditions.

**DISABILITY PREVENTION AND REHABILITATION**

1. Introduction.
2. Definition concerned in the phases of disability process.
3. Definitions concerned with causes of impairment, functional limitation and disability.
4. Rehabilitation and disability prevention.
5. Present rehabilitation services.
6. Reservations & legislation for rehabilitation services for the disabled.
7. Community and Rehabilitation.
8. Basic principle of Administration, Budget, approach, personnel and space etc.
9. Contribution of social worker towards rehabilitation.
10. Vocational evaluation and goals for disabled.
11. Rural rehabilitation incorporated with Primary Health Centres.
12. Principles of Orthotics and Prosthetics
  - i) Lower Extremity Orthotics
  - ii) Spinal Orthotics
  - iii) Upper Extremity Orthotics
  - iv) Upper Extremity Prosthetics
  - v) Lower Extremity Prosthetics

13. Principles of communication : Impairment
  - i) Speech production
  - ii) Communication disorders secondary to Brain Damage
  - iii) Aphasia and its treatment
  - iv) Evaluating language
  - v) Dysarthria and its treatment
  - vi) Non-aphasic Language disorders
14. Code and Conduct.
15. Ethics and Management
  - I) Principles in Management of Social Problems.
    - a) Social needs of the patient
    - b) Rehabilitation Centre Environment
    - c) The Social Worker as a member of the Rehabilitation Team.
    - d) Community Resources.
  - II) Principles in Management of Vocational Problems :
    - (a) Vocational Evaluation
    - (b) Vocational Goals for the student
16. **Mental Subnormality**
  - i) Identification and assessment of the mentally subnormal.
  - ii) Classification of the mentally subnormal.
  - iii) Common characteristics of different categories of the mentally subnormal.
  - iv) Causes, prevention and management of the mental subnormal.
  - v) Training of the mentally subnormal.
17. Definition, Scope, importance of A.D.L.
18. Goals of Self Help Devices.
19. Teaching A.D.L. in the following areas-
  - i) Wheel Chair Activities
  - ii) Bed Activities
  - iii) Self Care Activities
    - (a) Toilet
    - (b) Eating
    - (c) Dressing
  - (iv) Miscellaneous Hand Activities

20. Principles of design materials used.
21. A.D.L. Form.
22. A.D.L. Room.
23. Relationship of A.D.L. to Occupational therapy and Physiotherapy.
24. **Practicals**  
Eating device, Bathing Device, Shoe Wearing adapted device, Brushing Device, Combing Device, Writing Device, Leather Cuff Amputee, Helping Hand, Socking Devices.