

D.A.V. INSTITUTE OF PHYSIOTHERAPY & REHABILITATION

Mahatma Hans Raj Marg, GT Road, Jalandhar-144008.

(AFFILIATED TO BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT)

BACHELOR IN PHYSIOTHERAPY

(Course Duration: 4 ½ Years)

ORDINANCES & SYLLABUS

BACHELOR OF PHYSIOTHERAPY (B.P.T.)

**BABA FARID UNIVERSITY OF HEALTH SCIENCES
FARIDKOT – 151 203**

**ORDINANCES
FOR
BACHELOR OF PHYSIOTHERAPY
(B.P.T.) COURSE**

1. Duration of course

The duration of Bachelor Physiotherapy course shall be four and half academic years including six months compulsory rotatory internship as under:

- a) First Professional B.P.T. 1 year
- b) Second Professional B.P.T. 1 year
- c) Third Professional B.P.T. 1 year
- d) Fourth Professional B.P.T. 1 year
- e) Internship 6 months

2. Admission criteria and qualification

No candidate shall be admitted to the B.P.T. course unless he/she has:-

- i) passed 10+2 examination from the Punjab School Education Board or any other examination from a statutory University/Board recognized as equivalent there to by Baba Farid University of Health Sciences, Faridkot with Physics, Chemistry, Biology and English and must have obtained a minimum of 50% marks taken together in Physics, Chemistry and Biology. In the case of candidates belonging to Scheduled Castes/ Scheduled Tribes, the percentage aggregate marks required pass marks would be 40%. The admission shall be made on the basis of merit of the Entrance Test to be conducted for the purpose. Other terms & conditions may be as notified by the Govt. of Punjab from time to time.
 - ii) Completed or shall be completing the age of 17 years on 31st December or the year of admission.
3. English shall be the medium of instruction for study and examination of the Bachelor of Physiotherapy degree course.

4. Examination

Each examination shall be held twice a year in the months of May/June and November/ December or on such dates as may be fixed by the University from time to time.

Every candidate shall pay examination fee to the University as may be prescribed by the Board of Management from time to time unless otherwise notified by the University. The last dates for receipt of examination form and fee in the University Office shall be as Under:

Examinations B.P.T.	Without Late fee	With late fee of Rs. 200/-	With late fee of Rs. 500/-	With late Fee of Rs. 1500/-
May/June	March 1	March 15	March 31	April 15
Nov/Dec	Sept. 15	Sept. 30	Oct. 15	Oct. 31

The Vice chancellor may permit acceptance of admission form and fee ten days before the commencement of examination with a late fee of Rs. 2000/-

5. First Professional B.P.T. Examination

The First Professional B.P.T. Examination shall be open to a person who

- a) has been enrolled for one academic year preceding the examination in a Physiotherapy College affiliated to this University.
- b) Has his/her name submitted to the Registrar by the Principal of the college with the following certificate:
 - i) of having attended separately in theory and practical/ clinical not less than 75 percent of the lectures delivered and practical conducted in each of the subjects prescribes for the examination provided that deficiency in the number of lectures delivered and practical conducted may be condoned by the principal to the extent of 10% of the lectures delivered.
 - ii) Of having secured at least 50% marks of the total marks fixed for internal assessment in each subject, separately.
 - iii) Of good moral character.

Note:- 1) Internal Assessment shall be submitted to the University at least two weeks before the commencement of theory examinations. All the colleges shall adopt uniform criteria for Internal Assessment for which a record of each student shall be maintained in each department, which should be made available for inspection by the student concerned as well as University authorities.

The re- appear /fail students will not be re-assessed every time for the purpose of Internal Assessment and their previous score of assessment will be carried forward.

- 2) If a candidate fulfils the condition laid down in clause 5 (b) (i) and (ii) above for one or more subject (s) he/she may be allowed to take the examination in such subject (s) in which he/she fulfils the requirements.
- 3) Every candidate before appearing in First Professional B.P.T. Examination must have cleared House Examination securing atleast 33 percent marks in both theory as well as practical separately.
- c) The First Professional B.P.T. Annual Examination shall be held in May/June and the supplementary within six months of the annual examinations.
- d) The First Professional B.P.T. examination shall be in the following subjects and candidate shall be required to pass all the subjects:-

Sr.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess	Total	Marks	Int. Assess	Total	
1.	Anatomy	90	10	100	90	10	100	200
2.	Physiology	90	10	100	90	10	100	200
3.	Biochemistry	90	10	100	-	-	-	100
4.	Electrotherapy-I	90	10	100	90	10	100	200
5.	Exercise therapy –I	90	10	100	90	10	100	200
6.	Sociology	90	10	100	-	-	-	100

- i) There shall be a provision of Internal assessment of 10% marks in each subject of B.P.T. course in theory and practical , separately.
- ii) Each theory paper shall be three hours duration.
- iii) The minimum number of marks to pass the examination shall be 50% in theory including Internal Assessment and 50% in practical/clinical including Internal Assessment in each subject.
- iv) A candidate securing 75% or above marks in any of the subjects shall be declared to have passed with Distinction in that subject provided he has passed the examination in first attempt.
- v) A candidate who fails in one or more subjects in his/her 1st attempt, shall be permitted to attend classes in 2nd Prof B.P.T. course. However, if a candidate who fails to pass all the subjects in the subsequent examination shall be reverted to 1st Prof B.P.T. course forfeiting all the benefits of earlier promotion.
- vi) Any candidate who fails to clear all the subjects of 1st Prof B.P.T. examination in four consecutive attempts including the first attempt in which he/she is eligible to appear, shall not be allowed to continue his/her studies in B.P.T. course.
- vii) However, those candidates who clear all the subjects of 1st Professional B.P.T. course a in 4th attempt shall be promoted to 2nd Prof. B.P.T. course after the declaration of the result, and thereafter they shall have to complete the period of one academic year of study in order to become eligible to appear in 2nd Prof B.P.T. examination.

6. Second Professional B.P.T. Examination

The Second Professional B.P.T. Examination shall be open to a person who-

- a) has been enrolled for one academic year preceding the examination in a Physiotherapy College affiliated to this University.
- b) Has previously passed the First Prof B.P.T. examination of this University or an examination of any other recognized University/Institution in India considered equivalent for the purpose by the University.
- c) has his/her name submitted to the Registrar by the Principal of the college with the following certificates:-
 - i) Of having attended separately in theory and practical/clinical not less than 75 percent of the lectures delivered and practical conducted in each of the subjects of Second Professional B.P.T. course prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may be condoned by the Principal to the extent of 10% of the lectures delivered.
 - ii) Of having secured at least 50% marks of the total marks fixed for internal assessment in each subject, separately.
 - iii) Of good moral character.

Note :- 1) Internal Assessment shall be submitted to the University at least two weeks before the commencement of theory examinations. All the colleges shall adopt uniform criteria for Internal Assessment for which a record of each student shall be maintained in each department, which should be made available for inspection by the student concerned as well as University authorities.

The re- appear /fail students will not be re-assessed every time for the purpose of Internal Assessment and their previous score of assessment will be carried forward.

- 2) If a candidate fulfils the condition laid down in clause 6 (c) (i) and (ii) above for one or more subject (s) he/she may be allowed to take the examination in such subject (s) in which he/she fulfils the requirements.
- 3) Every candidate before appearing in second Professional B.P.T. Examination must have cleared House Examination securing atleast 33 percent marks in both theory as well as practical separately.
- (d) The 2nd B.P.T. course shall be of one year duration and the examination shall ordinarily be held in May/June. The Supplementary examination shall be held within six months of the annual examination.
- (e) The Second Professional B.P.T. Examination shall be held one year after First Professional B.P.T. Examination and the candidate is required to pass the following subjects:-

Sr.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess	Total	Marks	Int. Assess	Total	
1.	Pathology & Microbiology	90	10	100	-	-	-	100
2.	Pharmacology	90	10	100	-	-	-	100
3.	Electrotherapy-I	90	10	100	90	10	100	200
4.	Exercise therapy –I	90	10	100	90	10	100	200
5.	Biomechanics	90	10	100	-	-	-	100
6.	Psychology	90	10	100	-	-	-	200

- i) There shall be a provision of Internal assessment of 10% marks in each subject of B.P.T. course in theory and practical, separately.
- ii) Each theory paper shall be three hours duration.
- iii) The minimum number of marks to pass the examination shall be 50% in theory including Internal Assessment and 50% in practical/clinical including Internal Assessment in each subject.
- iv) A candidate securing 75% or above marks in any of the subjects shall be declared to have passed with Distinction in that subject provided he has passed the examination in first attempt.
- v) A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at subsequent examinations but the candidate must pass the examination in a maximum of four attempts, failing which he/she shall have to appear in all the subjects of the examination.

Provided that the candidate who fails in one or more subjects in his/her 1st attempt shall be permitted to attend classes of 3rd Prof B.P.T. Course. However, he/she shall be reverted to the previous class if he/she fails to pass that subjects (s) in the subsequent examination.

7. Third Professional B.P.T. Examination

The third Professional B.P.T. Examination shall be open to a person who-

- a) has been enrolled for one academic year preceding the examination in a Physiotherapy College affiliated to this University.
- b) Has previously passed the Second Prof B.P.T. examination of this University or an examination of any other recognized University/Institution in India considered equivalent for the purpose by the University.
- c) has his/her name submitted to the Registrar by the Principal of the college with the following certificates:-
 - i) Of having attended separately in theory and practical/clinical not less than 75 percent of the lectures delivered and practical conducted in each of the subjects of Third Professional B.P.T. course prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may be condoned by the Principal to the extent of 10% of the lectures delivered.
 - ii) Of having secured at least 50% marks of the total marks fixed for internal assessment in each subject, separately.
 - iii) Of good moral character.
 - iv)

Note :- 1) Internal Assessment shall be submitted to the University at least two weeks before the commencement of theory examinations. All the colleges shall adopt uniform criteria for Internal Assessment for which a record of each student shall be maintained in each department, which should be made available for inspection by the student concerned as well as University authorities.

The re-appear /fail students will not be re-assessed every time for the purpose of Internal Assessment and their previous score of assessment will be carried forward.

- 2) If a candidate who fulfils the condition laid down in clause 7 (c) (i) and (ii) above for one or more subject (s) and not for the other, he/she may be allowed to take the examination in such subject (s) in which he/she fulfils the requirements.

- 3) Every candidate before appearing in Third Professional B.P.T. Examination must have cleared House Examination securing at least 33 percent marks in both theory as well as practical separately.
- (d) The 3rd B.P.T. Annual Examination shall be held in May/June and the Supplementary within six months of the annual examination.
- (e) The Third Professional B.P.T. Examination shall be held one year after Second Professional Examination and the candidate is required to pass the following subjects:-

Sr.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess	Total	Marks	Int. Assess	Total	
1.	Orthopaedics	90	10	100	90	10	100	200
2.	General Medicine	90	10	100	90	10	100	200
3.	PT in ortho condition	90	10	100	90	10	100	200
4.	PT in medical condition –I	90	10	100	90	10	100	200
5.	Research Methodology	90	10	100	-	-	-	100

- i) There shall be a provision of Internal assessment of 10% marks in each subject of B.P.T. course in theory and practical, separately.
- ii) Each theory paper shall be three hours duration.
- iii) The minimum number of marks to pass the examination shall be 50% in theory including Internal Assessment and 50% in practical/clinical including Internal Assessment in each subject.
- vi) A candidate securing 75% or above marks in any of the subjects shall be declared to have passed with Distinction in that subject provided he has passed the examination in first attempt.
- v) A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at subsequent examinations but the candidate must pass the examination in a maximum of four attempts, failing which he/she shall have to appear in all the subjects of the examination.

Provided that the candidate who fails in one or more subjects in his/her 1st attempt shall be permitted to attend classes of Final Prof B.P.T. Course. However, he/she shall be reverted to the previous class if he/she fails to pass that subjects (s) in the subsequent examination.

8. Final Professional B.P.T. Examination

The Final Professional B.P.T. Examination shall be open to a person who-

- a) has been enrolled for one academic year preceding the examination in a Physiotherapy College affiliated to this University.
- d) has previously passed the Third Prof B.P.T. examination of this University or an examination of any other recognized University/Institution in India considered equivalent for the purpose by the University.
- c) has his/her name submitted to the Registrar by the Principal of the college with the following certificates:-
 - i) of having attended separately in theory and practical/clinical not less than 75 percent of the lectures delivered and practical conducted in each of the subjects of Final Professional B.P.T. course prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may be condoned by the Principal to the extent of 10% of the lectures delivered.
 - ii) Of having secured at least 50% marks of the total marks fixed for internal assessment in each subject, separately.
 - iii) Of good moral character.

Note :- 1) Internal Assessment shall be submitted to the University at least two weeks before the commencement of theory examinations. All the colleges shall adopt uniform criteria for Internal Assessment for which a record of each student shall be maintained in each department, which should be made available for inspection by the student concerned as well as University authorities.

The re-appear /fail students will not be re-assessed every time for the purpose of Internal Assessment and their previous score of assessment will be carried forward.

- 2) If a candidate who fulfils the condition laid down in clause 8 (c) (i) and (ii) above for one or more subject (s) and not for the other, he/she may be allowed to take the examination in such subject (s) in which he/she fulfils the requirements.
- 3) Every candidate before appearing in Final Professional B.P.T. Examination must have cleared House Examination securing at least 33 percent marks in both theory as well as practical separately.
- (d) The Final B.P.T. course shall be of one year duration and the examination shall ordinarily be held in May/June. The Supplementary examination shall be held within six months of the annual examination.

- e) The Final Professional B.P.T. Examination shall be held one year after the Third Professional Examination and the candidate is required to pass the following subjects:-

Sr	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess	Total	Marks	Int. Assess	Total	
1.	General Surgery	90	10	100	90	10	100	200
2.	Neurology	90	10	100	90	10	100	200
3.	Paediatrics & Geriatrics	90	10	100	90	10	100	200
4.	PT in Medical condition –I	90	10	100	90	10	100	200
5.	PT in Surgical Conditions	90	10	100	90	10	100	200
6.	Principles of rehabilitation	90	10	100	-	-	-	100
7.	Computer application	-	-	-	45	05	50	50

- i) There shall be a provision of Internal assessment of 10% marks in each subject of B.P.T. course in theory and practical, separately.
- ii) Each theory paper shall be three hours duration.
- iii) The minimum number of marks to pass the examination shall be 50% in theory including Internal Assessment and 50% in practical/clinical including Internal Assessment in each subject.
- vi) A candidate securing 75% or above marks in any of the subjects shall be declared to have passed with Distinction in that subject provided he has passed the examination in first attempt.
- v) A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at subsequent examinations but the candidate must pass the examination in a maximum of four attempts, failing which he/she shall have to appear in all the subjects of the examination.

9. General Conditions

9.1 The examiners shall be appointed by the University on the recommendations of the Board of studies/ Faculty of Physiotherapy.

Provided that

- i) The senior most teacher in a subject who has taught the students for at least six months shall be appointed internal examiner. No person below the rank of Reader/ Assistant Professor in the subject of Degree level institution shall be appointed as an Internal Examiner. However, in compelling circumstances a Senior Lecturer/Lecturer with at least three years of teaching experience in the subject may be made an Internal Examiner. All examiners/papers setters to be appointed must be teaching/taught the B.P.T. Classes.
 - ii) External Examiner shall be appointed only from the teaching staff of Physiotherapy College outside the State of Punjab.
 - iii) The University may get each paper set from external examiner only. The moderation of questions papers may be got done under the direction of the vice Chancellor, if necessary.
 - iv) The practical examination shall be conducted jointly by the Internal examiner of the respective Institution and the External Examiner for that Institute.
 - v) The award list duly signed by both the examiners would be submitted to the University immediately after the conduct of examination. A copy of the result of practical examination would be kept by the Internal Examiner for six months for reference and record.
 - vi) In order to maintain secrecy the evaluation of answer books shall be got evaluated by putting fictitious roll numbers there on spot evaluation (table marking) or any other method under the direction of the Vice Chancellor.
10. The Internal Assessment shall be determined by the Head of the Department concerned based on the student's class work, home work, house examination records and participation in co-curricular activities and the same duly countersigned by the Principal shall be submitted to the University at least two weeks before the commencement of the examination.

11. The Registrar/Controller of Examinations shall publish the result after the examination. The candidates shall be issued Detailed Marks Certificate through their principals. The Degree of Bachelor of physiotherapy (B.P.T) shall be awarded by the University on successful completion of six months compulsory rotatory internship, duly certified by the principal of the college.

12. Migration

A student of any physiotherapy college who has passed his first prof. B.P.T. examination may be permitted to migrate from one college to another under the jurisdiction of Baba Farid University of Health Sciences, Faridkot, on the following conditions:-

- a) The student has to apply to migration to the University within two months from the declaration of his/her First Prof. B.P.T. result.
- b) The applicant student will be permitted to migrate if a vacant seat is available in the College where, he/she wants to migrate.
- c) The applicant's total aggregate marks should not be less than the lowest marks obtained by a student of the college to which the migration is sought. This will be applicable only to the applicants seeking inter University migration.
- d) The applicant must submit "No Objection Certificate" from both the principals.
- e) Notwithstanding anything contained in the above rules, if an applicant does not fulfill any of the conditions given above, the vice chancellor may allow a student to migrate under exceptional circumstances to another College.

13. There shall be no grace marks in all the professional B.P.T. examinations.

14. All the candidates shall complete 300 teaching hours in Clinical Training during the course.

15. Compulsory Internship

15.1 All the students after passing Final Prof. B.P.T. examinations shall go in for six months compulsory rotatory internship in the following departments:-

i) Physiotherapy Out-patient Department	1 month
ii) Orthopaedics	1 month
iii) Neurology & Neuro Surgery	1 month
iv) Cardiology & Cardiothoracic Surgery	1 month
v) General Medicine & General Surgery	1 month
vi) Community based Rehabilitation/ Geriatric	1 month

15.2 After Completion of internship the concerned principal will certify that the student has satisfactorily completed internship. Thereafter the student will be awarded the degree of Bachelor of Physiotherapy (B.P.T).

15.3 All the students of Baba Farid University of Health Sciences, Faridkot, will complete their internship in their parent College.

15.4 Due to certain special reason a student may be permitted to complete his internship in another affiliated Physiotherapy College if Principals of both the colleges give their consent and the University issues No Objection Certificate to this effect. This would be allowed only if a seat is vacant in the college in which the student wants to complete his internship.

15.5 All the students shall start their internship within 15 days from the declaration of results. Under exceptional circumstances, if a student cannot do so, he will have to take special permission of the University on the recommendations of the Principal.

Detailed Syllabus
First Year
Paper -1 Anatomy

Time : 3 Hrs.

M. Marks: 200
Theory: 90+10 Int. Assess.=100
Practical: 90+10 Int. Assess.=100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

- Section A:** This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each questions will carry 2 marks total weightage of the section shall be 20 marks.
- Section B:** This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.
- Section C:** This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section –I

General Introduction:

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

Section –II

System of Human Body

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

Section –III

Neuro – anatomy : Microscopic and gross study of :-

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

Section IV

Musculo Skeletal System

(A) Myology:-

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

(B) Osteology & Arthrology

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

Section- V

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

Anatomy Practical

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

Book Recommended:-

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

Paper -II Physiology

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical: 90+10 Int. Assess.=100

Teaching hours: Theory = 225, Practical = 100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

- Section A:** This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.
- Section B:** This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.
- Section C:** This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section –I

General Introduction:

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

Section –II

Physiology of the system of the body:

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

Section -III

Neuro- Physiology

1. Neuron: Properties and function.
2. Action Potential
3. Special properties of nerve trunks and tracks.
4. Motor units.
5. Reflex physiology.
6. Synapse and synaptic transmission.
7. Supraspinal control.
8. Cerebellum and basal ganglia.
9. Autonomic nervous system.
10. Somatic sensation.
11. Pain
12. Taste, Olfaction, Auditory and Vision
13. Neuro Physiological Psychology

Section IV

Muscle Physiology

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

Section –V

Physiology of exercise and work:

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

PHYSIOLOGY PRACTICAL

To study the following physiological Phenomena:-

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

Books Recommended :

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

Paper -III Biochemistry

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory = 100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

- Section A:** This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.
- Section B:** This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.
- Section C:** This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 5 marks, total weightage of the section being 30 marks.

1. Biophysics: Concepts of pH and buffers, acid base equilibrium osmotic pressure and its physiological applications.
2. Cell: Morphology, structure & kinetics of cell, cell membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosomes,
3. Carbohydrates: Definition, functions, sources, classifications, Monosaccharides, Disaccharides, Polysaccharides, mucopolysaccharide and its importance.
4. Lipids: Definition, function, sources, classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acid. Essential fatty acids and their importance, Blood lipids and their implications, cholesterol and its importance.
5. Proteins : Definition, sources, kinetics, classification, simple protein conjugated protein, derived proteins, properties and varieties of proteins.
6. Nucleic acid: Structure and function of DNA and RNA, Nucleosides, nucleotides, Genetic code, Biologically important nucleotides.
7. Enzymes: Definitions, classifications, mode of action, factor affecting enzyme action, clinical importance of enzyme.
8. Vitamins: Classification, fat soluble vitamins, A,D,E & K, water soluble vit. B complex & C, Daily Requirements, Physiological functions and diseases of Vitamin deficiency.
9. Bioenergetics: Concept of free energy charge, Exergenic and endogenic reaction, concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.
10. Carbohydrate Metabolism: Glycolysis, HMP shunt pathway, TCA cycle, glyconogenesis, Gluconogenesis, Maintenance of Blood Glucose, introversions of different sugar.
11. Lipid Metabolism: Fatty acid oxidation, Fatty acid synthesis, Metabolism of Cholesterol, Ketone bodies, Atherosclerosis and obesity.
12. Protein Metabolism: Transamination, Transmethylation, Deamination, Fate of ammonia, urea synthesis and synthesis of creatine, inborn errors of metabolism.
13. Water and Electrolyte: Fluid compartment, daily intake and output sodium and potassium metabolism.
14. Nutrition: Balance , diet metabolism in exercise and injury, Diet for Chronically ill and terminally ill patients.
15. Connective tissue: Mucopolysaccharide connective tissue proteins, glycoprotein, chemistry and Metabolism of bone and tooth, metabolism of skin.
16. Nerve tissue: Composition, metabolism, chemical mediators of Nerve activity.
17. Hormones: General characteristics and mechanism of Hormone action insulin, glucagone Thyroid and Parathyroid hormones, cortical & sex hormones.
18. Isotopes: Isotopes and their role in treatment and diagnosis of disease.

Books Recommended :-

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

Paper –IV Electrotherapy- I

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical: 90+10 Int. Asses = 100

Teaching hours: Theory = 125, Practical =200

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 5 marks, total weightage of the section being 30 marks.

Second –I

Physical Principal

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

Structure of atom, molecules, elements and compounds.

Election theory, static and current electricity.

Conductors, Insulators, Potential difference, Resistance & Intensity .

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

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

Effects of Current Electricity

1. Chemical effects- Ions and electrolytes, Ionisation, Production of a E.M.F. by chemical action.
2. Magnetic effects, Molecular theory of magnetism, Magnetic fields, Electromagnetic Induction.
3. Milli ammeter and Voltmeter, Transformers and Choke Coil.
Thermal Effects- Joule's Law and Heat Production.
4. Physical Principles of sound and its properties.
5. Physical Principles of light and its properties.
6. Electromagnetic spectrum- biophysical application.

Section-II

1. Electrical supply:-

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

Section –III

Low Frequency Currents

1. Introduction to direct, alternating & modified currents.
2. Production of direct current- Physiological and therapeutic effects of constant current, anodal and cathodal Galvanism, Ionisation and their application in various conditions.
3. Iontophoresis:- Principles of clinical application, indication, contraindication, precaution, operational skills of equipment & patient preparation.
4. Modified direct current- various pulses, duration and frequency and their effect on Nerve and Muscle tissue. Production of interrupted and surged current & their effects.
5. Modified direct current- Physiological and therapeutic effects, principles of clinical application, indications, contra indication, precautions, operational skills of equipment & patient preparation.
6. Transcutaneous Electrical Nerve Stimulations (TENS):-
 - a) Types of Low Frequency, pulse widths, frequencies & intensities used as TENS applications.
 - b) Theories of pain relief by TENS.

- c) Principles of clinical applications, effects & uses, Indications, contraindications, precautions, operational skills of equipment & patient preparation.

Section – IV

Electrical Reactions and Electro-diagnostic tests

Electrical Stimuli and normal behaviour of Nerve and muscle tissue.

Types of lesion and development of reaction of degeneration.

Faradic- Intermittent direct current test

S.D. Curve and its application.

Chronaxie, Rheobase & pulse ratio.

Section –V

1. Infra red rays- Wavelength, frequency, types & sources of IRR generation. Techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
2. Ultra – violet rays (UVR):-
 - a) Wavelength, frequency, types & sources of UVR general, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
 - b) Dosimetry of UVR.

Section – VI

Superficial heat- Paraffin wax bath, moist heat, electrical heating pads.

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

Electrotherapy – I (Practical)

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

Books Recommended:-

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

Paper - V Exercise Therapy- I

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory = 125, Practical =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section -I

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

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

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

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

- | | | | |
|----|--|----|-------------------|
| a) | Active movement | b) | Passive movement |
| c) | Active assisted movement | d) | Resisted movement |
| e) | To study the Principles, techniques of application, Indication, contraindication, Precaution, Effects and uses of Suspension Therapy | | |

Section –II

Manual Muscle Testing

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

Section –III

Goniometry

Goniometers and its types

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

Section- IV

Soft Tissue Manipulation (Therapeutic Massage)

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

Section -V

Motor Learning

- | | |
|----|---------------------------------------|
| i) | <u>Introduction to motor learning</u> |
| a) | Classification of motor skills |
| b) | Measurement of motor performance |

- ii) Introduction to motor control
 - a) Theories of motor control
 - b) Applications
- iii) Learning Environment
 - a) Learning of Skill.
 - b) Instruction & augmented feed back.
 - c) Practice conditions.

Section – VI

Relaxation & Therapeutic Gymnasium

Relaxation

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

Therapeutic Gymnasium

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

Practice:

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

Books Recommended:-

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

Paper- VI Sociology

Time : 3 Hrs.

M. Marks: 100

Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

1. Introduction: Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy.
2. Sociology & Health: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.
3. Socialization: Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients.
4. Social groups: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings.
5. Family: Influence of family on human personality, discussion of changes in the functions of a family, influence of family on the individual's health, family and nutrition, the effects of sickness on family, and psychosomatic disease.
6. Community: Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practice and home remedies in treatment.
7. Culture: Components of culture. Impact of culture on human behaviour, cultural meaning of sickness, response & choice of treatment (Role of culture as social consciousness in moulding the perception of reality), culture induced symptoms and disease, sub- culture of medical workers.
8. Caste system: Features of modern caste system and its trends.
9. Social change: Meaning of social change, factors of social change, human adaption and social change, change and stress, social change and deviance, social change and health programmes, the role of social planning in the improvement of health and in rehabilitation.
10. Social Control: Meaning of social control, role of norms, folkways, customs, morals, religion, law and other means of social control in the regulation of human behaviour, social deviance and disease.
11. Social Problems of the Disabled: Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems:
 - a) Population explosion
 - b) Poverty and unemployment
 - c) Beggary
 - d) Juvenile delinquency
 - e) Prostitution
 - f) Alcoholism
 - g) Problems of women in employment
12. Social Security: Social security and social legislation in relation to the disabled.
13. Social Worker: The role of medical social worker.

Book Recommended:-

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

SECOND YEAR
Paper – I Pathology & Microbiology

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =200

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section –I Pathology

1. Introduction: Concepts of diseases, classification of lesions.
2. Bacterial, viral and parasitic infections – a general outline.
3. Inflammation and repair, degeneration, necrosis and gangrene.
4. Haemorrhage, shock, embolism, thrombosis
5. Tuberculosis, Leprosy, Typhoid
6. Deficiency diseases
7. Tumours: Etiology & spread, common tumours.
8. Blood: Anaemia, Heart and blood vessels common congenital anomalies, Rheumatic and coronary heart disease.
9. Respiratory System: Pneumonias, Bronchiectasis, Emphysema, Chronic Bronchitis, Asthma.
10. Bone and Joints: Autoimmune diseases, septic arthritis, Osteomyelitis.
11. Skin: Leprosy
12. Urinary System
13. Central Nervous system: CNS infections, vascular disorders,
14. Rheumatoid Arthritis.
15. Scleroderma and Psoriasis.
16. Disease of muscle including poliomyelitis, Myopathies.
17. Volkmann's Ischaemia.

Section II Microbiology

1. Introduction and history of microbiology
2. Micro – organisms
 - a) Classification
 - b) Shape and arrangement
 - c) Special characteristics- spores, capsules, enzymes, motility, reproduction.
3. Disinfection and antiseptics.
4. Sterilization and asepsis.
5. Antibacterial agents- fundamental aspect, susceptibility tests.
6. Infection- source of infection, portals of entry, spread of infection.
7. Non- specific immunity .
8. Immunity – natural and acquired
9. Allergy and hypersensitivity
10. Outline of common pathogenic bacteria and disease produced by them.
Treatment and prevention.
 - a) Respiratory tract infections.
 - b) Meningitis.
 - c) Enteric infections
 - d) Anaerobic infections
 - e) Urinary tract infections
 - f) Leprosy, tuberculosis and miscellaneous infections
 - g) Wound infections
 - h) Sexually transmitted diseases
 - i) Hospital acquired infections
11. Pathogenic yeast's and fungi
12. Virology- Virus infections with special mention of Hepatitis, Poliomyelitis & Rabies.

Books Recommended:-

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

Paper – II Pharmacology

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 15 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section- I Pharmacology

1. General action of drugs.
2. Drug allergy and idiosyncrasy.
3. Drug toxicity
4. Metabolic fate of drug
5. Methods of administration
6. Chemical character of drugs
7. Drugs acting on Central nervous system – anaesthetics, alcohols , alkaloids, narcotics, antipyretics, hypnotics, sedatives, anticonvulsants, stimulants, psychotherapeutics.
8. Drugs acting on peripheral nervous system- stimulating and inhibiting cholinergic and anti cholinergic activity.
9. Drugs acting on Neuromuscular junction and muscles
10. Drugs acting on Cardiovascular system
11. Drugs acting on respiratory system
12. Chemotherapeutic agents.
13. Hormones & drugs affecting endocrine functions.
14. Vitamins.

Book Recommended:

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

Paper – III Electrotherapy -II

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess.=100

Teaching hours: Theory =100, Practical =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length.

All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length.

Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section – I

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

Section –II

1. High frequency currents (S.W.D. and M.W.D.) – Production ,biophysical effects , types , therapeutic effects, techniques of application, indications, contraindications, precautions, operational skill and patient preparation.
2. Medium frequency currents (Interferential Therapy) – conceptual framework of medium frequency current therapy, production, biophysical effects, types, therapeutics effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
3. High frequency sound waves (Ultrasound) – Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions , operational skills and patient preparation.

Section -III

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

Section IV

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

Electrotherapy –II (Practical)

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

Books Recommended:

1. Electrotherapy Explained: Principles & Practice Low & Reed- Butterworth Heinmann.
2. Clayton's Electrotherapy (10th edition)-Kitchen & Bazin – W.B. Saunders.
3. Therapeutic Heat and Cold Lehmann- Williams & Wilkins.
4. Principles and Practice of Electrotherapy- Kahn- Churchill Livingstone.
5. Electrotherapy: Clinics in Physical Therapy- Wolf- Churchill Livingstone.

Paper – IV Exercise Therapy II

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess =100

Teaching hours: Theory =100, Practical =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section I

Therapeutic Exercises :

1. Principle, classification, techniques, physiological & therapeutic effects, indications & contraindications of therapeutic exercises.
2. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise programme.
3. Joint Mobility- Etiogenesis of Joint stiffness, general techniques of mobilization, effects, indications, contraindications & precautions.
4. Muscle Insufficiency- Etiogenesis of muscle insufficiency (Strength, tone power, endurance & volume), general techniques of strengthening, effects, indication, contraindications & precautions.
5. Neuro muscular Inco- ordination – Review normal neuromuscular coordination, Etiogenesis of neuromuscular in co- ordination & general therapeutic techniques, effects, indications contraindications & precautions.
6. Functional re- education – General therapeutic techniques to re- educate ADL function.

Section –II

Posture, Balance, Gait

Normal Posture- Overview of the mechanism of normal posture.

Abnormal Posture- Assessment , Types , etiogenesis, management including, therapeutic exercises.

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

Gait- Overview of normal gait & its components.

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

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

Section - III

Hydrotherapy

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

Section – IV

Special Techniques

1. Introduction to special mobilization & manipulation techniques, effects, indications & contraindications.
2. Conceptual framework, principle of proprioceptive neuromuscular facilitation (PNF) techniques, including indications, therapeutic effects and precautions.
3. Principles of traction, Physiological & therapeutic effects classification, types, indications ,contraindications, techniques, of application, operational skills & precautions.

4. Review normal breathing mechanism types techniques, indications, contraindication, therapeutic effects & precautions of breathing exercises.
5. Group Theory –Type advantages & disadvantages.
6. Exercises for the normal person – Importance and effect of exercise to maintain optimal health & its role in the prevention of diseases. Types, advantages, disadvantages, indications, contraindications & precautions for all age groups.
7. Introduction to Yoga – Conceptual framework, various “asanas” , the body mind relationship, effects & precautions.

Exercise Therapy-II (Practical)

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

Books Recommended :

1. Practical Exercise Therapy –Hollis –Blackwell Scientific Publications.
2. Therapeutic Exercises –Basmajian –Williams & Wilkins.
3. Therapeutic Exercise Foundation and Techniques – Kisner & Colby –F.A. Davis.
4. Proprioceptive Neuromuscular Facilitation –Voss et al- Williams and Wilkins.
5. Principles of Exercise Therapy –Gardiner –C.B.S. Delhi.
6. Orthopaedic Physical Therapy –Woods –Churchill Livingstone.
7. Manipulation and Mobilisation extremities and spinal techniques- Edmond Mosby.
8. Aquatic Exercise Therapy –Bates and Hanson –W.B. Saunders.
9. Manual examination and treatment of spine and extremities- Wadsworth-Lippincott
10. Hydrotherapy: Principles and Practices –Campion – Butterworth Heinmann.

Paper – V Biomechanics

Time : 3 Hrs.

M. Marks: 100

Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section -I Mechanics

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

Section-II Joint Structure and Function:

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

Section –III Muscle Structure and function:-

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

Section –IV Posture & Gait:

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

Practical

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

Books Recommended :

1. Joint Structure and Function- A Comprehensive Analysis- Norkins & Levangie – F.A. Davis.
2. Measurement of Joint Motion – A Guide to Gonimetry- Norkins & White- F.A. Davis.
3. Brunnstrom's Clinical Kinesiology – Smith et al- F.A. Davis
4. Basic Biomechanics explained – Low & Reed Butter worth Heinmann.
5. Kinesiology: Applied to Pathological Motion- Soderberg Lippincou.

Paper – VI Psychology

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =150

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section -1 General Psychology

1. Definition of Psychology: Definition of psychology, information in relation to following schools methods and branches.
 - a Schools : Structuralism, functionalism, behaviourism, Psychoanalysis, gestalt psychology
 - b Methods : Introspection, observation, inventory and experimental method.
 - c Branches : General, child, social, abnormal, industrial, clinical counseling, educational.
2. Heredity and Environment : Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality , nature-nature controversy.
3. Development and Growth Behaviour : Infancy, childhood, adolescence, adulthood, middle age, old age.
4. Intelligence Definitions, IQ , Mental Age, List of various intelligence tests- WAIS, WISC, Bhatia's performance test, Raven's Progressive Matrices test.
5. Motivation Definitions Motive, drive, incentive and reinforcement. Basic information about primary needs hunger thirst, sleep, elimination activity, air , avoidance of pain, attitude to sex.

Psychological needs, Information , security, self- esteem, competence, love and hope .

6. Emotions Definitions : Differentiate from feelings, psychological changes of emotion, role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, nature and control of anger, fear and anxiety.
7. Personality :
 - a) Definitions: List of components: Physical characteristics, character, abilities, temperament, interest and attitudes.
 - b) Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development.
 - c) Basic concepts of Freud: unconscious, conscious , Id, ego and superego, List and define the oral, anal and phallic stages of personality development list and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller, drive , cue, response and reinforcement.
 - d) Personality assessment interview, standardized, non-standardized. Exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI, projective test Rorschach, TAT and sentences completion test.
8. Learning: Definition List the laws of learning as proposed by Thorndike. Types of learning, Briefly describe, classical conditions, operant conditioning, insight, observation and Trial and Error type list the effective ways to learn. Massed Vs. spaced, Whole Vs. part, Recitation Vs. Reading, Serial Vs. Free Recall, knowledge of results, Association Organization , Mnemonic methods, incidental Vs. Intentional learning, role of language.
9. Thinking : Definition , concepts , creativity, steps in creative thinking, list the traits of creative people, delusions.

10. Frustration: Definition, Sources , solution , Conflict , Approach- approach, Avoidance- avoidance , and approach avoidance solution.
11. Sensation, Attention and Perception:
 - a) List of senses: Vision, Hearing, Offactory, Gustatory and cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention: Nature of stimulus intensity, colour, change, extensity, repetitions, movement size, curiosity, primary motives.
 - b) Define perception and list the principles of perception : Figure ground, constancy, similarity, proximity, closure continuity values and interests, past experience context, needs , moods, religion, sex and age, perceived susceptibility perceived seriousness, perceived benefits and socio-economics status.
 - c) Define illusion and hallucination.
 - d) List visual , auditory, coetaneous, gustatory and olfactory hallucination.
12. Democratic and Authoritarian Leadership: Qualities of leadership : Physical factors. Intelligence, self- confidence, sociability, will and dominance. Define attitude. Change of attitude by : Additional information, changes in group affiliation , enforced modification by law and procedures that affect personality. (Psychotherapy, Counseling and religious conversion).
13. Defence Mechanisms of the Ego: Denial, rationalization, projection, reaction, formation , identification, repression, emotional insulation, undoing, interjection, acting out depersonalization.

Section – II Health Psychology

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

Books Recommended :

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

THIRD YEAR
Paper – I Orthopaedics

Time : 3 Hrs.

M. Marks: 200
Theory: 90+10 Int. Assess.=100
Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =150, Practical = 50

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section -I

1. Introduction to Orthopedics: Introduction to orthopedic terminology. Types of pathology commonly dealt with, clinical examination, common investigations X- rays & imaging techniques and outline of non- operative management.
2. Principal of operative treatment : List Indication, contraindication and briefly outline principles of : Arthrodesis, Arthroplasty, Osteotomy, Bonegrafting, Tendon – Transfers and Arthroscopy.
3. Sprains and Muscle Strains: List common sites of sprains and muscle strains and describe the clinical manifestations and treatment Viz. tennis elbow, Golfer's elbow, Dequervan's disease, tenovaginitis , trigger finger, carpal tunnel syndrome and planter fascitis.
4. Sports injuries : Injuries related to common sports their classification and management.

Section – II

1. Fractures and Dislocations: General principles , Outline the following,
 - a) Types of Fractures including patterns: Open and closed fractures and fracture- dislocations.
 - b) Differences between dislocation subluxation.
 - c) General & Local signs & symptoms of fractures & dislocation.
 - d) Principles of management of fractures & dislocations.
 - e) Prevention & treatment of complication including : Fracture- disease, Volkman's ischemic contracture, Sudeck's Atrophy, Carpal Tunnel Syndrome. Myositis Ossificans and shoulder – hand syndrome.
2. Upper Limb Fractures & Dislocations:
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complications.
3. Lower Limb Fractures & Dislocations:
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complication.
4. Spinal Fractures and Dislocations : Outline the mechanism , clinical features, principles of management and complications of spinal injuries.
5. Recurrent Dislocations : Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella

Section –III

1. Amputations:
 - a) Classify amputations, List indication for surgery.
 - b) Outline pre- operative , operative and prosthetic management.
 - c) Outline prevention and treatment of complications.
2. Bone & Joint Infections: Outline the etiology, clinical features, management and complications of septic arthritis osteomyelitis, Tuberculosis (including spinal T.B.)
3. Bone Joint Tumors:- Classify and outline the clinical features, management and complications of the following (benign/malignant bone and joint tumors, osteomas, osteosarcomas, osteoclastomas, Ewing's sarcoma, multiplmyeloma).

Section IV

1. Chronic Arthritis: Outline of pathology: Clinical features, mechanism of deformities, management and complications of : Rheumatoid arthritis, Osteoarthritis of major joints and spine, Ankylosing spondylitis.
2. Neck & Back Pain, Painful Arc Syndrome, Tendonitis, Facitis & Spasmodic Torticollis. Outline the above including clinical features and management .
3. Spinal Deformities: Classify spinal deformities and outline the salient clinical features, management and complications of Scoliosis, Kyphosis and Lordosis.

Section V

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

Books Recommended:-

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

Paper – II General Medicine

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess =100

Teaching hours: Theory =100 , Practical =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length.

All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length.

Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weightage of the section being 30 marks.

Section -I

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

Section -II

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

Section- III

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

Section – IV Disease of Skin:-

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

Section - V Psychiatry :-

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

Books Recommended:

1. Davidson's principles and Practices of Medicine – Edward- Churchill Livingstone .
2. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
3. A short Textbook of Medicine – Krishma Rao- Jaypee Brothers.
4. A short textbook of Psychiatry – Ahuja Niraj- Jaypee Brothers.

Paper – III Physiotherapy in Orthopedic Conditions

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess =100

Teaching hours: Theory =100, Practical =100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Theory

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

Traumatology: General Physiotherapeutic approach for the following conditions:

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

Specific fractures and their complete physiotherapeutic management.

Upper Limb, Clavical, humerus, ulna, radius, crush injuries of hand.

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

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

Surgical procedures; Pre and Post operative management of common corrective procedure like arthroplasty, arthrodesis, osteotomy, tendon transplants, soft tissue release grafting, including polio residual paralysis and leprosy deformities corrections.

Injuries : Soft tissue injuries , synovitis, capsulitis volkmann's ischemic contracture etc. tear of semilunar cartilage and cruciate ligaments of knee, meniscectomy, patellectomy, internal derangement of knee.

Amputation, level of amputation of upper limb and lower limb, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training etc.

Deformities; congenital torticollis and cervical rib, CTEV, Pes cavus, pes planus and other common deformities.

Acquired- Scoliosis, Kyphosis, lordosis, coxa vara, genu valgum, genu varum and recurvatum.

Degenerative and infective conditions: Osteoarthritis of major joints, spondylosis, spondylitis, spondylolisthesis, PIVD, Periarthritis of shoulder. Tuberculosis of spine, bone and major joint, perthes disease. Rheumatoid arthritis, Ankylosing spondylitis etc. and other miscellaneous orthopaedic conditions treated by physiotherapy.

Principles of sports physiotherapy:- cause of sports injury, prevention of sports injuries, management of acute sports injury, common occurred injuries, Role of physiotherapist in sports principle & advanced rehabilitation of the injured athlete.

Practical

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

Book Recommended:-

1. Cash textbook of Orthopaedics and Rheumatology of Physiotherapist- Dowine- jaypee Brothers.
2. Tidy's Physiotherapy: Thomson et al- Butterworth Heimann.
3. Essentials of orthopaedics and applied physiotherapy – Joshi and Kotwal B.L. Churchill Livingstone.
4. Tetraplegia & Paraplegia- Bromley- W.B. Saunders.
5. Orthopaedic Physiotherapy- Donatelli & Wooden – W.B. Saunders .
6. Rheumatological Physiotherapy – David – Mosby.
7. Orthopaedic Physiotherapy – Tids well – Mosby.
8. Physiotherapy of Amputee- Engstorm & Van de- van- Churchill Livingstone.
9. Sports Injuries: Diagnosis and Management – Nonis Butter worth Heinmann.

Paper – IV Physiotherapy in Medical Conditions –I

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical 100

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Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I General Medicine:

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

1. Inflammation – acute, chronic and suppurative.
2. Oedema- Traumatic, obstructive, Paralytic , Oedema due to poor muscle and laxity of the fascia.
3. Arthritis and Allied Conditions (in details):
 - a) Osteo-Arthritis- generalized, Degenerative and traumatic , Spondylosis and disorders.
 - b) Rheumatoid Arthritis, Still's disease, infective Arthritis.
 - c) Spondylitis, Ankylosing Spondylitis.
 - d) Nonarticular Rheumatism: Fibrositis, Myalgia, bursitis, Periarthritis etc.
4. Common conditions of skin- Acne, Psoriasis, Alopecia, Leucodema, Leprosy, Sexually transmitted diseases.
5. Deficiency diseases:- Rickets, Diabetes, Obesity, Osteoporosis and other deficiency disorders related to Physiotherapy.
6. Psychiatric Disorders- Psychosis, Psychoneurosis , Senile dementia.

Section –II Respiratory:-

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

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

1. Bronchitis, Asthma, Lung Abscess, Bronchiectasis, Emphysema, COPD.
2. Pleurisy and Empyema, Pneumonia.
3. Bacterial Disease.
4. Rheumatic Fever, Carcinoma of respiratory tract.
5. Paralysis of diaphragm & vocal cords
6. Chest wall deformities.

Section –III Cardiovascular

1. Review of anatomy & physiology of the cardiovascular system.
2. Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various cardiovascular disorders,
3. Review of pathological changes and principles of management by physiotherapy of the following conditions:-
Thrombosis, Embolism, Buerger's diseases, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure. Hypertension, Hypotension , aneurysm.

Book Recommended:-

1. Cash textbook of general medical and surgical conditions for physiotherapist – Downie- Jaypee Brothers.
2. Essentials of Cardiopulmonary physical therapy- Hillegass & Sadowsky- W.B. Saunders.
3. Cash Textbook of Chest, Heart and Vascular Disorders for Physiotherapists – Downie J.P. Brothers.
4. The Brompton Guide to Chest Physicla Therapy .
5. Cardiopulmonary Physical Therapy- Irwin and Tecklin – Mosby.
6. Cardiovascular/ Respiratory Physiotherapy- Smith & Ball –Mosby.
7. ACSM Guidelines for Exercise testing and Prescription – ACSM – Williams and Wilkins.
8. Chest Physiotherapy in Intensive Care Unit- Machenzie et al- Williams and Wilkins.

Paper – V Research Methodology and Biostatistics

Time : 3 Hrs.

M. Marks: 100
Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =100

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Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I

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

Section-II

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

Section –III

Biostatistics.

1. Descriptive statistics
2. Comparison of means, T- tests.
3. Analysis of Variance.
4. Multiple comparisons.
5. Non – parametric statistics.
6. Correlations.

Book Recommended: -

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

FOURTH YEAR
Paper – I General Surgery

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical = 50

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I

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

Section –II

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

Section –III

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

Section IV

Obstetrics & Gynecology:

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

Section -V

Ophthalmology:-

1. Common inflammations and others infections of eye.
2. Ptosis.
3. Blindness- common causes & management.
4. Refractions- testing, errors & remedies.
5. Strabismus- types , features & corrective measures.

Section- VI

Ear, Nose & Throat (ENT)

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

Books Recommended :-

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

Paper – II Neurology

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical = 50

Note: The question paper covering the entire course shall be divided into three sections as follows:-

- Section A:** This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.
- Section B:** This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.
- Section C:** This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I

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

Section –II

Briefly outline the etogenesis, clinical features and management of the following Neurological disorders:-

1. Congenital and childhood disorders – Cerebral palsy, Hydrocephalus and Spina Bifida.
2. Cerebrovascular accidents:- General Classification, thrombosis, embolic haemorrhagic & inflammatory , stroke gross localization and sequence.
3. Trauma – Localization first aid and management of sequelae of head injury and spinal cord injury.
4. Diseases of the spinal cord- Craniovertebral junction anomalies, Syringomyelia, Cervical and lumbar disc lesions, Tumors and Spinal Arachnoiditis.
5. Demyelinating diseases (Central and peripheral) – Guillain- Barre Syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.

Section – III

Briefly outline the etogenesis, clinical features and management of the following Neurological disorders:-

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

Section - IV

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

Section – V

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

Books recommended:

1. Brain's Disease of the Nervous System – Nalton- ELBS.
2. Guided to clinical Neurology- Mohn & Gaectier- Churchill Livingstone.
3. Principles of Neurology- Victor – McGraw Hill International edition.
4. Davidson's Principles and practices of medicine- Edward- Churchill Livingstone.

Paper –III Paediatrics & Geriatrics

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical = 50

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I

Paediatrics

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

Geriatrics:

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

Books Recommended

1. Nelson's Textbook of paediatrics – Behrman & Vaughan – W.B. Saunders.
2. Text book of paediatrics –Parthsarthy –Jaypee.
3. The short Textbook of Paediatrics –Gupte-Jaypee.
4. Geriatrics Physical Therapy –Guccione –Mosby.
5. Motor Assessment of Developing infant –Piper Davrah –W.B. Saunders.

Paper –IV-Physiotherapy in Medical Conditions - II

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical = 100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Theory

Section -1 Neurology

1. Examination of Neurology disorder and principles of treatment.
2. Knowledge of various investigative procedures (Invasive & noninvasive) used in the diagnosis of various neurological disorders.
3. Review of pathological changes and principles of management by physiotherapy of the following conditions.
 - (a) Hemiplegia, Paraplegia. Tabes dorsalis, cerebeller ataxia, extra pyramidal lesion, Gullian Barre Syndrome, Parkinsonism.
 - (b) Disseminated sclerosis, Amyotrophic lateral sclerosis, Syringomyelia, Subacute combined degeneration of cord motor neuron disease.
 - (c) Peripheral Nerve and cranial Nerve lesions.
 - (d) Neuritis and Neuralgia Brachial, sciatic etc.
 - (e) Infections poliomyelitis, meningitis, Encephalitis, Polyneuritis Transverse myelitis
 - (f) Traumatic head injuries and spinal cord injury.

Section-II Pediatrics

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

Section-II Geriatrics

1. Review of the examination & assessment of a Geriatrics patient.
2. Review of pathological changes and principle of management by physiotherapy of the following conditions:
 - a) Musculo Skeletal disorders.
 - b) Cardiopulmonary disorders.
 - c) Neurological disorders (CNS & PNS).
 - d) Injures & accidents specific to the aged.

Practical

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

Books Recommended

1. Cash's textbook of neurology for physiotherapy – Downi –J.P. Brothers.
2. Adult Hemiplegia – Evaluation & treatment – Bobath –oxford Butterworth Heinmann.
3. Neurological Rehabilitation- Carr & Shepherd – Butter worth Heinmann.
4. Tatraplegia & paraplegeia – A guide for physiotherapy- Bromley –Churchill Livingstone.
5. Neurological physiotherapy-A problem solving approach – Susan Edwards – Churchill Livingstone.
6. Neurological Rehabilitation –Umpherd Mosby.
7. Geriatric Physical Therapy- Gucciona- Mosby.
8. Motor Assessment of Developing Infant- Piper & Darrah- W.B. Saunders.
9. Paediatric Physical Therapy- Teckling- Lippincott.
10. Treatment of Cerebral Palsy and Motor Delay- Levitts- Blackwell Scientific Publications London.
11. Aging the Health Care Challenge- Levis- F.A. Davis.
12. Physiotherapy in Paediatrics- Shepherd- Butterworth Heinmann.

Paper –V Physiotherapy in Surgical Conditions

Time : 3 Hrs.

M. Marks: 200

Theory: 90+10 Int. Assess.=100

Practical : 90+10 Int. Assess = 100

Teaching hours: Theory =100, Practical = 100

Note: The question paper covering the entire course shall be divided into three sections as follows:-

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Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I Thoracic Surgery

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

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

Section- II General , Gynaecology and Obstetrics and ENT.

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

Section –III Wounds, Burns & Plastic Surgery

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

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

Section – IV Neurosurgery

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

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

Books Recommended:

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

Paper –VI Rehabilitation, Organization and Administration

Time : 3 Hrs.

M. Marks: 100

Theory: 90+10 Int. Assess.=100

Teaching hours: Theory =150

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section A: This will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks total weightage being 20 marks.

Section B: This will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry 5 marks. The total weightage of the section shall be 40 marks.

Section C: This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 15 marks, total weight age of the section being 30 marks.

Section –I

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

Section -II

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

Section –III

1. Principles and mechanisms of Communication including speech and hearing.
2. Common disorders of speech and hearing- etiology, clinical features, assessment and principles of management.
3. Principles in the management of vocational problems, including evaluation and vocational goals for people with disability.
4. Principles and rehabilitation Nursing, including function of Nursing personnel and Nursing practice in rehabilitation.

Section –IV

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

Section –V

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

Books Recommended

1. Physical Rehabilitation – assessment & Treatment- Sullivan A& Schmitz – F.A. Davis
2. Occupational Therapy and physical dysfunction : Principles, Skills & Practices Huron, Foster & Johnson- Churchill Livingstone.
3. Hand Splitting- Wilson- W.B. Saunders.
4. Orthotics in Rehabilitation: splitting the hand and the body- McKee & Morgan – F.A. Davis.
5. Atlas of Limb Prosthetics – American Academy of Orthopaedic Surgeon- Mosby.
6. Atlas of Orthotics- American Academy of Orthopaedic Surgeon – Mosby.
7. Krusen's Handbook of Physical Medicine & Rehabilitation – Kottke & Lehmann- W.B. Saunders.
8. Willard and Spackman's occupational therapy- Neistadt & Crepeau Lippincott.

Practical –VII Practical : Computer Applications

M.Marks: 50

Practical 45+5 Int. Assess. = 50

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

To study various components of a personal computer.

To have working knowledge of hardware and software.

To practice the operational skills of common computer applications , including word processing & spread sheet software.

To have a basic knowledge of utility of multi- media.

To learn skills of web surfing- For literature , researches relevant to the field of medicine.