

IEC UNIVERSITY

SYLLABUS

FOR

BACHELOR OF PHYSIOTHERAPY

(B.P.T)COURSE

ACADEMIC PROGRAMME

Duration: 4 years & 6 months internship

COURSE- SCHEME

BPT First Year

S No.	Sub Code	Subject	Contact Hr	Credits
1	BPT-101	Anatomy	4	4
2	BPT-102	Physiology	4	4
3	BPT-103	Electrotherapy-1	4	4
4	BPT-104	Exercise Therapy-1	4	4
5	BPT-105	Biochemistry	4	4
6	BPT-106	Sociology	2	2
7	BPT-101P	Anatomy(Practical)	4	2
8	BPT-102P	Physiology(Practical)	4	2
9	BPT-103P	Electrotherapy-1(Practical)	4	2
10	BPT-104P	Exercise Therapy-1(Practical)	4	2
TOTAL			38	30

COURSE- SCHEME

BPT Second Year

S No.	Sub Code	Subject	Contact Hr	Credits
1	BPT-201	Pathology & Microbiology	5	5
2	BPT-202	Pharmacology	5	5
3	BPT-203	Electrotherapy-II	5	5
4	BPT-204	Exercise Therapy-II	5	5
5	BPT-205	Biomechanics	4	4
6	BPT-206	Psychology	4	4
7	BPT-203P	Electrotherapy-II(Practical)	4	2
8	BPT-204P	Exercise- Therapy-II(Practical)	4	2
TOTAL			36	32

COURSE- SCHEME

BPT Third Year

S No.	Sub Code	Subject	Contact Hr	Credits
1	BPT-301	Orthopaedics	4	4
2	BPT-302	General Medicine	4	4
3	BPT-303	PT in Ortho Conditions	4	4
4	BPT-304	PT in Medical Conditions-1	4	4
5	BPT-305	Research Methodology	3	3
6	BPT-306	Yoga and Naturopathy	2	2
7	BPT-307	Environmental Science	2	2
8	BPT-301P	Orthopaedics	4	2
9	BPT-302P	General Medicine	4	2
10	BPT-303P	PT in Ortho Conditions	4	2
11	BPT-304P	PT in Medical Conditions-1	4	2
TOTAL			39	31
Note: Supervised rotatory clinical training(atleast 2 hrs/day in Physiotherapy Clinic/OPD)				

TOTAL CREDITS=30+32+31+33=122+30(INTERNSHIP)=156 CREDITS

COURSE- SCHEME

BPT Fourth Year

S No.	Sub Code	Subject	Contact Hr	Credits
1	BPT-401	General Surgery	4	4
2	BPT-402	Neurology	4	4
3	BPT-403	Paediatrics & Geriatrics	3	3
4	BPT-404	PT in Medical Conditions-II	4	4
5	BPT-405	PT in surgical Conditions-II	4	4
6	BPT-406	Principles of Rehabilitation	3	3
7	BPT-401P	General Surgery(Practical)	3	2
8	BPT-402P	Neurology(Practical)	3	2
9	BPT-403P	Paediatrics & Geriatrics(Practical)	3	2
10	BPT-404P	PT in Medical Conditions-II(Practical)	3	2
11	BPT-405P	PT in surgical Conditions-II(Practical)	3	2
12	BPT-406P	Computer Applications(Practical)	2	1
TOTAL			39	33
Note: Supervised rotatory clinical training(atleast 2 hrs/day in Physiotherapy Clinic/OPD)				

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

1. Duration of course

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

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

2. Admission criteria and qualifications

No candidate shall be admitted to the B.P.T course unless he/she has Passed 10+2 examination from Himachal Pradesh Education Board or any other examination from a statutory University/Board recognized as equivalent with Physics, Chemistry, and Biology 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 of aggregate marks required pass marks would be 45%.The admission shall be made on the basis of merit of the Entrance Test to be conducted for the purpose.

Completed or shall be completing the age of 17 years on 31st December of the year of admission.

3. English shall be the medium of instruction for the study and examination of the Bachelor of the Physiotherapy degree course.

4. Examinations

4.1 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.

4.2 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.

5. First Professional B.P.T Examination:

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

- a) Has been enrolled for the academic year preceding the examination of Physiotherapy College affiliated to this university
- b) Has her name submitted to the Registrar by the Principal of the Department with the following certificates:-
 - I. Of having attendance separately in theory and practical/clinical not less than 75 percent of the lectures delivered and practical's conducted in each of the subjects prescribed for the examination provided that deficiency in the number of lectures delivered and practical's conducted may be condoned by the principal to the extent of 10% of the lectures delivered.
 - II. Of having at least 50% marks of the total marks used 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 candidate fulfils the condition laid down in clauses 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 at least 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 be required to pass the subjects-

Bachelor of Physiotherapy, Batch 2021-25								
Sr. No.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess.	Total	Marks	Int. Assessment	Total	
1	Anatomy	80	20	100	80	20	100	200
2	Physiology	80	20	100	80	20	100	200
3	Biochemistry	80	20	100	-	-	-	100
4	Electrotherapy-1	80	20	100	80	20	100	200
5	Exercise therapy-1	80	20	100	80	20	100	200
6	Sociology	80	20	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 of 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 the subject provided he has passed the examination in first attempt.

- v) A candidate who fails in one or more subjects in his/her first attempt shall be permitted to attend classes in second Prof. B.P.T course. However if a candidate fails to pass all the subjects in the subsequent examination shall be reverted to first Prof. B.P.T course forfeiting all the benefits of either promotion.
- vi) Any candidate who fails to clear all the subjects of first 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 third Professional B.P.T course in fourth attempt shall be promoted to second 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 second 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 college.
- b) Has previously passed the First Prof. B.P.T examination of this university or an examination of any other recognized University/Institution of 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 conducted in each of the subject of Second Professional B.P.T as prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may 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 conceived as well as University authorities.The re-appear/fail students will not be considered every time for the purpose of Internal Assessment and then previous score of assessment will be forward.

2) If a candidate fulfils the condition laid down in clause(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 fulfills the requirements.

3) Every candidate before appearing in Second Professional B.P.T Examination must have cleared House Examination securing at least 33 percent marks in both theory as well as practical separately.

(4) The second B.P.T course shall be of one year duration and the examination shall be held in May/June. The Supplementary examination shall be held within six months of the annual examination.

(5) 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:

Bachelor of Physiotherapy, Batch 2020-24								
Sr. No.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess.	Total	Marks	Int. Assessment	Total	
1	Pathology & Microbiology	80	20	100	-	-	-	100
2	Pharmacology	80	20	100	-	-	-	100
3	Electrotherapy-II	80	20	100	80	20	100	200
4	Exercise therapy-II	80	20	100	80	20	100	200
5	Biomechanics	80	20	100	-	-	-	200
6	Psychology	80	20	100	-	-	-	100

There shall be a provision of internal assessment of 10% marks in each subject of B.P.T courses in theory and practical separately.

Each theory paper shall be of 3 hours duration.

The minimum no. 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.

A candidate securing 75% or above marks in any of subjects shall be declared to have passed with distinction in that subject provides he has passed the examination in first attempt.

A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at the subsequent examinations but the candidate must pass the examination in a maximum of four attempts further 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 first attempt shall be permitted to attend classes of third Prof. B.P.T course whenever he/she will be reverted to the previous class if he/she fails to pass that subject(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 Physiotherapy College affiliated to the 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:-

- Of having attended separately in theory and practical conducted in each of the subject of Second Professional B.P.T as prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may by the Principal to the extent of 10% of the lectures delivered.
- Of having secured at least 50% marks of the total marks fixed for internal assessment in each subject, separately.
- 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 conceived as well as University authorities.

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

2) If a candidate fulfils the condition laid down in clause(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 fulfills the requirements.

3) Every candidate before appearing in Second Professional B.P.T Examination must have cleared House Examination securing at least 33 percent marks in both theory as well as practical separately.

(4) The third B.P.T course shall be of one year duration and the examination shall be held in May/June and the Supplementary examination shall be held within six months of the annual examination.

(5) The third Professional B.P.T Examination shall be held one year after the second Professional B.P.T Examination and the candidate is required to pass the following subjects:

Bachelor of Physiotherapy, Batch 2019-23								
Sr. No.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess.	Total	Marks	Int. Assessment	Total	
1	Orthopedics	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-1	90	10	100	90	10	100	200
5	Research Methodology	90	10	100	90	10	100	200
6	Yoga & Naturopathy	90	10	100	-	-	-	100
7	Environmental Science	90	10	100	-	-	-	100

There shall be a provision of internal assessment of 10% marks in each subject of B.P.T courses in theory and practical separately.

Each theory paper shall be of 3 hours duration.

The minimum no. 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.

A candidate securing 75% or above marks in any of subjects shall be declared to have passed with distinction in that subject provides he has passed the examination in first attempt.

A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at the subsequent examinations but the candidate must pass the examination in a maximum of four attempts further 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 first attempt shall be permitted to attend classes of third Prof. B.P.T course whenever he/she will be reverted to the previous class if he/she fails to pass that subject(s) in the subsequent examination.

Final Professional B.P.T Examination

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

- a) Has been enrolled for one academic year preceding the examination in University.
- b) 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 conducted in each of the subject of Final Professional B.P.T as prescribed for the examination provided that deficiency in the number of lectures delivered and practical conducted may 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.

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

2) If a candidate fulfils the condition laid down in clause(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 fulfills 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.

(4) The Final B.P.T course shall be of one year duration and the examination shall be held in May/June and the Supplementary examination shall be held within six months of the annual examination.

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

Bachelor of Physiotherapy, Batch 2018-22								
Sr. No.	Subject	Theory			Practical			Grand Total
		Marks	Int. Assess.	Total	Marks	Int. Assessment	Total	
1	General Surgery	90	10	100	90	10	100	200
2	Neurology	90	10	100	90	10	100	200
3	Pediatrics & Geriatrics	90	10	100	90	10	100	200
4	PT in medical condition-2	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

There shall be a provision of Internal assessment of 10% marks in each subject of B.P.T courses in theory and practical separately.

Each theory paper shall be of 3 hours duration.

The minimum no. 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.

A candidate securing 75% or above marks in any of subjects shall be declared to have passed with distinction in that subject provides he has passed the examination in first attempt.

A candidate who passes in one or more subjects shall be exempted from appearing in these subjects at the subsequent examinations but the candidate must pass the

examination in a maximum of four attempts further 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 The senior most teachers in a subject who has taught the students for atleast six months shall be appointed internal examiner. No person below the rank of Reader/Assistant Professor in the subject 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/Paper setters to be appointed must be teaching B.P.T class.

External Examiner shall be appointed only from teaching staff of Physiotherapy College outside the state of Himachal Pradesh.

The University may get each paper set from External Examiner only. The moderation of question papers may be got done under the direction of Vice-chancellor, if necessary.

The Practical examination shall be conducted jointly by the internal examiner of the respective institute and the external examiner for that institute.

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 should be kept by the internal examiner for six months for reference and record.

In order to maintain secrecy the evaluation of answer books shall be got evaluated by putting fictitious roll numbers there on-spot evaluation or any other method under the direction of Vice Chancellor.

10. The Internal Assessment shall be determined by the head of Department concerned based on the student's class work, conduct, home work, participation in the extra-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 examinations.

11. The Registrar/Controller of Examinations shall publish the result after the examinations. The candidate shall be issued Detailed Marks Certificate through their Principal. The degree of Bachelor of Physiotherapy (B.P.T) shall be awarded by the university on successful completion of six months compulsory rotator internship, duly certified by the Principal of the college.

12. Migration

A student who has passed his First Prof B.P.T examination may be permitted to migrate from one university to another under the jurisdiction of IEC University, on the following conditions:

- a) The student has to apply for 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 institution 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 institution to which 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) No withstanding anything contained in the above rules , if an applicant does not fulfill any of the conditions above ,the Vice Chancellor may allow a student to migrate under exceptional circumstances to another institutions.

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 Teaching during the course.

15. Compulsory Internship.

15.1 All the students after passing Final Prof B.P.T examination go in for six months compulsory rotator internship in the following departments:

- | | |
|--|---------|
| ● Physiotherapy Out Patient Department | 1 month |
| ● Orthopedics | 1 month |
| ● Neurology & Neuro surgery | 1 month |

- Cardiology & Cardio thoracic Surgery 1 month
- General Medicine & General Surgery 1 month
- Community Based Rehabilitation /Geriatrics 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 university will complete their internship in Institution OPD and Multi Specialty Hospital.

15.4 Due to certain special reason a student may be permitted to complete his internship in another institution 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 institution 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 the result. Under exceptional circumstances, if a student cannot do so, he will have to take special permission of the University on the recommendations of the Principals.

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 question will carry two 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.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

1. Theory

A. The gross and detailed anatomy of

a) Nervous system

Brain: Meninges, blood supply
Cerebral Cortex, Internal Capsule
Cerebellum
Spinal cord and typical spinal nerve
Ventricles and CSF
Ascending and descending tracts
Neuromuscular junctions
Cranial nerves and their nuclei
Spinal nerves
Autonomic Nervous system

b) Myology

- i) Muscles of facial expression ,mastication extra ocular muscles
- ii) Muscles of both the extremities with their origin and insertion with innervations
- iii) Muscles of the back as group
- iv) Muscles of abdominal wall as a group
- v) Muscles of the pelvic floor

c) Cardiovascular system including lymphatic system

d) Respiratory system

e) Arthrology (Joints of extremities, vertebral column and temporomandibular joint)

B. Gross anatomy(Definitions and functions only)

a) Major arteries and veins

b) Digestive System

c) Basic Embryology (Derivatives of ectoderm, mesoderm and endoderm)

d) Endocrine system

e) Urinary system

f) Reproductive system

C. Radiological Anatomy of

Musculoskeletal system

D. Surface Anatomy of

- a) Respiratory system
- b) Cardiovascular system
- c) Musculoskeletal system

E. Microscopic Anatomy of

Basic tissues of the body

II PRACTICAL

A. To study the surface anatomy of

- a) Bony landmarks
- b) Lungs, Heart

B. To study anatomy on dissected human body of

- a) All the joints of the body
- b) Muscles
 - i) Muscles of facial expression and mastication
 - ii) Muscles of both the extremities with their origin and insertion with innervations
 - iii) Muscles of the back as a group
 - iv) Muscles of abdominal wall
 - v) Muscles of the pelvic floor
- c) Surface features of bones
- d) Gross anatomical features of brain, lungs, heart, stomach, liver, spleen and kidneys.

C. Microscopic Anatomy of

Basic tissues of the body

PAPER – II PYSHIOLOGY

Time: 3Hrs

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 two 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.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section – 1

General Introduction

1. Cell Introduction: Outline of basic concepts of cell structure, functions of components and transport across membranes.

2. Skin: Functions, blood of flow and temperature regulation
3. Blood and Lymph: Cell renewal system, hemoglobin, erythrocyte, granulocyte, lymphocyte, coagulation, regulation of hydrogen within concentration of body fluids, fluid distribution and exchange

Section -2

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 hemodynamic, circulation through brain, skin and skeletal muscle
3. Excretion: Renal functions including formation of Urine & Micturation
4. Respiration: Respiratory gases, pulmonary gas exchange, control and mechanics of breathing, hypoxia, asphyxia, dyspnea, oxygen therapy and resuscitation.
5. Endocrine system: Outline of various hormones and actions, pituitary gland, thyroid, parathyroid, adrenal glands & Gonads.
6. General Metabolism: Carbohydrate, Protein & Fat Metabolism

Section -3

Neuro –Physiology

1. Neuron: Properties and functions
2. Action Potential
3. Special Properties of nerve trunks and tracts
4. Motor units
5. Reflex physiology
6. Synapse and synaptic transmission
7. Supraspinal control
8. Cerebellum and basal ganglia
9. Autonomic nervous system
10. Somatic sensation
11. Pain

12. Taste, Olfaction, Auditory and vision
13. Neurological Physiological Psychology

Section -4

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 -5

Physiology of exercise and work

1. Neuromuscular activity, human movement, physiological mechanism in movement behavior, strength, endurance, analysis of movement
2. Circulatory and respiratory response to exercise including effects on the heart blood circulation, body fluid changes, pulmonary ventilation, gas exchange and transport etc
3. Effects of exercise and work on other body functions.
4. Metabolic and environmental aspects of exercise and work- metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation & environmental factors.
5. Effects of Exercise training-endurance, fatigue and recovery.
6. Fitness and health- age sex, body type, face, 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 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. Textbook of Physiology- Anand & Manchanda, Tata McGraw Hill
3. Human Physiology- Vol. 1 & 2, CC, Calcutta, Medical Allied
4. Concise Medical Physiology- Chaudhari, S.K, New Central Agency, Calcutta
5. Principles of Anatomy and Physiology – Tortora & Grabowski- Harper Collins
6. Textbook of Practical Physiology- Gai Jaypee

PAPER – II BIOCHEMISTRY

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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 membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosome
3. Carbohydrates: Definition, functions, sources, classification: Monosaccharides, Disaccharides, Polysaccharides, Mucopolysaccharides and its importance
4. Lipids Definition, Function, Sources, classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acids. 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 protein
6. Nucleic acid: Structure and function of DNA and RNA, Nucleosides, Nucleotides, Genetic code, Biologically important nucleotides.
7. Enzymes: Definitions, classification, 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 change, Exergonic and endogenic reaction, concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.
10. Carbohydrate metabolism: Glycolysis, HMP shunt pathway, TCA cycle, glycogenesis, Gluconeogenesis, Maintenance of Blood Glucose, interconversions 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, glucagon thyroid and Parathyroid hormones cortical & sex hormones.
18. Isotopes: Isotopes and their role in treatment and diagnosis of diseases.

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 Southland - Churchill Livingstone

PAPER – III Electrotherapy – I

Time: 3Hrs

M.Marks:200

Theory:90+10 Int Assess=100

Practical:90+10 Int Assess=100

Teaching hour: 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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section – I

Physical Principles

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

Structure of atom, molecules, elements and compounds.

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 circuit
- c) Display devices & indicators – analogue & digital

Effects of Current Electricity:

1. Chemical effects- Ions and electrolytes, Ionization, 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 Principals of sound and its properties
5. Physical Principals 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, Ionization 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 and their effects.
5. Modified direct current- Physiological and therapeutic effects, principles of clinical application, indications, contra indications, precautions, operational skills of equipment& patient preparation.

6. Transcutaneous Electrical Nerve Stimulations(TENS):-

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

Section – IV

Electrical Reactions and Electro-diagnostic tests:

Electrical Stimuli and normal behavior 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 7patient preparation.
2. Ultra- violet rays(UVR):-
 - a) Wavelength, frequency, types & sources of UVR generation , techniques of irradiation , physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
 - b) Dosimeter 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 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 and 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 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 UVR- region wise.
11. To study a TENG stimulations , 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 – Lehman- Williams & Wilkins.
4. Principles and Practice of Electrotherapy- Kahn – Churchill Livingstone.

PAPER – V Exercise Therapy - 1

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section – 1

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, technique of application, indications, contraindication, effects and uses of the following:

- | | |
|---|----------------------|
| a) Active movement | b) Passive movement |
| b) 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

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

Section III Goniometry

- 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 tissue manipulation on the following systems of the body, Circulatory, Nervous, Musculoskeletal, Excretory, Respiratory, Integumentary system and Metabolism.
- c) Classify define and describe – effleurage, stroking, kneading, p ,deep friction, vibration and shaking etc.
- d) Preparation of patient: Effects, uses, indications and contraindications of the above manipulation.

Section V Motor Learning

- i) Introduction to motor learning
 - a) Classification of motor skills
 - b) Measurement of motor performance.
- ii) Introduction to motor control
 - a) Theories of motor control
 - b) Applications
- iii) Learning Environment
 - a) Learning of Skill
 - b) Instruction & augmented feed back

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 muscles and coordinated 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 along with application of various equipment in a gymnasium.

Books Recommended:

1. Practical Exercise Therapy Hollis- Blacwell Scientific Publications.
2. Therapeutic Exercise – Basmajian- Williams and Wilkins.
3. Therapeutic Exercises Foundation and Techniques – Kisner and Colby-F.A Davis

4. Proprioceptive Neuromuscular Facilitation- Vos et al-Williams and wilkins.
5. Principle of Exercise Therapy- Gardiner – C.B.S Delhi.
6. Beard's Massage- Wood- W.B Saunders.
7. Motor Control: Theory and Practical Applications Shumway – Cook & Wallcott- Lippincott.
8. Hydrotherapy, Principles and Practices – Campion – Butterworth Heinmam.
9. Muscle testing and functions – Kendall – Williams & Wilkins.
- 10.Daniels and 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: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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 hospitals and rehabilitation setting.

5. Family: Influence of family on human personality, discussion of changes in functions of a family, influence of family on 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 behavior, cultural meaning of sickness, response & choice of treatment (role of culture as social consciousness in molding 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 adaptation and social change, social change and stress, social change and deviation, social change and health programmes, the role of social planning in improvement of health and in rehabilitation.
10. Social Control: Meaning of social control, Role of norms, folkways, customs, morals, religion, law and other means of social control in the regulation of human behavior, social deviation 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.

Books Recommended:

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

SECOND YEAR

Paper -1 Pathology &Microbiology

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section -1

Pathology

1. Introduction: Concepts of diseases, classification of lesions
2. Bacterial, viral and parasitic infections – a general outline.
3. Inflammation and repair, degeneration, neorosis and gangrene
4. Haemorrhage, shock, embolism, thrombosis
5. Tuberculosis, Leprosy, Typhoid
6. Deficiency diseases
7. Tumors: Etiology & spread, common tumors
8. Blood: Anemia, Heart and blood vessels
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. Diseases of muscle including poliomyelitis, Myopathies
17. Pokémon's Ischemia

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 diseases 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 -2 Pharmacology

Time: 3Hrs

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

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section –I

Pharmacology

1. General action of drugs
2. Drug allergy and idiosyncrasy
3. Drug toxicity
4. Metabolic rate of drug
5. Methods of administration
6. Chemical character of drugs
7. Drugs acting on Central nervous system- anesthetics, 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 and drugs affecting endocrine functions

14. Vitamins

Books Recommended:

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

PAPER – III Electrotherapy - II

Time: 3Hrs

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

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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 skills and patient preparation

2. Medium frequency currents (Interferential Therapy) – conceptual framework of medium frequency current therapy, production, biophysical effects, types, therapeutic effects, Techniques of application, indications, Contraindications, Precautions, operational skills and patient preparation.
3. High frequency sound waves (Ultrasound) – Production, biophysical effects, types, therapeutic effects, Techniques of application, indications, contraindications, precautions, operational skills and patient preparation.

Section III

1. Therapeutic light in Physiotherapy (LASER) –Definition, historical background, physical principles, biophysical effects, types, production, therapeutic effects, Techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
2. Therapeutic cold (Cryotherapy) – Sources, biophysical effects, types, production, therapeutic effects, Techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
3. Therapeutic mechanical pressure (Intermittent compression therapy) – Principal, biophysical effects, types, production, therapeutic effects, Techniques of application, 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, 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, vapor coolant sprays, etc.
6. To study a Intermittent therapy unit, its operation and different methods of application- region wise.
7. To study Interferential pneumatic therapy unit, its operation and different 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 : Clinica in Physical Therapy –Wolf- Churchill Livingstone

PAPER – IV Exercise Therapy - II

Time: 3Hrs

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 two 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.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section –I

Therapeutic Exercises

1. Principles, classification, techniques, physiological & therapeutic effects, indications & contraindications of therapeutic exercises.
2. Assessment & evaluation of 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, indications, contraindications & precautions.

5. Neuro-muscular Inco-ordination-Review normal neuromuscular coordination, Etiogenesis of neuromuscular in co-ordination & genetic 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 exercise.

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 motility, muscle strengthening & wound 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, contraindications, therapeutic effects & precautions of breathing exercises.
5. Group Therapy – Types, advantages & disadvantages.
6. Exercises for the normal person – Importance and effects of exercise to maintain optimal health & its role in prevention of diseases. Types, advantages, 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 functions.
2. To study & practice the various techniques of mobilization of joints regionwise.
3. To study & practice the various techniques of progressive strengthening exercises of muscles region wise.
4. To study & practice the use of various ambulation aids in gait training.
5. To assess & evaluate ADL's and practice various training techniques
6. To study & practice mat exercises.
7. To assess & evaluate normal & abnormal posture & practice various corrective techniques.
8. To assess & evaluate equilibrium/ balance & practice various techniques to improve balance.
9. To study the structure & functions of hydrotherapy equipments & their applications

10. To study & practice various traction techniques, including manual mechanical & electrical procedures
11. To study & practice various group exercise therapies
12. To practice & experience effects of basic yoga “asanas”
13. To study plan & practice exercise programmes for normal person of various age groups.

Books Recommended

1. Practical Exercise Therapy – Hollis- Blackwell Scientific Publications
2. Therapeutic Exercises–Basmajian –Williams &Wilkins
3. Therapeutic Exercises Foundations and Techniques –Kisner & Colby –F A Davis
4. Proprioceptive Neuromuscular Facilitation – Vos et al - Williams &Wilkins
5. Principle 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- Waesworth- Lipincott
10. Hydrotherapy Principles and practices- Campion –Butterworth Heinmann

Paper -V

Biomechanics

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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-ordinate 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, girdles, 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 Astro- posterior and lateral views.
6. Analysis of normal gait and measurement of spatic temporal features.

Books Recommended

1. Joint Structure and Function- A Comprehensive Analysis – Norkins & Levengie –F.A Davis
2. Measurement of Joint Motion – A guide to Goniometry – Norkins & White- F. A Davis
3. Brunstrom's Clinical Kinesiology –Smith et al –F.A Davis
4. Basic Biomechanics explained – Low & Reed –Butterworth Heinmann
5. Kinesiology Applied to Pathological Motion –Soderberg Lippineou

Paper -VI

Psychology

Time : 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section –I General Psychology

1. Definition of Psychology : Definition of Psychology, information in relation to following
Schools methods and branches

- a) Schools : Structuralism, functionalism, behaviorism 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 Behavior: Infancy, childhood, adolescence, adulthood, middle age, old age.

4. Intelligence: Definitions, IQ, Mental Age, List of various intelligence tests- WAIS, WISC, Bhatia's performance test, Raven's Progressive Matrices test.
5. Motivation Definitions: Motive, drive, incentive and reinforcement 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 sympathies 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 characteristics.
- c) Basic concepts of proud, unconscious, conscious , ego and superego, list and define the oral, anal and phallic stages of personality department list and define the 8 stages as proposed by Erickson 4 concepts of learning as proposed by Dollard and Miller drive, due response and reinforcement.
- d) Personality assessment: Interview, standardized, non-standardized, Exhaustive and stress interviews, list and define inventories BAP, CPI and MMPI projective test Rorschach, TAT and sentence completion test.

8. Learning Definition: List the laws of learning as proposed by Thorndike. Types of learning: Briefly describe, Classical conditions, Operan conditioning, insigle 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, Mnerroic methods, incidental Vs Intentional learning, role of language .

9. Thinking: Definition, concepts, creativity, steps in creative thinking, list the traits of creative people, decisions.

10. Frustration: Definition, sources, solution, Conflict, Approach- approach, Avoidance – avoidance and approach & avoidance solution.

11. Sensation, Attention and Perception:

- a) List of senses, Vision, Hearing, Olfactory, Gustatory and cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention, nature of stimulus intensity, colour, change, extensity, repetition, movement size, curiosity, primary motives.
- b) Define perception and list the principles of perception, figure ground, constancy, similarity, proximity, closure, continuity, values and interests, past experience context, needs, moods, religion and age, perceived susceptibility perceived seriousness perceived benefits and socio- economics status.
- c) Define illusion and hallucination
- d) List visual, auditory, cutaneous, gustatory and olfactory mechanism.

12. Democrat 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 , rationalization, projection, reaction, formation, identification, repression, emotional insulation undoing, interjection, acting out

Section II Health Psychology

- 1. Psychological Reaction of a patient: Psychological reaction of a patient during admission and treatment anxiety, shock, denial, suspicious, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression,

egocentricity, concern about small matters narrowed interests, emotional, anger reactions, Perpetual changes, confusion, disorientation, hallucinations, depression, illusions, anger, hostility, loss of hope.

2. Reactions to Loss: Reactions to loss, death and bereavement shock and disbelief, development of awareness, restitution, resolution .Stages of acceptance as proposed by Kubler-Ross.
3. Stress: Physiological and Psychological relation to health and sickness psychosomatic, professional stress burnout.
4. Communications:
 - a) Types: verbal, Non- verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
 - b) Counseling, Definition, Aim: Differentiate from guidance, Principles in counseling and personality qualities of counselors.
5. Compliance nature, factors, contributing to non-compliance, improving compliance.
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, incompetence and mental illness.
7. Geriatric psychology: Specific psychological reactions and needs of geriatric patients.
8. Pediatric Psychology: Specific psychological reactions and needs of pediatric patients.
9. Behaviour Modifications: Applications of various conditioning and learning principles to modify patient behaviors.

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. Behavioral Sciences for Medical Undergraduates- Manju Mehta –Jaypee Brothers.
6. Elementary Psychology- S.M Mohsin

THIRD YEAR

PAPER – I

Orthopedics

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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. Principles of operative treatment: List indications, Contraindication and briefly outline principles of Arthrodesis, Arthroplasty, Osteotomy, Bone grafting, Tendon- Transfers and Arthroscopy.
3. Sprains and Muscle strains: List common sites of sprains and muscle strains describe the clinical manifestations and treatment Viz. tennis elbow, golfer's elbow, DeQuervain's disease, tenosynovitis, trigger finger, carpal tunnel syndrome and plantar fasciitis.
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 close fractures and fracture- dislocations.
 - b. Differences between dislocation subluxation.
 - c. General & Local signs & symptoms of fractures & dislocation.
 - d. Principle of management of fractures & dislocations.
 - e. Prevention & treatment of complication including: Fracture- disease ,Volkmann's ischemic contracture, Sudeek's Atrophy Carpal Tunnel Syndrome. Myositis Ossificans and shoulder- hand syndrome.
 - f. Fracture healing.
2. Upper Limb Fracture & Dislocations
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complications.
3. Lower Limb Fracture & Dislocations
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management and complications.
4. Spinal Fractures and Dislocations: Outline the mechanism, clinical features, and 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 TB)
3. Bone Joint Tumors: Classify and outline the clinical feature, management and complications of the following (benign/malignant bone and joint tumors, osteomas, osteosarcomas, osteoclastomas, Ewing's sarcoma, multiple myeloma).

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, Fasciitis & 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 transfer and corrective surgery.
2. Congenital Deformities: Outline the clinical features and management of CTEV, CDH, flat foot, vertical talus, limb deficiency radial club hand and femoral, tibial and fibula deficiencies meningocele 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 cruch 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 neutritis, muscle paralysis, tropic ulceration and hand & feet deformities.

Books Recommended:

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

PAPER – II General Medicine

Time: 3Hrs

M.Marks:200

Theory:90+10 Int Assess=100

Practical:90+10 Int Assess=100

Teaching hours: Theory = 150, Practical = 50

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Section B : This will consist of short answer questions with answer to each question upto two pages in length. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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, infract of lungs, chronic passive congestion, chronic obstruction pulmonary disease, chest wall deformities.
2. Diseases of Circulatory System: Thrombosis, Embolism, Gangrene, Valvular diseases Hemorrhage, Heart Malformation, various diseases of arteries, diseases of blood forming organs, Anemia, Leukemia, Leucocytosis, Peripheral vascular diseases, diseases of the lymphatic systems. Diseases of the heart- Hypertension,

Hypotension, Aortic aneurysm, Endocarditis, Pericarditis, Aortic Regurgitation, Cardiac Failure, coronary heart diseases, congenital heart malformation and its manifestation.

Section –III

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

Section IV

Diseases of Skin –

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

Section V

Psychiatry

1. Introduction: Definition, defence mechanism, symptomatology, types & causes of mental disorders, psychosomatic disorders
2. Disorders:
 - a) Psychosis: Schizophrenia (including paranoid), manic depressive psychosis, involvement psychosis.
 - b) Psychoneurosis: Anxiety, hysteria, anxiety states, neurasthenia, reactive depression, obsessive compulsive neurosis.
 - c) Organic reaction- toxins, trauma & infection
 - d) Senile dementia.

3. Mental retardation: definitions, 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- Krishna Rao- Jaypee Brothers
4. A short textbook of Psychiatry – Ahuja Niraj – Jaypee Brothers.

PAPER – III Physiotherapy in Orthopedic Conditions

Time : 3Hrs

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 B : This will consist of short answer questions with answer to each question upto two pages in length. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

THEORY

- ❖ Introduction: Brief review of the following surgical condition and various physiotherapeutic modalities, aims, means and technique of physiotherapy should be taught.
- ❖ Traumatology: General physiotherapeutic approach for the following conditions:
- ❖ Fracture and dislocations: Classification and type of displacement, method of immobilization, healing of fractures and factors affecting union, non-union, delayed union etc common site factors.
- ❖ Specific fractures and their complete physiotherapeutic management.
- ❖ Upper limb, Clavicle, humerus, ulna, radius, crush injuries of hand.
- ❖ Lower limb, fracture neck of femur, shaft of femur patella tibia fibula, Pott's fracture, fracture of tarsal and metatarsals.
- ❖ Spine, fracture and dislocations of cervical, thoracic and lumbar 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 volkman'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

Books Recommended:

1. Cash Textbook of Orthopaedics and Rheumatology for Physiotherapists- Downie- 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. Orthopaedics Physiotherapy- Donatelli & Wooden- W.B Saunders
6. Rheumatological Physiotherapy- David- Mosby

7. Orthopaedic Physiotherapy – Tids well- Mosby
8. Phyiotherapy for Amputee- Engstrom & Van de van- Churchill Livingstone
9. Sports Injuries: Diagnosis and Management – Butterworth Livingstone

PAPER – IV Physiotherapy in Medical Conditions-I

Time: 3Hrs

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 B : This will consist of short answer questions with answer to each question upto two pages in length. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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:
 - 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- Fibrosus, Myalgia, Bursitis, Periarthritis etc.
4. Common conditions of skin –Acne, Psoriasis, Alopecia, Leucoma, 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 & non invasive) used in the diagnosis of various respiratory disorders.

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

1. Bronchitis, Asthama, 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 & non invasive) used in the diagnosis of various respiratory disorders.
3. Review of pathological changes and principle of management by physiotherapy of the following conditions:

Thrombophlebitis, thrombosis, Embolism, Buerger's diseases,
Arteriosclerosis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension,
hypotension, aneurysm.

Books Recommended

1. Cash textbook of general medical and surgical conditions for physiotherapies- 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 - Jaypee Brothers.

4. The Brompton Guide to chest Physical Therapy
5. Cardiopulmonary Physical Therapy – Irwin and Techlin – 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 : 3Hrs

M.Marks:100

Theory: 90+10 Int Assess=100

Teaching hours : Theory = 100

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Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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

Books Recommended

1. Methods in Biostatistics- Mahajan- J.P
2. Statistics in medicine – Colton- Little Brown ,Boston
3. Reasearch 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.

Paper-VI Yoga and Naturopathy

Time: 3Hrs

M.Marks: 100

Theory: 90+10 Int

Assess = 100

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Section B: This will consist of short answer questions with answer to each question upto two pages in length. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

1. **Yoga:** Introduction, Historical background and Origin of Yoga, Meaning and Concept of Yoga and its relationship with Healthcare.
2. **Yoga in Global Scenario:** Yoga as a Science; and recent advances in Yoga.
3. **Main Yogic Texts:** Vedas & Upanishad, Hathayoga Pradeepika, Gheranda Samhita, Yoga Sutra and Shrimad Bhagvad Gita.
4. **Yoga as activity and relaxation techniques:** (i). Yam (ii). Niyama, (iii). Asanas (iv). Pranayama, (v). Pratyahar (vi) Dharna, (vii) Dhayan and (viii). Samadhi
5. **Pranayama:** Meaning, Types and its importance.

6. **Asanas:** Asanas- meaning, types, principles, Techniques of asanas and effects of asanas on various systems of the body - circulatory, respiratory and digestive system.
7. **Bandhs and Mudras:** Aim, Objectives and benefits. Physiological aspects of various bandhs and mudras.
8. **Yoga and Treatment:** Therapeutic and Corrective Values of Yoga Practices special reference to disease like: Diabetes, Asthama, Constipation, Obesity, Cervical, Gastric and Acidity.

REFERENCE BOOKS

- Debnath, Monica "Basic Core Fitness through Yoga and Naturopathy" (2006-07) Sports Publication, G-623/23B EMCA House, Ansari Road, Darya Ganj New Delhi.
- Yogeshwar, "Text Book of Yoga" (2004) Penguin Book.
- Harvey, Paul (Yoga for Everybody" (2001) Tucker Slingsby Publisher Ltd.
- Sharma, Lalita " All You Wanted to know about Yoga" (1991) Sterling Publisher Pvt. Ltd.
- Sarawati, S Satyananda " Asana, Pranayam, Mudra and Bandhas".
- Iyengar, B.K.S " The Illustrated Light of Yoga" (1982) Great Britain, George Allenand Unwin.

Paper-VII Environmental Science

Time: 3Hrs

M.Marks: 100

Theory: 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 question will carry two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Unit I

INTRODUCTION: Definition and Scope: importance, public awareness and education.

Natural resources: Introduction, renewable and non- renewable, forest, water, mineral, food, energy and land resources, conservation of resources, Equitable use of resources.

Unit II

ECOLOGY: Ecosystem, concept, structure, function, energy flow, ecological pyramids, forest, grassland, desert and aquatic ecosystem – introduction, characteristic features, structure and function.

Biodiversity: genetic, species and ecological diversity, threats to biodiversity, conservation of biodiversity.

Unit II

SOCIAL ISSUES & ENVIRONMENTAL LEGISLATION: Social Issues: Sustainable development, water conservation, climatic change, concept of green computing and green building.

Environmental laws: environmental ethics, EIA, environmental protection acts and issues.

Unit IV

POLLUTION & WASTE MANAGEMENT

Pollution: definition, causes, effects and control measures of the pollution- air, soil, noise, water, marine and thermal and nuclear pollution.

Disaster management: flood, earthquake, cyclone, landslide, drought.

Solid waste management: waste management hierarchy; collection, transportation and storage of MSW: treatment and disposal of MSW.

UNIT V

ENVIRONMENTAL CHEMISTRY

General Chemistry: review of concepts like oxidation- reduction, gas laws, Ph and buffers.

Water and wastewater chemistry: hardness, residual chlorine, dissolved oxygen, BOD, COD, solids.

Green Chemistry: principles, green materials, reactions , reagents and product.

Textbooks:

- Environmental studies by J.P.Sharma.
- Environmental studies by Smriti Srivastava.

Reference books:

- Environment and ecology by H.Kaur.
- Environmental studies by Ranjit Daniels.
- Fundamentals of ecology by P.ODUM.

FOURTH YEAR**PAPER – I General Surgery**

Time : 3Hrs

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:

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Section B : This will consist of short answer questions with answer to each question upto two pages in length.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section –I

1. Introduction to principles of surgery and its procedure.
2. Shock- definition, types, clinical feature, pathology &management
3. Hemorrhage – common sites, complication , clinical feature & management
4. Blood Transfusion- Blood group matching, indication & complication.
5. Anesthesia – Principles of Anesthesia, 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 labor & 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. Comme – inflammation and other infections of eye
- 2. Ptosis
- 3. Blindness- common causes & management
- 4. Refractions- testing, errors & remedies.
- 5. Strabismus- types, features & corrective measures.

Section- VI

Ear, Nose & Throat (ENT)

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

Books Recommended:

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

PAPER – II Neurology

Time: 3Hrs

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 two 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. 12 questions will be set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length. Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage 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 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 etiology, clinical features and management of the following Neurological disorders:-

1. Congenital and childhood disorders- Cerebral palsy, Hydrocephalus and Spina Bifida.
2. Cerebrovascular accidents – General , classification, thrombotic, embolic, hemorrhagic & inflammatory, strokes, gross localization and sequel.
3. Trauma- localization, first aid and management of sequel of head injury and spinal cord injury
4. Diseases of the spinal cord- Cranio vertebral junction anomalies, Syringomyelia, Cervical and lumbar disc lesions. Tumors and spinal Arachnoiditis.
5. Demyelinating diseases (central and peripheral)- Guillain- Bane Syndrome. Acute disseminated encephalomyelitis. Transverse myelitis and Multiple sclerosis.

Section –III

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

1. Degenerative disorders- Parkinson's disease and dementia.
2. Infections- Pyogenic Meningitis sequel, Tuberculosis 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. Intra cranial Tumors – Broad classifications, signs and symptoms
4. Motor neuron disease – Definition, classification and management

5. Cranial Nerves - Types of disorders, clinical manifestation & management

Section – V

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

Books recommended:

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

PAPER – III Pediatrics & Geriatrics

Time: 3Hrs

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:

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Section B : This will consist of short answer questions with answer to each question upto two pages in length.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section –I Pediatrics

1. Review normal fetal development & child birth, including assessment of a neonate.
2. Development of a normal child- neuromotor, physical growth, cognitive, intellectual, social etc.
3. The examination & assessment of a pediatric patient
4. Congenital & acquired musculoskeletal 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 & principles of management
7. Hereditary disorders- etiology clinical manifestation & principles of management

8. Nutritional Vitamins, Deficiency & development disorders: 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- Definition, the anatomical, physiological and cognitive changes related to aging
2. Epidemiology and Socio-economic impact of aging
3. The examination & assessment of a geriatric patient
4. Musculoskeletal disorders- etiology clinical manifestation & principles of management
5. Cardiac- pulmonary disorders- etiology clinical manifestation & principles of management
6. Neurological disorders(CNS & PNS)- etiology clinical manifestation & principles of management
7. Diet & Nutritional requirement of the elderly, nutritional disorders & their management
8. Burns, Injuries & accident as related to the elderly & preventive care
9. Dementia- Types and principles of management
10. Overview of depressive disorders in the elderly.

Books Recommended

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

PAPER – IV Physiotherapy in Medical Conditions-II

Time: 3Hrs

M.Marks:200

Theory:90+10 Int Assess=100

Practical:90+10 Int Assess=100

Teaching hours : Theory = 100, Practical = 50

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Section B : This will consist of short answer questions with answer to each question upto two pages in length.12 questions will set by examiner and eight will be attempted by candidate. Each question will carry 5 marks. The total weightage of section shall be 40 marks.

Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

THEORY

Section-I Neurology

1. Examination of Neurological disorders and principles of treatment.
2. Knowledge of various investigative procedures(Invasive & noninvasive) used in the diagnosis of various neurological disorders.
3. Review of pathological changes and principles of management by physiotherapy of the following conditions:
 - a) Hemiplegia, Paraplegia, Tabes dorsalis, cerebellar ataxia, extra pyramidal lesions, Gullian Barre Syndrome, Parkinsonism
 - b) Disseminated sclerosis: Amgotrophic lateral sclerosis, Syringomyelia subacute combined degeration of cord motor neuron diseases.
 - c) Peripheral Nerve and cranial Nerve lesions
 - d) Neuritis and Neuralgia- Brachial, sciatic etc

- e) Infections- Poliomyelitis, meningitis, Encephalitis, Polyneutitis, Transverse myelitis.
- f) Traumatic head injuries and spinal cord injury.

Section- II Paediatrics

1. Review of the examination & assessment of a Paediatric patient
2. Review of pathological changes and principle of management by physiotherapy of the following conditions:
 - a) Common congenital & acquired muscle skeletal disorders.
 - b) Common congenital & acquired neurological disorders(CNS &PNS)
 - c) Common Heredity disorders.
 - d) Common nutritional, metabolic & vitamin deficiency disorders.
 - e) Cerebral palsy, myopathy and muscular dystrophies.

Section – III Geriatrics

1. Review of the examination & assessment of a Geriatric 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) Injuries & 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 textbook of neurology for physiotherapists- Downi- J.P Brothers
2. Adult Hemiplegia – Evaluation & treatment- Bobath- Oxford Butterworth Heinmann
3. Neurological Rehabilitation – Carr & Shepherd- Butterworth Heinmenn.

4. Tetraplegia & Paraplegia – A guide for physiotherapist- Bromley-Churchill Livingstone
5. Neurological Physiotherapy- A problem solving approach- Susan Edward's – Churchill Livingstone
6. Neurological Rehabilitation- Umphred – 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- Levittis- Blackwell Scientific Publications London.
11. Aging the Health Care Challenge – Levis- F.A Davis
12. Physiotherapy in Paediatrics- Shepherd- Butterworth heinmann.

PAPER – IV Physiotherapy in Surgical Conditions

Time : 3Hrs

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 C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two.Each question will carry 15 marks total weightage being 30 marks.

Section-1 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, Gyanaecology and Obsteries 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.

Sections- 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 proceeding of the management of wounds, ulcers, burns & consequent contractures & deformities.

Section IV Neurosurgery

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

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

Books Recommended

1. Cash textbook of general medical & surgical conditions for physiotherapists- Downie- Jaypee Brothers.

2. Cash textbook of heart, chest and vascular disorders for physiotherapists- Downie- Jaypee Brothers.
3. Principles and practices of cardiopulmonary physical therapy- Frown Felter- Mosby.
4. Chest physiotherapy in intensive care unit – Mackenzie- Williams & Wilkins
5. Restoration of motor functions in stroke patient- A physiotherapist Approach- Johnstone- Churchill Livingstone.
6. Physiotherapy in obstetrics and gynaecology – Polden –F.A Davis

Time : 3Hrs

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:

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Section C: This will consist of easy type questions upto five pages in length .Four questions will be set by examiner and the candidate will be required to attempt two. Each question will carry 15 marks total weightage being 30 marks.

Section- I

1. Conceptual framework of Rehabilitation, roles of Rehabilitation ,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 programs to Rehabilitate persons with disabilities living in rural areas
5. Statutory provisions, Scheme of assistance to persons with disability.
6. Role of N.G.Os in Rehabilitation of the persons with disabilities
7. Basic principles of administration and finance including 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 fating and lower extremities.

Section –III

1. Principles and mechanisms of communication including speech and hearing.
2. Common disorders of speech and hearing- etio genesis, clinical features, assessment and principles of management.
3. Principles in the management of vocational problems,including evaluation and vocational goals for people with disabilities.
4. Principles of rehabilitation nursing, including function of nursing personnel and nursing practice in rehabilitation.

Section- IV

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

Section –V

1. Definition, scope and 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 & Schmitz-F.A Davis
2. Occupational Therapy and physical disfunction:Principles, skills & practices- turner, Foster & Johson- Churchill Livingstone
3. Hand Splitting- Wilton-W.B Saunders

4. Orthotics in rehabilitation: Splinting 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 Spacknan's occupational therapy- neistadt & Crepeau- Lippincott

PRACTICAL VII: Computers Applications

M.Marks:50

Practical 45 Internal Assessment 5

Note: Only Practical Examination will be conducted for the subject

1. To study various components of a personal computer
2. To have working knowledge of hardware and software
3. To practice the operational skills of common computer applications, including word processing & spread sheet software
4. To have a basic knowledge of utility of multi media.
5. To learn skills of web surfing- for literature, researches relevant to the field of medicine.