



JAGADGURUNATH
UNIVERSITY, JAIPUR

**Faculty of Medical Paramedical and
Allied Health Sciences**

Master of Physiotherapy (MPT)
2 Years Degree Course

**(Specialization: Neurological, Musculoskeletal, Sports and
Cardiopulmonary Physiotherapy)**

(SESSION 2018-2020)

Scheme of Examination & Detailed Syllabi

*Approved by AC vide resolution no.Dated

1. The duration of course for the degree of Master of Physiotherapy shall be of two years i.e., M.P.T. Part I and Part II.
2. The M.P. T. Course shall be available in the following specializations and candidate may seek admission in any one of these specializations.
 - **M.P.T in Neuro Physiotherapy**
 - **M.P.T in Musculoskeletal Physiotherapy**
 - **M.P.T in Sports Physiotherapy**
3. The admission to the Master of Physiotherapy course shall be open to those who have passed 10+2 (Physics, Chemistry, English & Biology) and BPT or equivalent examination from recognized university with 50% marks in aggregate.
4. **Goals of Course:**
 - (i) Preparation of a postgraduate student towards his/her professional autonomy at par with global standards
 - (ii) Formation of base of the professional practice by referral as well as first contact mode using evidence based practice.
 - (iii) Impartation of research basis in order to validate techniques & technology in practice to physiotherapy.
 - (iv) Acquainting a student with concept of quality care at the institutional as well as the community levels.
 - (v) Inculcation of appropriate professional relationship in multidisciplinary set up, patient management and co partnership basis.
 - (vi) Preparation of students to address problems related to health education and community physiotherapy.
 - (vii) Practicing the concept of protection of rights of the community during referral as well as first contact practice.
 - (viii) Incorporation of concept of management in physiotherapy.
 - (ix) Experience in clinical training and undergraduate teaching partly.

5. **Examination Schedule:**

- (i) Last date by which the examination form completed in all respects along with examination fee must reach the registrar shall be as follows:

Examination	Without late fee	With late fee of Rs.500/-	With late fee of Rs.1000/-	
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- (ii) Incomplete form or forms of candidate(s) who have not cleared his /her all dues will not be accepted.
- (iii) The amount of examination fee to be paid by a candidate for each semester shall be as prescribed by the University from time to time.
- (iv) The medium of instruction and examination shall be English.

- (v) The syllabus shall be such as may be prescribed by the concerned faculty from time to time.
6. The examinations for MPT first year and Second year will be held in the month of May/ June such other dates as may be fixed by the Academic Council.
- (i) Each paper shall have up to 30% Internal Assessment and at least 70% marks for External Examination
- (ii) The internal assessment weightage will be based on following criteria:

1. Attendance	20%	% of the total marks of the internal assessment
2. Written Assignment/ Project Work etc.	40%	
3. Two Mid-Semester Tests/ Internal Examinations	40% (Best of two mid-semester tests)	

- (iii) The teacher/teachers concerned/in charge of each paper/practical class will be responsible for the evaluation and submission of the internal assessment.
- (iv) The minimum marks required to pass an examination shall be aggregate of 50% (combined internal and external examinations) of the total marks and the candidate must secure 50% marks in the external examination.
- (v) For a candidate who fails in a paper(s), his internal assessment examination for all paper will be carried over and the supplementary examination will; therefore, consists of only an external examination.

Note: The Internal Assessment will be formulated and sent to COE as per prescribed schedule, failing which the result of the concerned candidates will be shown as R.L.

7. **Dissertation:** Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The results of such a work shall be submitted in the form of dissertation. The dissertation is aimed to train a graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.
- (i) Guide allotment will be done within 2 months of date of commencement of the course.
- (ii) Candidate shall submit the topic of dissertation within two months of allocation of supervisor.
- (iii) Candidate shall submit detailed proposal of dissertation including aims & objectives, methodology of significance in 1st Year as on date fixed by Head of the Department,

which shall be scrutinized by committee constituted by ACD. On the approval of Committee the candidate shall begin actual process of dissertation. If the candidate failed to submit the proposal on due date, The Head, however, may condone the delay on specific recommendation of supervisor.

- (iv) The candidate shall submit dissertation within 30 days of the date fixed by Head of the department in 2nd year.
 - (v) After expiry of submission period, the dissertation shall be accepted with late fee of Rs 1000/- .
 - (vi) The Head, however, may condone the late fee for delay up to one month on specific recommendation of supervisor.
 - (vii) In case candidate fails to submit the dissertation after the expiry of period as mentioned in (vi) as above, the Dean Academic Affairs may condone the late fee for delay up to 3 months on the recommendations of the Head .
8. **Evaluation of dissertation:** Evaluation of dissertation of MPT final year shall be done by a committee consisting of Supervisor, Co-Supervisor of the candidate, Head of the Department & the external examiner on the basis of the contents of the thesis, its presentation and discussion thereon. In case of any controversy, the awards given by the external examiner shall be final.
9. A candidate who failed to qualify the dissertation shall resubmit a revised thesis after a period of three months from the date of declaration of the result but not later than one year of the declaration of result.

Requirements to appear in Semester Examination:

- 10. The M.P.T. 1st examination will be open to any person who has been admitted to the course and fulfills the attendance requirements. The admission to various specializations of M.P.T. will be subject to the eligibility conditions in force at time of admission.
- 11. Candidate shall submit their application forms for admission to the Examination duly countersigned by Head of the Department along with a certificate from Head of the Department that the candidate satisfies the following requirements:
 - a) has been on the rolls of the university teaching Department throughout the academic terms preceding the semester examination, and;
 - b) of having good moral character, and;

- c) has attended 75% of the total number of lectures delivered/ practicals in each paper.
For late admitted candidates, lectures delivered will be counted from his/her date of admission.

It shall be necessary that 75% of the lectures prescribed for the course in the syllabus are delivered before.

Teaching/Seminars/Tutorial/Guided library reading:

-Period of 1 hour duration -1 attendance

-Practical for 2-3 hours duration -2 or 3 attendances respectively

- (i) In case of students, whose names are stuck off on account of non-payment of fee, their period for the time they were not on their rolls, shall not be accounted for.
- (ii) The shortage in the attendance of lectures by the candidate will be condoned as per rules made by the university from time to time.

12. Subject to above:

- (i) There will be no condition of passing papers for promotion from odd semester to even semester in an academic Session.
- (ii) To qualify for admission to 2nd year of the course, the candidate must have passed 50% of total papers of the two semesters of the 1st year.
- (iii) A candidate placed under re-appear in any paper, will be allowed two chances to clear the re-appear, which shall be available within consecutive two years/ chances i.e. to pass in a paper the candidate will have a total of three chances, one as regular student and two as re- appear candidate.
- (iv) The examination of re-appear papers of odd semester will be held with regular examination of the odd semester and re appear examination of the even semester will be held with regular examination of even semester. But if a candidate is placed under reappear in last semester of the course, he will be provided chance to pass the re-appear with the examination of the next semester, provided his reappear of early semester does not go beyond that next semester; Provided that for the award of the MPT degree he shall have to qualify in all papers prescribed for the MPT course within a period of four years from the date he joined the course.
- (v) After completion of two academic years of studies (i.e. four semesters) he shall not be admitted to any semester of the same course and will not have any privileges of a regular student.

- (vi) The minimum attendance requirement for taking an examination in a paper is 75% of the delivered lectures in that particular paper.
13. The grace marks shall be allowed according to the general ordinance relating to “Award of Grace Marks”.
14. Three weeks after the termination of the examination, or as soon thereafter as possible, the Registrar shall publish a list of candidates who have passed the examination. Each successful candidate in Part-I examination shall receive a certificate of having passed that examination. A list of successful candidate in Part –II examination be arranged in two divisions according to ordinance 11 and the division obtained by the candidate will be stated in his certificate/degree.
15. Successful candidate who obtain 60% or more of the aggregate marks in part I and part II examination taken together shall be placed in the first division and those who obtain 50% or more but less than 60% shall be placed in the second division .
16. (i) The controller of examination shall declare the result after three weeks of termination of examination or as soon as thereafter.
- (ii) A successful candidate of the M.P.T. 1st year examination shall be awarded degree in following nomenclature:
- **Master of Physiotherapy in Neuro Physiotherapy**
 - **Master of Physiotherapy in Musculoskeletal Physiotherapy**
 - **Master of Physiotherapy in Sports Physiotherapy.**

Master of Physiotherapy
FIRST YEAR (2018-2020)
Scheme of examination and courses of studies

MPT 1ST Year
Compulsory Papers

Code No.	Paper	Type	THEORY			PRACTICAL			L	T/P	Credits
			Total Marks	Internal Marks	External Marks	Total Marks	Internal Marks	External Marks			
MPT101	Basic Medical Sciences	CORE	100	30	70				4 X 2=8	-	8
MPT102(A)	Biomechanics	ELECTIVE	100	30	70				4 X 2=8	-	8
MPT 102(B)	Laser	ELECTIVE	100	30	70				4 X 2=8	-	8
MPT 103	Physiotherapy methods-I & Physiotherapy Methods –II	CORE	100	30	70				4 X 2=8	-	8
MPT 104	Research Methodology & Biostatistics	CORE	100	30	70				4 X 2=8	-	8
MPT 105	Basics of Exercise Physiology & Nutrition	CORE	100	30	70				4 X 2=8		8
SPECILIZATION											
MPT 106A	Assessment and Evaluation in Neuro-physiotherapy & Physiotherapy in Pediatric Neurology	CORE ELECTIVE	100	30	70	100	30	70	4 X 2=8	3 X 2 =6	14
MPT106B	Assessment and Evaluation in Musculoskeletal Physiotherapy & Physiotherapy In Non-Traumatic Orthopaedic Conditions	CORE ELECTIVE	100	30	70	100	30	70	4 X 2=8	3 X 2 =6	14
MPT106C	Sports Traumatology 1 & Sports Traumatology 2	CORE ELECTIVE	100	30	70	100	30	70	4 X 2=8	3 X 2 =6	14

TOTAL										54
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**MPT 2ND YEAR
Compulsory Papers**

Code No.	Paper	Type	THEORY			PRACTICAL			L	T/P	Credits
			Total Marks	Internal Marks	External Marks	Total Marks	Internal Marks	External Marks			
MPT 201	Bio-Engineering and Rehabilitation Principles	CORE	100	30	70	-	-		4 X 2 = 8	-	8
MPT 202(A)	Applied Exercise Physiology	ELECTIVE	100	30	70	-	-		4 X 2 = 8	-	8
MPT 202(B)	Disaster management	ELECTIVE	100	30	70	-	-		4 X 2 = 8	-	8

SPECILIZATION IN Neuro Physiotherapy

MPT 203	Physiotherapy & Rehabilitation in Neurological Disorders -I	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14
MPT 204	Physiotherapy & Rehabilitation in Neurological Disorders -II	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14
MPT 205	Current Concept in Neuro- Physiotherapy	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14

SPECILIZATION IN ORTHO Physiotherapy

MPT 203	Physiotherapy In Traumatic Orthopedic Conditions	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14
MPT 204	Physiotherapy In Vertebral Disorders	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14
MPT 205	Current Concepts in Ortho Physiotherapy	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14

SPECILIZATION IN Sports Physiotherapy

MPT 203	Non-Traumatic Medical Conditions of athletes	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14
MPT 204	Sports Psychology	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 = 6	14

MPT 205	Current concept of Sports Medicine Physiotherapy	ELECTIVE CORE	100	30	70	100	30	70	4 X 2 = 8	3 X 2 =6	14
MPT 206	MAJOR PROJECT CUM DISSERTATION	CORE	-	-	-	100	30	70	-	6	6
	TOTAL										64

Note: Yearly credits have been calculated by multiplying the semester-wise credits by two.

A student is required to obtain min. 50% marks in individual paper to pass

MAXIMUM & MINIMUM CREDITS OF THE PROGRAM

The total number of the credits of the BPT Programmes is 118

Each student shall be required to appear for examinations in all courses. However, for **the award of the degree a student should secure all 118 credits.**

A student may drop only one course in one year, out of electives only.

- AECC - Ability Enhancement Compulsory Course
- SEC - Skill Enhancement Course
- L - No. of Lectures per week
- T/P - No. of Tutorial/Practical per week

Students shall undergo clinical and field posting for refinement and acquisition of clinical skills in the clinics of the department and any other places as may require time to time. Students shall take up structured teaching assignments during the entire course of two years. Viva-Voce for the dissertation work and Practical Examination will be conducted at end of the fourth semester. The candidate shall be evaluated for competency in clinical skills, clinical decision making and teaching and communication skills.

Paper Code: MPT101
Basic Medical Sciences

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A- Anatomy and Applied Anatomy:

UNIT-I

- I. A review of organization and regulation of motor system.
 - (i) Types of movement and factors affecting contact and range of motion at synovial joints
 - (ii) Skeletal muscle tissue
 - (iii) Muscle metabolism
 - (iv) Contraction and relaxation of muscle
 - (v) Control of muscle tension

UNIT-II

- A review of control system of body (Motor and sensory).
- (i) Structure function and organization of nervous tissue
 - (ii) Electrical signals in neurons and its transmission
 - (iii) Regeneration and repair of nervous tissue
 - (iv) Functional organization of cerebral cortex
 - (v) Sensory motor and integrative system (Sensation, somatic sensation, Sensory pathways, motor pathways).
 - (vi) Reflexes and reflex arcs

UNIT-III

- II. Physiology & Applied Physiology:

- (i) Structure and function of cardio vascular system & disorders.
- (ii) Structure and function of respiratory system & disorders.
- (iii) Structure and function of endocrinal system & disorders.
- (iv) Structure and Function of Musculoskeletal System & disorders.
- (v) Structure and Function of Nervous System & disorders.

Books Suggested

1. Gray's Anatomy - Williams & Warwick - Churchill Livingstone.
2. Grants – Methods of Anatomy - Basmajian & Sloncker - Williams & Wilkins.
3. Clinical Anatomy for Medical Students - Snells – Lippincott.
4. Textbook of Medical Physiology - Guyton - Mosby.
5. Pathologic Basis of Diseases - Robbins, Kotran and Kumar – W.B. Saunders.

Paper Code: MPT102(A)
Biomechanics

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A – Concepts of Biomechanics:

UNIT-I

- I. Introduction to Kinesiology and Biomechanics.
- II. Principle of Biomechanics
- III. Nature and importance of Biomechanics in Physiotherapy.
- IV. Advanced Biomechanics and kinesiology
 - i. Introduction to biomechanical analysis of humane motion.
 - ii. **UNIT-II**

Analytical tools and techniques –

- a) Isokinetic Dynamometer,
- b) Kinesiological EMG,
- c) Electronic Goniometer,
- d) Force Platform,
- e) Videography.
- V. Ergonomic approach to lifting and handling, workspace and environment.
- VI. Patient positioning, body mechanics and Transfer techniques.

SECTION B – Applied Biomechanics:

UNIT-III

- I. Upper Extremity: Shoulder and Shoulder girdle, Elbow joint, Wrist joint and Hand.
- II. Lower Extremity: Pelvic Girdle, Hip joint , Knee joint, Ankle & Foot

UNIT-IV Spine

Books Suggested

1. James G. Hay – The Biomechanics of Sports Techniques, Prentice Hall.
2. Brunnstrom - Clinical Kinesiology, F.A. Davis.
3. Luttgens K., Hamilton N.: Kinesiology – Scientific Basis of Human Motion 9th Edi, 1997, Brown & Benchmark.
4. Kreighbaum E., Barthels K.: Biomechanics – A Qualitative approach for studying Human Motion, 2nd edi. 1985, MacMillan.
5. Rasch and Burk: Kinesiology and Applied Anatomy, Lee and Fabiger.
6. White and Punjabi - Biomechanics of Spine - Lippincott.
7. Norkin & Levangie: Joint Structure and Function - A Comprehensive Analysis - F.A. Davis.
8. Kapandji: Physiology of Joints Vol. I, II & III, W.B. Saunders.
9. Northrip et al: Analysis of Sports Motion: Anatomic and Biomechanics perspectives, W.C. Brown Co., IOWA.
10. Leveac B.F.: Basic Biomechanics in Sports and Orthopedic Therapy, C.V. Mosby.
11. De Boer & Groot: Biomechanics of Sports, CRL Press, Florida.
12. Basmajian - Muscle alive - Williams & Wilkins.
13. Nordin & Frankel - Basic Biomechanics of Muscular Skeletal System - Williams & Wilkins.
14. Bartlet - Introduction to Sports biomechanics - F & FN Spon Madras.

Paper Code: MPT102(B)
LASER

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

UNIT I :INTERFERENCE OF LIGHT

- Review of basic ideas of interference
- Interference due to transmitted light
- Principle of Interference
- Theory of interference-intensity distribution
- Conditions for interference

UNIT II:COHERENCE

- Principles of coherence, types of coherence
- Coherent wave- optical path and phase change
- Scope of coherence
- Spatial coherence in laser
- Difference between collimated and coherent light

UNIT III:DIFFRACTION

- Properties of diffraction
- Effects of diffraction
- Fresnel Diffraction
- Huygens- Fresnel theory, zone plate
- Difference between zone plate and convex lens, comparison between interference and diffraction
- Diffraction pattern due to a straight edge
- Diffraction pattern due to a single slit

UNIT IV:

- explain the function of techniques for characterising ultra-short laser pulses, e.g. autocorrelation, SPIDER, and FROG
- systematically describe the construction of, and principles for modern high-power lasers
- demonstrate in-depth understanding of high-harmonic generation and attosecond pulses
- describe in detail the properties of synchrotrons, and free electron lasers.

UNIT V : LASER AND FIBRE OPTICS

- Absorption and emission of light
- Absorption-spontaneous emission and stimulated emission
- Einstein relations
- Population inversion, Active medium
- Three level and Four level Laser systems
- Semiconductor Laser, Laser beam Characteristics
- Applications of Laser, Holography (qualitative study only)

Books for Reference

1. Optics by N.Subramanayam, Brijlal, M.N.Avadhanulu-Chapter 14, 15, 17,18, , and 19
2. Optics by N.Subramanayam, Brijlal, M.N.Avadhanulu-Chapter 20, 22 and 23. 30

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

Physiotherapy methods-I

SECTION A

- I. Principle of therapeutic exercises
 - II. Definition, details of effects and uses of following exercises.
 - a. Dynamic Exercises
 - b. Plyometric Exercises
 - c. Isokinetic Exercises
 - e. Kinetic chain exercises
- PRE
- III. Stretching
 - IV. Balance and coordination exercises
 - V. Factors affecting the joint range of motion prevention of stiffness, methods of Joint mobilization.
 - VI. Biophysics of contractile and non contractile tissues, Response to mechanical loading
 - VII. Clinical reasoning and differential clinical diagnosis based on various approaches such as Maitland, Kaltenborne, Cyriax, Mulligan, Meckenzie etc

SECTION B

- I. Principles and application of neuromuscular facilitation techniques including PNF
- II. Principles of different soft tissue mobilizations like Myofacial Techniques,
- III. Neural Tissue Mobilization
- IV. Muscle Energy Technique
- V. **Massage**
 - i. Historical development.
 - ii. Definition and classification of massage techniques
 - iii. Physiological effects of massage.
 - iv. Description of the techniques of the classical massage.
 - v. Physiological basis of massage, underwater massage, mechanical devices of massage
 - vi. Therapeutic applications and contraindications of massage.
- VI. Aquatic therapy

Books suggested

1. Sinha A.G.: Principle and Practices of Therapeutic Massage – Jaypee Brothers, New Delhi
2. Gardiner M. Dena: The Principles of Exercise Therapy - CBS Publishers, Delhi.
3. Kisner and Colby: Therapeutic Exercises – Foundations and Techniques, F.A. Davis.
4. Basmajian John V.: Therapeutic Exercise, Williams & Wilkins.
5. Thomson et al - Tidy's Physiotherapy: Butterworth – Heinmann.
6. Wood & Baker: Beard's Massage, W.B. Saunders.
7. Kendall: Muscles – Testing and Function - Williams & Wilkins
8. Daniels and Worthinghams: Muscle Testing – Techniques of Manual Examination, W.B. Saunders.
9. First Aid to Injured: St. John's Ambulance Association.
10. William E. Prentice: Rehabilitation Techniques - Mosby.
11. Werner Kuprian: Physical Therapy for Sports, W.B. Saunders.
12. Norkin & White: Measurement of Joint Motion – A Guide to Goniometry - F.A. Davis.
13. Andrea Bates and Norm Hanson: Aquatic Exercise Therapy, W.B. Saunders.
14. Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B. Saunders.
15. Hartley: Practical Joint Assessment, A Sports Medicine Manual, upper and lower quadrants, C.V. Mosby.
16. Kennedy: Mosby's Sports Therapy Taping Guide.
17. Malone: Orthopedic and Sports Physical Therapy, C.V. Mosby.
18. Albert: Eccentric Muscle Training in Sports and Orthopedics, W.B. Saunders.
19. Voss et al - Proprioceptive Neuromuscular Facilitation - Patterns & Techniques - Williams & Wilkins.

Physiotherapy Methods II

SECTION A

- I. Electro diagnosis: introduction to methods of electro diagnosis SD CURVE
- II. Electro myography : technique of EMG , interpretation of normal and abnormal responses
- III. Nerve conduction studies: MNCV, SNCV, variables affecting nerve conduction, measurement of NCV of nerves of upper limb and lower limb, interpretations of normal and abnormal responses.
- IV. Evoked potentials, H-reflex, P wave, repetitive nerve stimulation, VEP, BAEP, SSEP.
- V. Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of:
 - i. Superficial heating modalities
 - ii. Deep heating modalities
 - iii. Ultrasound
 - iv. Cryotherapy

SECTION B

- I. Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of Physiotherapy
 - i. Low Frequency Current: Diadynamic Current, Iontophoresis
 - ii. High Voltage, Pulsed Galvanic Stimulation , TENS, IFT, Russian Currents. LASER
- II. Advanced Electro Therapeutics in Tissue healing, Wound care, Management of Scars keloids, Muscle Plasticity & Integumentary Conditions.
- III. BIO-FEED BACK

Books suggested

2. William E. Prentice: Therapeutic Modalities in Sports Medicine - Mosby.
3. William E. Prentice: Rehabilitation Techniques - Mosby.
4. O' Sullivan, Schmitz: Physical Rehabilitation – Assessment and Treatment - F.A. Davis.
5. John Low & Reed: Electrotherapy Explained, Butterworth.
6. Meryl Roth Gersh: Electrotherapy in Rehabilitation, FA Davis.
7. Joseph Kahn: Principles and Practice of Electrotherapy, Churchill Livingstone.
8. Claytons Electrotherapy 10th Ed. - Sarah & Bazin - W.B. Saunders.
9. Harrelson and Andrews: Physical Rehabilitation of Injured Athlete.
10. Nelson and Currier: Clinical Electrotherapy, Prentice Hall.
11. Greenman: Principles of Manual medicine, William and Wilkins.
12. Kuprian: Physical Therapy for Sports, W.B. Saunders.
13. Bates: Aquatic Exercise Therapy, W.B. Saunders.
14. Michlovitz - Thermal agents in Rehabilitation - F.A. Davis.
15. Lehmann - Therapeutic Heat and Cold - Williams & Wilkins.

Paper Code: MPT 104
Research Methodology and Biostatistics

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A – Basics concepts:

- I. Research –Introduction, scope, characteristics, types, clinical trials and ethics.
- II. Research methods—various methods.
- III. Census and survey methods of investigation.
- IV. Hypothesis—Advantages and types.
- V. Sample - Introduction and types of sampling.
- VI. Sample size determination (according to study design)
- VII. Methods of Data Collection
 - i. Schedule –Introduction, types, procedure of forming schedule and limitations.
 - ii. Questionnaire – Introduction, types, reliability and limitations.
 - iii. Interview -- Introduction, types, technique and limitations.
 - iv. Observation – Introduction, organization of field observations and limitations.
 - v. Preparation of report – Introduction, developing outline, writing, references and bibliography.
 - vi.

SECTION B– Concepts of Biostatistics:

- I. Biostatistics –Introduction, origin &development, scope, functions and limitations
- II. Presentation of data—Classification, tabulation, diagrammatic and graphical presentation of data.
- III. Central tendencies – Mean, Mode and Median
- IV. Measures of dispersion – Standard deviation and standard errors.
- V. Skewness and kurtosis.
- VI. Odd Ratios, Receiver Operating Curve (ROC)
- VII. Probability
- VIII. Statistical Tools
 - i. Correlation and regression
 - ii. Parametric tests
 - iii. Non-parametric tests

Books Suggested

1. Bailey, N.T.J. -Statistical methods in Biology. The English universities press, London
2. Bajpai, S.R.- Methods of Social Survey and Research, Kitab Ghar, Kanpur.
3. Colton - Statistics in medicine, Little Brown Company, Boston
4. Gupta, S.P -Statistical methods. Sultan Chand and Sons Publishers , New Delhi.
5. Goulden C.H.- Methods of Statistical Analysis. Asia Publishing House , New Delhi.
6. Mohsin S.M.- Research Methods in Behavioral Sciences: Orient Publications. New Delhi.
7. Mahajan - Methods in Biostatistics, Jay Pee Brothers.Medical Publishers (P) Ltd. New Delhi.
8. Hicks- Research for Physiotherapists, Churchill Livingstone, London.
9. Meenakshi. - First Course in Methodology of Research. Kalia Prakashan, Patiala.
10. Kumar , R.- Research Methodology. Pearson Education , Australia.
11. Snedecor,G.W -Statistical Methods, Allied Pacific Pvt. Ltd., London
12. Singh, I.- Elementary Statistics for Medical Workers. Jaypee Brothers Medical Publishers (P) Ltd. New Delhi.

Paper Code: MPT 105
Basics of Exercise Physiology & Nutrition

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

I. Bioenergetics of exercise : High energy phosphates, Anaerobic and aerobic ATP synthesis, Bioenergetics Control, exercise intensity & substrate utilization, protecting CHO stores, muscle adaptation to endurance training, processes that potentially limit the rate of fat oxidation, regulation of substrate utilization, training - induced increase in FFA oxidization:

II. Basal metabolic and resting metabolic rates and factors affecting them, Classification of Physical Activities by energy expenditure,. Concept of MET , measurement of energy cost of exercise

III. Nutrition

- i. metabolism of Carbohydrate , fats and proteins , vitamin, mineral and water

IV. Nutrition in exercise

- ii. optimum nutrition for exercise , nutrition for physical performance , pre game meal
- iii. carbohydrate loading , food for various athletic events , fluid and energy replacement in prolonged exercise

SECTION B

I. Respiratory responses to exercise: Ventilation at Rest and during Exercise., Ventilation and the Anaerobic Threshold, static and dynamic lung volume . Gas diffusion, Oxygen and carbon dioxide transport second wind , stitch by side control of pulmonary ventilation during exercise adaptive changes in the respiratory systems due to regular physical activities .

II. Cardiovascular responses to exercise- Cardiovascular system and exercise, acute vascular effects of exercise , Circulatory responses to various types of exercise regulation of cardiovascular system during exercise , Pattern of redistribution of

blood flow during exercise, adaptive responses of cardiovascular system to aerobic and anaerobic training. Athlete heart

III. Exercise and Acid Base Balance:

Acid and Bases, Buffers, pH, Respiratory Regulation of pH, Alkali Reserve, The kidneys and Acid base balance, Alkalosis and Acidosis, Acid base balance following heavy exercise.

IV. Hormonal responses to exercise with respect to

Growth Hormone (GH), Thyroid and Parathroid Hormones. Anti diuretic Hormone (ADH) and Aldosterone, Insulin and Glucagons, The catecholamine; epinephrine and norepinephrine. The sex hormones. The glucocorticoids (Cortisol) and AdrenoCorticotrophic Hormones (ACTH). Prostaglandins and Endorphins:

Books suggested

1. Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000).
2. Fundamentals of Exercise Physiology: For Fitness Performance and Health, Robergs RA, and Roberts, S.O. McGraw Hill (2000)
3. Exercise Physiology: Powers, SK and Howley ET. 4th edn; Mc Graw Hill (2001)
4. Physiology of Sport and Exercise: Wilmore, JH and Costil, DL. Human Kinetics (1994)
5. Exercise Physiology- Human Bioenergetics and its Application: Brooks, GA, Fahey, TD, White, TP. Mayfield Publishing Company (1996)
6. Komi, P. (Ed.) (1992) Strength and power in sport. Blackwell Scientific Publications.
7. Levick, J.R. (1998) An introduction to Cardiovascular Physiology. 2nd ed. Butterworth Heinemann
8. McArdle, WD, Katch, FI & Katch, VL (2001) Exercise Physiology. 5th ed. Lippincott, Williams & Wilkins.
9. Shephard and Astrand (1996) Endurance in sport. Blackwell Scientific Publications.
10. Willmore, JH & Costill, DL (1999) Physiology of Sport and Exercise. 2nd ed. Human Kinetics.
11. Guyton, A.C. Textbook of Medical Physiology (7th Ed.). Philadelphia: Saunders, 1986, pp. 382-386, 472-476.
12. Perspectives in Nutrition (6th ed.) by Wardlaw
13. Nutrition for sport and exercise (2nd ed.) by Berning and Steen

Paper Code: MPT 106 A

**Assessment and Evaluation in Neuro-physiotherapy &
PHYSIOTHERAPY IN PAEDIATRIC NEUROLOGY**

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

Assessment and Evaluation in Neuro-physiotherapy

SECTION A – Physical Therapy Assessment Procedures Used In Neurological Conditions:

- I. Neurological assessment, evaluation and correlation of findings with neurological dysfunction
 - a) History taking and examination of neurologically ill patient
 - b) Higher cerebral function examination,
 - c) Cognitive and perceptual assessment,
 - d) Cranial nerves examination
 - e) Motor System Assessment - Tone, voluntary movement control & abnormal involuntary movement,
 - f) Assessment of reflex integrity
 - g) Assessment of gait (kinetic & kinematic)
 - h) Sensory system assessment and examination
- II. Balance and Co-ordination
Assessment evaluation of following and correlation of findings with neurological dysfunction
 - a) Balance, equilibrium and Coordination assessment.
 - b) Assessment of Autonomic nervous system function.
 - c) Vestibular Examination
 - d) Assessment of unconscious patient.

SECTION B- Neurological Assessment scales and measurement tools

- I. Functional Assessment scales: Barthel index, Katz Index of ADL, FIM Scale, Sickness Impact Profile, Outcome & Assessment Information Set (OASIS).IADL.
- II. Functional balance and coordination scales: functional reach test, Timed up and go test, Get up and go test, Berg balance Scale, CTSIB, Scales used in ataxia
- III. Rehabilitation Outcome measure scales: Quality of life Measures, Scales used in Assessment of elderly.
- IV. Advanced Neurological Assessment Procedures:
 - i. **Disease Specific Measurements scales and tools:** Clinical Stroke scales, Scales used in spinal cord injury, Scales for the assessment of movement disorders, Multiple sclerosis, Scales for assessment of Brain injury And Cognitive scales,
 - ii. **Laboratory Examination** related to Neurological Disorders: Lumbar puncture & CSF Analysis
 - iii. **Neuro-dynamic tests.**
 - a. Slump test
 - b. SLR
 - c. ULTT

Books suggested

1. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
2. Neurological Rehabilitation - Umpherd - Mosby.
3. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
4. Paediatric Physical Therapy - Teckling - Lippincott
5. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
6. Brain's Disease of the Nervous System - Nalton - ELBS.
7. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
8. Principles of Neurology - Victor - McGraw Hill International edition.
9. Examination in Neurology examination- Dejong.
10. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
11. Neurological Assessment-Blicker staff.
12. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone
13. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.

PHYSIOTHERAPY IN PAEDIATRIC NEUROLOGY

SECTION –A

- I. Pre & post-natal Development sequence of normal child.
- II. Developmental milestones, Neonatal reflexes, various periods of growth,
- III. General assessment of child
- IV. Treatment techniques: NDT approach, Roods approach, Vojta techniques,
- V. Early identification and intervention Important Screening Tests.
 - i. Developmental Screening Tests.
 - ii. Tests of motor function.
- VI. Nutrition and Immunization: Normal nutritional requirements of a child, Prevention of some nutritional disorders, Nutritional deficiency diseases, Immunization.
- VII. High risk infants, risk factors, neonatal assessment, developmental intervention, ICU, NICU & IMC Care.

SECTION –B

- I. Cerebral Palsy: types, etiology, clinical features, management and rehabilitation of various types of cerebral palsies various approaches used in C.P.
- II. Physiotherapy in Neurological affection of childhood: poliomyelitis, spina bifida, hydrocephalus, meningitis, encephalitis, inflammatory disorders of brain and spinal cord, birth injuries of brachial plexus
- III. Physiotherapy in Muscular Disorders:
 - a. myopathies of childhood,
 - b. types of muscular dystrophies,
 - c. floppy muscular dystrophy;
- IV. Role of Physiotherapy in Genetic Disorders:
 - a. Down syndrome,
 - b. Fragile X Syndrome,
 - c. Rett's Syndrome,
 - d. Spinal Muscular Atrophy

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
3. Neurological Rehabilitation - Umpherd - Mosby.
4. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
5. Paediatric Physical Therapy - Teckling - Lippmcott
6. Treatment of Cerebral Palsy and Motor Delay - Levins - Blackwell Scientific Publications London.
7. Physiotherapy in Paediatrics – Shepherd – Butterworth Heinmann
8. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
9. Brain's Disease of the Nervous System - Nalton - ELBS.

10. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
11. Principles of Neurology - Victor - McGraw Hill International edition.
12. Physical Medicine & Rehabilitation-Susan Sullivan
13. Neurological Rehabilitation-Illus
14. Physical Medicine & Rehabilitation-Delsore
15. Assessment in Neurology-Dejong.
16. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
17. Neurological Assessment-Blicker staff
18. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone
19. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.

Paper Code: MPT 106 B
**ASSESSMENT AND EVALUATION IN MUSCULOSKELETAL
PHYSIOTHERAPY & PHYSIOTHERAPY IN NON-TRAUMATIC
ORTHOPAEDIC CONDITIONS**

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

Section A—Introduction of Assessment Techniques

- I. Physiotherapeutic assessment, evaluation and clinical reasoning in orthopedics
Introduction to various concepts of physical assessment
 - i. Maitland
 - ii. James
 - iii. Cyriax
- II. Overview of various investigatory procedures (Hematology and Serology, imaging techniques, arthroscopy, BMD)
- III. Assessment of Amputee
- IV. Examination and assessment of geriatric patient
- V. Functional Assessment
- VI. Examination of Upper Extremity
 - i. Shoulder
 - ii. Elbow
 - iii. Forearm,
 - iv. Wrist and Hand
 - v.

Section B-- Examination of lower extremity & Examination of Spine

- I. Pelvis
- II. Hip
- III. Knee
- IV. Lower Leg, Ankle and Foot
- V. Head and Face
- VI. Cervical spine
- VII. Thoracic Spine
- VIII. Lumbar Spine

Books suggested

1. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
2. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Jaypee brothers
3. Physical therapy of shoulder, Robert A Donatelli, Churchill Livingston
4. Orthopaedic Physical Assessment David J Magee, Saunders
5. Manual Examination and Treatment of the Spine and Extremities , Carolyn Wadsworth, Williams and Wilkins.
6. Illustrated Orthopaedic physical Assessment , Ronald C Evans , Mosby.
7. Physical Examination of the Spine and Extrimities , Stenley, Lipenfield.
8. Clinical Orthopaedic Examination , Mc Rae, Churchill Livingstone.

SECTION A

General Orthopedics

- I. Infections in bones and joints:- Acute, Chronic
- II. Rheumatic disorders
- III. Generalized affections of bone and joints (metabolic & endocrinal)
- IV. Development disorders. (cartilaginous dysplasis, bony dysplasis & chromosomal abnormalities etc.)
- V. Congenital disorders
- VI. Degenerative disorders
- VII. Tumors of bones
- VIII. Osteonecrosis and Osteochondritis
- IX. Bony & Soft Tissue disorders of:-
 - i. Shoulder and arm
 - ii. Elbow and forearm
 - iii. Wrist and hand

SECTION B

- I. Bony & Soft Tissue disorders of:
 - i. Hip and thigh
 - ii. Knee and leg
 - iii. Ankle and foot
- II. Vascular and Neuromuscular Disorders.
 - i. Thoracic outlet/ inlet syndrome
 - ii. Compartment syndrome.
 - iii. Neuropathies,
 - iv. Neuralgia , Neuritis
 - v. Reflex Sympathetic Dystrophy
 - vi. Poliomyelitis,

Books suggested

1. Turek's Orthopaedics: Principles and their Application , Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopaedics and Fractures , Louis Solomon , Arnold publishers.
3. Textbook of Orthopaedics, Adams: Churchill Livingstone
4. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
5. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons ,Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
9. Pain Series Rene Calliet., Japee Brothers.
10. Physical therapy of shoulder, Robert A Donatelli, Churchill Livingstone
11. Geriatric physiotherapy Guccione AA, Mosby.
12. Hand practice , Principle and Practice, Mauren Salter, Butterworth Heinemann.
13. Essentials of Orthopaedics and Applied Physiotherapy , Jayant Joshi,prakash Kotwal; Churchill Livingstone
14. Essential Orthopaedics , J Maheshwari, Mehta Publishers.
15. Practical Orthopaedic Medicine , Brain Corrigan, Butterworth.
16. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.

Paper Code: MPT 106 C
Sports Traumatology I & Sports Traumatology 2

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

Sports Traumatology I

SECTION A-Assessment and evaluation in Sports Injuries

- I. Importance of assessment & evaluation
- II. Outlines of principles and Methods of evaluation
- III. Clinical Examination , Investigative Procedures and documentation of sports injuries
- IV. Causes & Mechanism of Sports Injuries
- V. Prevention of Sports injuries
- VI. Principle of management of sports injuries
- VII. Evaluation of Physical Fitness
 - i. Assessment of components of physical fitness including functional tests: muscle strength, flexibility, agility, balance, co-ordination, sensory deficits, cardio-pulmonary endurance
 - ii. Sports-Specific evaluation and criteria for return to sport

SECTION B - Lower Limb & Upper limb Examination

- I. Examination of lower limb
- II. Common acute and overuse injuries of lower Extremity(with respect to causation, prevention and management) of:
 - i. Pelvis
 - ii. Hip
 - iii. Thigh
 - iv. Knee
 - v. Leg
 - vi. Ankle and Foot
- III. Examination of Upper Extremity
- IV. Common acute and overuse injuries of upper extremities (with respect to causation, prevention and management) of:
 - i. Shoulder girdle
 - ii. Shoulder

- iii. Arm
- iv. Elbow & Forearm
- v. Wrist and hand.

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
Vol. II The Lower Extremity and Spine in Sports Medicine.
Vol. III The Lower Extremity and Spine in Sports Medicine.
Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur.
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment, Dunitz.

Sports Traumatology 2

SECTION A

- I. Assessment of vertebral column:
 1. Cervical
 2. Thoracic
 3. Lumbosacral including Tests of Neural Tension.
- II. Common sports injuries of spine with respect to causation, prevention and management
- III. Sporting emergencies & first aid
 2. Head and neck
 3. Face
 4. Abdominal injuries
- IV. Cardio pulmonary Resuscitation; Shock management, Internal and External Bleeding, Splinting, Stretcher use-Handling and transfer
- V. Management of Cardiac Arrest, acute asthma, epilepsy, drowning, burn
- VI. Medical management of Mass Participation
- VII. Heat stroke and Heat illness.

SECTION B

- I. Kinanthropometric evaluation
- II. Kinesiological EMG
- III. Sports specific injuries, with special emphasis on the specific risk factor, nature of Sports, kind of medical intervention anticipated and prevention with respect to various sporting events
 1. Individual events: Field & Track
 2. Team events: Hockey, Cricket, and Football
 3. Contact and Non-contact sports
 4. Water sports

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
 - a. Vol. II The Lower Extremity and Spine in Sports Medicine.
 - b. Vol. III The Lower Extremity and Spine in Sports Medicine.
 - c. Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur.
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renström: Sports Injuries – Their prevention and treatment, Dunitz.

MPT 2ND YEAR

PAPER CODE: MPT 201

BIOENGINEERING AND REHABILITATION PRINCIPLES

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

- I. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation. International classification of functioning
- II. Epidemiology of disability with emphasis on locomotor disability, impact of disability on individual, family, and society.
- III. Preventive aspects of disability and organizational skills to run disability services
- IV. **Model of service delivery** : feature , merits and demerits of institutional based rehabilitation , out reach programmes, Community based rehabilitation
- V. **Legal Aspect in Disabilities**: PWD act , national trust act , RCI act, Statutory provisions Schemes of assistance to persons with disabilities
- VI. Govt and NGO participation in disability RCI
- VII. **Principles of Orthotics**- types, indications, contra indications, assessment (check out), uses and fitting –region wise.
 - i. Orthotics for the Upper Limb
 - ii. Orthotics for the Lower Limb
 - iii. Orthotics for the Spine
- VIII. **Principles of prostheses**- types, indications, contra indications, assessment (check out), uses and fitting –region wise.

SECTION B

- I. An outline of principles and methods of rehabilitation of speech and hearing disability
- II. An outline of principles and methods of vocational and social rehabilitation
- III. An outline of principles and methods of rehabilitation of mentally handicapped
- IV. An outline of principles , methods and scope occupational therapy
- V. Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions.
- VI. An outline of the principles and process of disability evaluation

PAPER CODE: MPT 202(A)
Applied Exercise Physiology

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

I. Training and conditioning

Physiological basis of physical training , training principles , interval training , continues running concept of anaerobic threshold and vo2 max , physiological effects of various physical training methods,- aerobic and anaerobic training , strength training factors influencing training effects – intensity, frequency , duration , detraining, , process of recovery , post exercise oxygen consumption factors affecting recovery process , overtraining

II. Body temperature regulation during exercise

Mechanism of regulation of body temperature , Body temperature responses during exercise, Physiological responses to exercise in the heat , Acclimatization to exercise in the heat , Effects of age and gender on body temperature regulation during exercise, Physical activity and heat illness[heat exhaustion, dehydration exhaustion heat cramps & heat stroke]
Prevention of Heat Disorders

III. Exercise in the Cold

Effects of exposure to cold and severe cold , Wind chill, Temperature receptors., Role of hypothalamus , shivering , Frost Bite and other problems, Clothing and Environment

SECTION- B

I. Exercise at Altitude

Exercise at altitude immediate physiological responses at high altitude , physiological basis of altitude training , phases of altitude training and specific training effects , altitude acclimatization , oxygen dissociation curve at altitude , disorders associated with altitude training

II. Exercise and body fluids

Measurement and regulation of body fluids, Body fluid responses and adaptations to exercise, Effects of dehydration and fluid replenishment on physiological responses to exercise and performance Fluid/carbohydrate replacement beverages

III. Physical activity, body composition, energy balance and weight control

Significance and measurement of body composition, Body composition during growth and aging, Body composition and physical performance, Effect of diet and exercise on body composition, Physical activity, energy balance, nutrient balance and weight control, Physical activity, fat distribution and the metabolic syndrome , Healthy weight loss, Ways and methods of weight reduction , fluid maintenance, disordered eating, nutritional ergogenic aids, diet supplements in athletes and others involved in physical activity.

IV. Exercise and Diabetes Mellitus

Exercise in insulin, requiring diabetes and non-insulin dependent diabetes mellitus, Effect of physical training on glucose tolerance and insulin sensitivity, Management of diabetes by diet and insulin

Books suggested

1. Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000).
2. Fundamentals of Exercise Physiology: For Fitness Performance and Health, Robergs RA, and Roberts, S.O. McGraw Hill (2000)
3. Exercise Physiology: Powers, SK and Howley ET. 4th edn; Mc Graw Hill (2001)
4. Physiology of Sport and Exercise: Wilmore, JH and Costil, DL. Human Kinetics (1994)
5. Exercise Physiology- Human Bioenergetics and its Application: Brooks, GA, Fahey, TD, White, TP. Mayfield Publishing Company (1996)
6. Komi, P. (Ed.) (1992) Strength and power in sport. Blackwell Scientific Publications.

PAPER CODE: MPT 202(B)
DISASTER MANAGEMENT

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

UNIT I:

- Definition and types of disaster Hazards and Disasters,
- Risk and Vulnerability in Disasters, Natural and Man-made disasters, earthquakes, floods drought, landside, land subsidence, cyclones, volcanoes, tsunami, avalanches, global climate extremes.
- Man-made disasters: Terrorism, gas and radiations leaks, toxic waste disposal, oil spills, forest fires.

Unit: II

- Study of Important disasters
- Earthquakes and its types, magnitude and intensity, seismic zones of India, major fault systems of India plate, flood types and its management, drought types and its management, landside and its managements case studies of disasters in Sikkim (e.g Earthquakes, Landside).
- Social Economics and Environmental impact of disasters.

Unit: III

- Mitigation and Management techniques of Disaster Basic principles of disasters management, Disaster Management cycle, Disaster management policy.
- National and State Bodies for Disaster Management, Early Warning Systems, Building design
- construction in highly seismic zones, retrofitting of buildings. 4

Unit IV

- Training, awareness program and project on disaster management
- Training and drills for disaster preparedness, Awareness generation program
- Usages of GIS and Remote sensing techniques in disaster management,

UNIT V:

- Mini project on disaster risk assessment
- preparedness for disasters with reference to disasters in Sikkim and its surrounding areas.

REFERENCES :

Text Books:

1. Disaster Management Guidelines, GOI-UND Disaster Risk Program (2009-2012)
2. Damon, P. Copola, (2006) Introduction to International Disaster Management, Butterworth Heineman.
3. Gupta A.K., Niar S.S and Chatterjee S. (2013) Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.
4. Murthy D.B.N. (2012) Disaster Management, Deep and Deep Publication PVT. Ltd. New Del

SPECILIZATION IN NEURO PHYSIOTHERAPY

PAPER CODE: MPT 203A

PHYSIOTHERAPY & REHABILITATION IN NEUROLOGICAL DISORDERS –I

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

I. Cerebral Trauma (Head and Brain Injury)

Epidemiology, Pathophysiologies, Symptoms, Signs, Investigation, Management, Pre and Post Operative Physiotherapy, Complications.

1. Closed skull Fractures.
2. Haematomas: Epidural, Sub Dural, Intracerebral
3. Open cranio-cerebral injuries
4. Reconstruction operation in head injuries

II. Stupor and Coma

- 1.The Neural basis of consciousness.
- 2.Lesions responsible for Stupor and Coma
- 3.The assessment and Investigation of the unconscious patient.
- 4.The Management of the Unconscious patient.

III. Disorders of the Cerebral Circulation - Stroke :

1. Epidemiology of the stroke and TIA
2. Causes,types and pathophysiology
3. Clinical features & investigations
4. Treatment of different type of stroke
5. Recovery & rehabilitation
6. Stroke prevention

IV. Neoplastic lesion

1. Intracranial Tumors
2. Cerebral Hemisphere
3. Tumors from related structures, Meninges, Cranial Nerves.
4. cerebellar

SECTION-B

I. Infections

- 1 Meningitis
- 2 Encephalitis
- 3 Brain abscess
- 4 Neuro Syphilis(Tabes dorsalis)
- 5 Herpes Simplex
- 6 Chorea
- 7 Tuberculosis
- 8 Chronic fatigue syndrome
- 9 AIDS

II. Cerebrovascular Diseases

- a. Intracranial Aneurysm
- b. Spontaneous Subdural
- c. Extradural Haemorrhage
- d. intracerebral Haemorrhage
- e. Subarachnoid haemorrhage
- f. AV Malformations

III. Demyelinating Diseases of the Nervous system:

1. Classification of Demyelinating Diseases
2. Multiple Sclerosis.
3. Diffuse Sclerosis

IV. Movement disorders

1. Akinetic-rigidity Syndromes disorder and other extra Pyramidal Syndromes
2. Dyskinetic disorders

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shepherd -Butter worth Heinmann.
4. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill

- Livingstone.
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - - Churchill Livingstone.
 6. Neurological Rehabilitation - Umpherd - Mosby.
 7. Geriatric Physical Therapy - Gucciona - Mosby.
 8. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
 9. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
 10. Motor Relearning Programme for stroke-carr&Shepherd
 11. Right in the Middle-Patricia M.Davies-Springer
 12. Brain's Disease of the Nervous System - Nalton - ELBS.
 13. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
 14. Principles of Neurology - Victor - McGraw Hill International edition.
 15. Davidson's Principles and practices of medicine - Edward – Churchill Livingstone.
 16. Physical Medicine & Rehabilitation-Susan Sullivan
 17. Neurological Rehabilitation-Illus
 18. Physical Medicine & Rehabilitation-Delsore
 19. Assessment in Neurology-Dejong.
 20. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
 21. Neurological Assessment-Blicker staff.
 22. Steps to follow-PATRICIA M.DAVIES-Springer.
 23. Muscle Energy Techniques-Chaitow-Churchill Living Stone.
 24. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone.
 25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone.
 26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall..
 27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers.
 28. A Short textbook ofPsychiatry_ Ahuja Niraj - Jaypee Brothers.

PAPER CODE: MPT 204 A
PHYSIOTHERAPY AND REHABILITATION IN NEUROLOGICAL
DISORDERS –II

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION-A

I. Degenerative Diseases of the Spinal cord and Cauda Equina

1. Ataxia (sensory)
2. Motor Neuron Disease
3. Spinal Muscular Atrophy
4. Spino-cerebellar Degeneration(Friedreich's Ataxia)
5. Transverse Myelitis

II. Disorders / rehabilitation of the spinal cord & cauda equina

1. Acute Traumatic injuries of the spinal cord
2. Slow progressive compression of the spinal cord
3. Syringomyelia
4. Ischaemia and infection of the Spinal Cord (Transverse myelitis) and Cauda Equina
5. Tumors of Spinal Cord
6. Surges surgical management in Spinal Cord

IV. Disorders of peripheral nerves:

1. Peripheral neuropathies and peripheral nerve lesions
2. Clinical diagnosis of peripheral neuropathy
3. All types of levels of peripheral neuropathies and brachial plexus lesions
4. Causalgia
5. Reflex sympathetic dystrophy
6. Traumatic, Compressive and Ischaemic neuropathy
7. Spinal Radiculitis and Radiculopathy
8. Hereditary motor and sensory neuropathy
9. Acute idiopathic polyneuritis
10. Neuropathy due to infections
11. Vasculomotor neuropathy
12. Neuropathy due to Systemic Medical Disorders

13. Drug induced neuropathy
14. Metal poisoning, Chemical neuropathies
15. Polyneuropathies: Acute, Subacute and Chronic level polyneuropathy
16. Surgeries on peripheral Nerves

SECTION-B

I. Disorders of muscles:

1. Muscular dystrophies of adulthood
2. The Myotonic disorders
3. Inflammatory disorders of muscle
4. Myasthenia gravis
5. Endocrine and metabolic myopathies
6. Duchenne muscular dystrophy
7. Progressive muscular dystrophy.

II. Deficiency & Nutritional Disorders

1. Deficiency of vitamins & related disorders
2. Other nutritional neuropathies

III. Disorders of Autonomic nervous system:

1. Bladder and Bowel dysfunction,
2. Orthostatic hypotension
3. Autonomic dysreflexia
4. Autonomic Neuropathy.

IV. Nervous system aging effects and Geriatric neurological disorders

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P. Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shepherd - Butterworth Heinmann.
4. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill Livingstone
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
6. Neurological Rehabilitation - Umphred - Mosby.
7. Geriatric Physical Therapy - Gucciona - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia - Sawner & La Vigne - Lippincott
9. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
10. Motor Relearning Programme for stroke - Carr & Shepherd
11. Right in the Middle - Patricia M. Davies - Springer
12. Brain's Disease of the Nervous System - Nalton - ELBS.
13. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
14. Principles of Neurology - Victor - McGraw Hill International edition.
15. Davidson's Principles and practices of medicine - Edward - Churchill Livingstone.
16. Physical Medicine & Rehabilitation - Susan Sullivan

17. Neurological Rehabilitation-Illus
18. Physical Medicine & Rehabilitation-Delsore
19. Assessment in Neurology-Dejong.
20. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
21. Neurological Assessment-Blicker staff.
22. Steps to follow-PATRICIA M.DAVIES-Springer
23. Muscle Energy Techniques-Chaitow-Churchill Living Stone
24. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone
25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone
26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers
28. A Short textbook of Psychiatry_ Ahuja Niraj - Jaypee Brothers.

PAPER CODE: MPT 205 A
CURRENT CONCEPTS IN NEURO PHYSIOTHERAPY

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION – A : Rehabilitation And Therapeutic Exercises:

- I. Treatment planning process:
 1. Classification of treatment techniques based on current concepts & approaches.
 2. All types of strengthening techniques.
 3. Overview of Neurological Impairments and their treatment, with emphasis on recording and documentation.
- II. Therapeutic exercises used in neurological disorders.
- III. Neuromuscular Training
 - i. Methods For Optimizing Neuromuscular & Postural Control : Proprioception Training And Kinesthetic Training (Sensory Integration),
 - ii. Problem Solving Approach,
 - iii. Motor Control ,
 - iv. Clinical Decision Making And Clinical Reasoning,
 - v. Evidence Based Practice.

SECTION-B: Advanced Neuro-therapeutic techniques:

- I. Muscle Energy Techniques (MET) Reflexology,
- II. Cranio-sacral therapy,
- III. Motor learning Theories – Concept, Therapeutic, Positional.
- IV. Myofacial release techniques
- V. Biofeedback,
- VI. Nerve mobilization (Concept): Butler concept.
- VII. Management of pain and Spasticity and paralysis in neurological disorders
- VIII. Special Neurological Approaches and Their Concept:
 - i. Neurodevelopmental Approach,
 - ii. Brunnstrom Approach,
 - iii. PNF Approach,

- iv. MRP and Inhibition & facilitation techniques.
- v. Modified CIMT.
- vi. Electrotherapy in Neurological disorders.

Books suggested

1. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
2. Neurological Rehabilitation - Carr & Shepherd - Butterworth Heinmann.
3. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill Livingstone.
4. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
5. Neurological Rehabilitation - Umphred - Mosby.
6. Geriatric Physical Therapy - Gucciona - Mosby.
7. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
8. Paediatric Physical Therapy - Teckling - Lippincott
9. Treatment of Cerebral Palsy and Motor Delay - Levins - Blackwell Scientific Publications London.
10. Physiotherapy in Paediatrics – Shepherd – Butterworth Heinmann
11. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
12. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
13. Motor Relearning Programme for stroke-carr&Shepherd
14. Right in the Middle-Patricia M.Davies-Springer
15. Physical Medicine & Rehabilitation-Susan Sullivan
16. Neurological Rehabilitation-Illus
17. Physical Medicine & Rehabilitation-Delsore
18. Differential Diagnosis-John Pattern Neurology in Clinical Practice – Bradley&Daroff
19. Steps to follow-PATRICIA M.DAVIES-Springer
20. Muscle Energy Techniques-Chaitow-Churchill Living Stone
21. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone

SPECILIZATION IN ORTHO PHYSIOTHERAPY

PAPER CODE: MPT 203B

PHYSIOTHERAPY IN TRAUMATIC ORTHOPAEDIC CONDITIONS

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

The dissertation work of 200 marks will be allotted in the Third Semester and topic for the same will be given after the second Semester. Viva-Voce Examination for the dissertation work and Practical Examination for Clinical Skills and Reasoning will be conducted at end of the fourth semester.

SECTION A

- I. Fracture and soft tissue injuries of upper limb
 - i. Shoulder and arm
 - ii. Elbow and forearm
 - iii. Wrist and hand

- II. Fracture and soft tissue injuries of lower limb
 - i. Pelvis
 - ii. Hip and thigh
 - iii. Knee and leg
 - iv. Ankle and foot

SECTION B

- I. Method of different types of some common surgeries and its rehabilitation.
 - i. Menisectomy
 - ii. Patellectomy
 - iii. Arthroplasties :-Shoulder, Elbow, Hip, Knee Arthroplasty.
 - iv. Arthrodesis :- triple arthrodesis, Hip, Knee, Shoulder Elbow arthrodesis, Spinal Fusion
 - v. Osteotomies
 - vi. Bone grafting, Bone Lengthening
 - vii. Tendon transfers
 - viii. Soft Tissue release
 - ix. Nerve Repair and grafting etc.

II. Burns

III. Amputation

- i. Types, Levels & procedures
- ii. Pre and post operative rehabilitation.
- iii. Prosthesis and stump care.
- iv. Limb transplantation Surgery

Books suggested

1. Turek's Orthopedics: Principles and their Application , Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopedics and Fractures , Louis Solomon , Arnold publishers.
3. Textbook of Orthopedics for Fractures, Adams: Churchill Livingstone
4. Clinical Orthopedic Rehabilitation, Brent Brotzman.
5. Orthopedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons ,Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopedics, John Ebnezar, Japee Brothers.
9. Treatment and Rehabilitation of fractures,S Hoppenfield, Vasantha LM;Lippincott William and Wilkins.
10. Hand practice , Principle and Practice, Mauren Salter, Butterworth Heinemann.
11. Essentials of Orthopaedics and Applied Physiotherapy , Jayant Joshi,prakash Kotwal; Churchill Livingstone
12. Essential Orthopaedics , J Maheshwari, Mehta Publishers.
13. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.

PAPER CODE: MPT 204B
PHYSIOTHERAPY IN VERTEBRAL DISORDERS

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each

SECTION A

- I. Review of anatomy and pathomechanics of vertebral column
- II. Application of advance techniques like Maitland, Mckenzie, Mulligan
- III. Principles of management
- IV. Congenital disorders of vertebral column
- V. Congenital and Acquired deformities
- VI. Ergonomics
- VII. Non traumatic disorders of vertebral column
 - i. Degenerative
 - ii. Infections
 - iii. Inflammatory
 - iv. Spinal instabilities

SECTION B

- I. Traumatic injuries of vertebral column: General & regional injuries.
- II. Soft tissue injuries, tightness, structural changes.
- III. Bone injuries (fractures & dislocations of spine)
- IV. pre and post operative management of spinal surgeries.
- V. Spinal cord injuries
 - i. Types, Classifications
 - ii. Pathology
 - iii. Level
 - iv. Examination
 - v. Management & rehabilitation
 - vi. Orthopedic surgeries
 - vii. Bio engineering appliances & support devices
 - viii. Pre & post operative rehabilitation.

Books suggested

1. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopaedics and Fractures , Louis Solomon , Arnold publishers.
3. Textbook of Orthopaedics, Adams: Churchill Livingstone
4. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
5. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons ,Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
9. Pain Series Rene Calliet., Japee Brothers.
10. Essentials of Orthopaedics and Applied Physiotherapy , Jayant Joshi,prakash Kotwal; Churchill Livingstone
11. Essential Orthopaedics , J Maheshwari, Mehta Publishers.
12. Practical Orthopaedic Medicine , Brain Corrigan, Butterworth.
13. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.
14. Orthopaedic Physical Assessment David J Magee, Saunders
15. Manual Examination and Treatment of the Spine and Extrimities , Carolyn Wadsworth, Williams and Wilkins.
16. Physical Examination of the Spine and Extrimities , Stenley, Lipenfield.
17. Clinical Orthopaedic Examination , Mc Rae, Churchill Livingstone.
18. Muscle Energy Technique, Leon chaitow ,Churchill Livingstone.
19. Maitland's vertebral Manipulation , GD Maitland, Butterworth Heinemann.
20. Textbook of Orthopaedic Medicine James Cyriax, AITBS Publishers.
21. Cyriax's Illustrated Manual of Orthopaedic Medicine , JH Cyriax, Butterworth
22. Position Release Technique, Leon chaitow ,Churchill Livingstone.
23. Manual Therapy , Brain Mulligan.
24. Butler Neural mobilization , Butler.

PAPER CODE: MPT 205B
Current Concepts in Musculoskeletal Physiotherapy

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

- I. Pain management
- II. Back School
- III. Butler mobilization of nerves
- IV. Manual Therapy: Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like
 - i. Cyriax,
 - ii. Maitland
 - iii. Mulligan

SECTION B

- I. Myofascial Release: Concept & brief discussion of its application technique
- II. Muscle Energy Techniques
- III. Positional release technique
- IV. Body Composition & Weight Control:
 - i. Composition of human body
 - ii. Somatotyping
 - iii. Techniques of body composition analysis
 - iv. Obesity
 - v. Health risks of obesity
 - vi. Weight control

Books suggested

1. Chest physiotherapy in the Intensive Care Unit, Colin F Meckengei, William and Wilkins.
2. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
3. Muscle Energy Technique, Leon chaitow ,Churchill Livingstone.
4. Maitland's vertebral Manipulation , GD Maitland, Butterworth Heinemann.
5. Textbook of Orthopaedic Medicine James Cyriax, AITBS Publishers.
6. Cyriax's Illustrated Manual of Orthopaedic Medicine , JH Cyriax, Butterworth
7. Peripheral Manipulation, GD Maitland, Butterworth Heinemann.
8. Position Release Technique, Leon chaitow ,Churchill Livingstone.
9. Manual Therapy , Brain Mulligan.
10. Butler Neural mobilization , Butler

SPECILIZATION IN SPORTS PHYSIOTHERAPY

PAPER CODE: MPT 203C

Non – Traumatic Medical Conditions of Athlete

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

The dissertation work of 200 marks will be allotted in the Third Semester and topic for the same will be given after the second Semester. Viva-Voce Examination for the dissertation work and Practical Examination for Clinical Skills and Reasoning will be conducted at end of the fourth semester.

SECTION A

- I. Illness
- II. Hypertension
- III. Urine abnormalities
- IV. Exercise Induced Asthma
- V. Anemia
- VI. Delayed onset muscle soreness (DOMS)
- VII. Runner's high & Exercise addiction.
- VIII. G.I.T. Diseases
- IX. Exercises and congestive heart failure
- X. Exercise for Post coronary & by pass patients
- XI. Exercise for diabetics
- XII. Diagnosis and management of skin conditions of Athletes
 1. Bacterial infections
 2. Fungal Infections
 3. Viral infections
 4. Boils
 5. Cellulites.

SECTION B

- I. Female Specific problems
 1. Sports Amenorrhea.
 2. Injury to female reproductive tract.
 3. Menstrual Synchrony.
 4. Sex determination.
 5. Exercise and pregnancy.
 6. Eating disorders in athletes

- II. Common Infectious disease:
 1. Common Cold
 2. Diarrhoea
 3. Dysentery
 4. Typhoid
 5. Cholera
 6. Amoebiasis
 7. Food Poisoning
 8. Tuberculosis
 9. Malaria
 10. Hepatitis
 11. Venereal disease etc.

- III. AIDS in sports people.

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
Vol. II The Lower Extremity and Spine in Sports Medicine.
Vol. III The Lower Extremity and Spine in Sports Medicine. Mosby.
11. Lee & Dress: Orthopedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment, Dunitz.

PAPER CODE: MPT 204C
Sports Psychology

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

- I. History and current status of Sports Psychology.
- II. Personality Assessment and sports personality.
 1. Theories of personality
 2. Personality assessment
- III. Attention and perception in sports.
 1. Attention
 2. Perception
- IV. Concentration training in sports.
 1. Basic principles of concentration
 2. Concentration training
 3. Concentration awareness exercises
- V. Motivational orientation in sports.
 1. Athlete's needs of motivation
 2. Motivational inhibitors
 3. Motivational techniques
- VI. Pre-competitive anxiety.
 1. Source of PCA
 2. Effect of PCA on performance
- VII. Relaxation Training.
 1. Definition
 2. Types of relaxation trainings
 - i) Progressive muscle relaxation
 - ii) Breathing exercises
 - iii) Yog-nidra
 - iv) Transcendental meditation
- VIII. Aggression in sports.
 1. Theories of aggression
 2. Management of aggression
- IX. Role of Psychology in Dealing with injuries.
- X. Eating disorders.
 - a. Etiology of eating disorders
 - b. Types of eating disorders
 - c. Complications of eating disorders
- XI. Goal setting

SECTION B

- I. Psychological aspect of doping
- II. Psychological preparation of elite athletes
 1. Concept of psychological preparation
- III. Biofeedback training
- IV. Mental imagery
- V. Stress management
 1. Principles of Stress Management
 2. Stress Management technique
- VI. Group Behaviour and leadership
 1. Nature of group behaviour and group.
 2. Types of group.
 3. Educational implication of group behaviour.
 4. Meaning of leadership, types of leadership quality of leadership, training and functioning of leadership.
- VII. Emotion
 1. Meaning of emotion.
 2. Characteristics of emotion.
 3. Meaning of controlling and training of emotions and its importance.
 4. Contribution of sports to emotional health.
 5. Meaning of sentiment, its type, importance and formation.

Books suggested

1. Morgan and King: Introduction to Psychology - Tata McGraw Hill.
2. Suinn: Psychology in Sports: Methods and applications, Surjeet Publications.
3. Grafiti: Psychology in contemporary sports, Prentice Hall.
4. Basmajian: Biofeedback
5. Sanjiv P. Sahni: Handbook of Sports Psychology – A comprehensive manual of Mental Training

PAPER CODE: MPT 205C
Current Concepts of Sports Medicine Physiotherapy

Theory

External Assessment-70
Internal Assessment- 30
Total Marks-100
Pass Marks-50% in each
Time- 3 hrs

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B. Section C is a compulsory section consisting of 15 short answer type questions of 2 marks each.

SECTION A

- I. Exercise and Common Pulmonary Conditions
 1. Exercise induced bronchial obstruction
 2. Exercise in chronic airway obstruction
 3. Air pollution and exercise
- II. Exercise and Cardiac Conditions
 1. Exercise prescription for heart disease
 2. Exercise in primary prevention in ischemic heart disease
 3. Exercise for secondary prevention of ischemic heart disease
- III. Diabetes and Exercise
 1. Exercise in diabetic patients
 2. Exercise as a method of control of diabetes
- IV. Protective equipments design of shoe safety factors in equipment.
- V. Special concerns for handicapped athletes
- VI. Disability sports, Paralympics

SECTION B

- I. Exercises for special categories
 1. Child and adolescent athlete's problems
 2. Special problems of older athletes
 3. Sports and exercise programme for geriatrics and rheumatic population
- II. Doping in Sports
- III. IOC prohibited drugs- groups and classifications
- IV. IOC rules and regulations on doping in sports hazards of prohibited substances
- V. **Identification of talent for sports –**
 1. Meaning and its importance
 2. Detailed procedure for screening and identification of sports talent
 3. Prediction of adult potentials at the young age.

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
Vol. II The Lower Extremity and Spine in Sports Medicine.
Vol. III The Lower Extremity and Spine in Sports Medicine. Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment, Dunitz.