MAHATMA GANDHI UNIVERSITY
of
MEDICAL SCIENCES & TECHNOLOGY
JAIPUR

Syllabus

MD – Physical Medicine and Rehabilitation(PMR)-MD23

(3 Years Post Graduate Degree Course)

Edition 2021-22

Notice

1. Amendment made by the National Medical Commission (NMC) in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST), Jaipur.

2. The University reserves the right to make changes in the syllabus/books/guidelines, fee-structure, or any other information at any time without prior notice. The decision of the University shall be binding on all.

3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

RULES & REGULATIONS

MD PHYSICAL MEDICINE AND REHABILITATION (PMR) – (MD23)
(3 Years Post Graduate degree course)

TITLE OF THE COURSE:
It shall be called Doctor of Medicine.

ELIGIBILITY FOR ADMISSION:
No candidate of any category (including NRI quota) shall be eligible for admission to MD/MS courses, if he or she has not qualified NEET PG (MD/MS) conducted by National Board of Examinations, or any other Authority appointed by the Government of India for the purpose.

(1) General Seats

(a) Every student, selected for admission to postgraduate medical course shall possess recognized MBBS degree or equivalent qualification and should have obtained permanent Registration with the Medical Council of India, or any of the State Medical Councils or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled.

(b) Completed satisfactorily one year's rotatory internship or would be completing the same before the date announced by the University for that specific year as per NMC rules after passing 3rd professional MBBS Part II Examination satisfactorily.

(c) In the case of a foreign national, the Medical Council of India may, on payment of the prescribed fee for registration, grant temporary registration for the duration of the postgraduate training restricted to the medical college/institution to which he/she is admitted for the time being exclusively for postgraduate studies; however temporary registration to such foreign national shall be subject to the condition that such person is duly registered as medical practitioner in his/her own country from which he has obtained his basic medical qualification and that his degree is recognized by the corresponding Medical Council or concerned authority.

(2) NRI Seats

(a) Students from other countries should possess passport, visa and exchange permits valid for the period of their course of study in this Institution and should also observe the regulations of both central and state governments regarding residential permits and obtain no-objection certificate from the same.

(b) The candidate should have a provisional "Student Visa". If he comes on any other visa and is selected for admission, he will have to first obtain a student visa from his country and then only he will be allowed to join the course. Therefore, it is imperative to obtain provisional student visa before coming for Counseling.

(c) This clause is applicable to NRI/Foreign Students only.

CRITERIA FOR SELECTION FOR ADMISSION:

(1) NRI Quota

15% of the total seats are earmarked for Foreign National / PIO / OCI/ NRI / Ward of NRI/NRI sponsored candidates who would be admitted based on merit obtained in NEET PG or any other criteria laid down by Central Government/NMC.

(2) Remaining Seats (Other than NRI Quota Seats)

(a) Admissions to the remaining 85% of the seats shall be made on the basis of the merit

obtained at the NEET conducted by the National Board of Examinations or any other Authority appointed by the Government of India for the purpose.

(b) The admission policy may be changed according to the law prevailing at the time of admission.

COUNSELING/INTERVIEW:

(1) Candidates in order of merit will be called for Counseling/Interview and for verification of original documents and identity by personal appearance.

(2) Counseling will be performed, and the placement will be done on merit-cum-choice basis by the Admission Board appointed by the Government of Rajasthan.

RESERVATION:

Reservation shall be applicable as per policy of the State Government in terms of scheduled caste, scheduled tribe, back ward class, special back ward class, women, and handicapped persons.

ELIGIBILITY AND ENROLMENT:

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself enrolled and registered with the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST) after paying the prescribed eligibility and enrolment fees.

The candidate shall have to apply to the MGUMST through Principal of College for the enrolment/eligibility along with the following original documents and the prescribed fees within two months of his/her admission or up to November 30 of the year of admission whichever is later without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules –

(a) MBBS pass Marks sheet/Degree certificate issued by the University (Ist MBBS to Final MBBS)

(b) Certificate regarding the recognition of medical college by the Medical Council of India.

(c) Completion of the Rotatory Internship certificate from a recognized college.

(d) Migration certificate issued by the concerned University.

(e) Date of Birth Certificate

(f) Certificate regarding registration with Rajasthan Medical Council / Medical Council of India / Other State Medical Council.

REGISTRATION

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed registration fees.

The candidate shall have to submit application to the MGUMST through Principal of College for registration with the prescribed fees within two months of his/her admission or up to November 30 of the year of admission whichever is later without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules.

DURATION OF COURSE:

The course shall be of 3 years duration from the date of commencement of academic session.

PERIOD OF TRAINING:
The period of training for obtaining Post graduate degrees (MD/MS) shall be three completed years including the period of examination.

MIGRATION:
No application for migration to other Medical Colleges will be entertained from the students already admitted to the MD/MS course at this Institute.

METHODS OF TRAINING FOR MD/MS:
Method of training for MD/MS courses shall be as laid down by the Medical Council of India.

ONLINE COURSE IN RESEARCH METHODS

i. All postgraduate students shall complete an online course in Research Methods to be conducted by an Institute(s) that may be designated by the Medical Council of India by way of public notice, including on its website and by Circular to all Medical Colleges. The students shall have to register on the portal of the designated institution, or any other institute as indicated in the public notice.
ii. The students must complete the course by the end of their 2nd semester.
iii. The online certificate generated on successful completion of the course and examination, thereafter, will be taken as proof of completion of this course
iv. The successful completion of the online research methods course with proof of its completion shall be essential before the candidate is allowed to appear for the final examination of the respective postgraduate course.
v. This requirement will be applicable for all postgraduate students admitted from the academic year 2019-20 onwards

ATTENDANCE, PROGRESS AND CONDUCT:

(1) Attendance:

(a) 80% attendance in each course is compulsory. Anyone failing to achieve this, shall not be allowed to appear in the University examination.
(b) A candidate pursuing MD/MS course shall reside in the campus and work in the respective department of the institution for the full period as a full-time student. No candidate is permitted to run a clinic/work in clinic/laboratory/ nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration. Each year shall be taken as a unit for the purpose of calculating attendance.
(c) Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, CCR, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons. Candidates should not be absent continuously as the course is a full time one.

(2) Monitoring Progress of Studies- Work diary/Logbook:

(a) Every candidate shall maintain a work diary in which his/her participation in the entire training program conducted by the department such as reviews, seminars, etc. must be chronologically entered.
(b) The work scrutinized and certified by the Head of the Department and Head of the Institution is to be presented in the University practical/clinical examination.

(3) Periodic tests:

There shall be periodic tests as prescribed by the Medical Council of India and/ or the Board of Management of the University, tests shall include written papers, practical/clinical and viva voce.

(4) Records:

Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University when called for.

THESIS:

(1) Every candidate pursuing MD/MS degree course is required to carry out work on research project under the guidance of a recognized post graduate teacher. Then such a work shall be submitted in the form of a Thesis.

(2) The Thesis is aimed to train a postgraduate student in research methods & techniques.

(3) It includes identification of a problem, formulation of a hypothesis, designing of a study, getting acquainted with recent advances, review of literature, collection of data, critical analysis, comparison of results and drawing conclusions.

(4) Every candidate shall submit to the Registrar of the University in the prescribed format a Plan of Thesis containing particulars of proposed Thesis work within six months of the date of commencement of the course on or before the dates notified by the University.

(5) The Plan of Thesis shall be sent through proper channel.

(6) Thesis topic and plan shall be approved by the Institutional Ethics Committee before sending the same to the University for registration.

(7) Synopsis will be reviewed, and the Thesis topic will be registered by the University.

(8) No change in the thesis topic or guide shall be made without prior notice and permission from the University.

(9) The Guide, Head of the Department and head of the institution shall certify the thesis. Three printed copies and one soft copy of the thesis thus prepared shall be submitted by the candidate to the Principal. While retaining the soft copy in his office, the Principal shall send the three printed copies of the thesis to the Registrar six months before MD/MS University Examinations. Examiners appointed by the University shall evaluate the thesis. Approval of Thesis at least by two examiners is an essential pre-condition for a candidate to appear in the University Examination.

(10) Guide: The academic qualification and teaching experience required for recognition by this University as a guide for thesis work is as laid down by Medical Council of India/Mahatma Gandhi University of Medical Sciences & Technology, Jaipur.

(11) Co-guide: A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching/training by Mahatma Gandhi University of Medical Sciences & Technology, Jaipur/Medical Council of India. The co-guide shall be a recognized postgraduate teacher.

(12) Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION:

The following requirements shall be fulfilled by every candidate to become eligible to appear for the final examination:

(1) Attendance: Every candidate shall have fulfilled the requirement of 80% attendance prescribed by the University during each academic year of the postgraduate course. (As per NMC rules)
(2) Progress and Conduct: Every candidate shall have participated in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year as designed by the department.
(3) Work diary and Logbook: Every candidate shall maintain a work diary for recording his/her participation in the training program conducted in the department. The work diary and logbook shall be verified and certified by the Department Head and Head of the Institution.
(4) Every student would be required to present one poster presentation, to read one paper at a National/State Conference and to have one research paper which should be published/accepted for publication/ sent for publication to an indexed journal during the period of his/her post graduate studies to make him/her eligible to appear at the Post Graduate Degree Examination.
(5) Every student would be required to appear in and qualify the Pre-University Post graduate degree Mock examination. Post graduate students who fail to appear in or do not qualify the Pre-University Post graduate degree Mock examination shall not be permitted to appear in the final examination of the University.

The certification of satisfactory progress by the Head of the Department/ Institution shall be based on (1), (2), (3), (4) and (5) criteria mentioned above.

ASSESSMENT:

(1) The progress of work of the candidates shall be assessed periodically by the respective guides and report submitted to the Head of the Institution through the Head of the Department at the end of every six months. The assessment report may also be conveyed in writing to the candidate who may also be advised of his/her shortcomings, if any.
(2) In case the report indicate that a candidate is incapable of continuing to do the work of the desired standard and complete it within the prescribed period, the Head of the Institution may recommend cancellation of his/her registration at any time to the University.
(3) Formative Assessment:
    (a) General Principles
        i. The assessment is valid, objective, constructive and reliable.
        ii. It covers cognitive, psychomotor and affective domains.
        iii. Formative, continuing and summative (final) assessment is also conducted.
        iv. Thesis is also assessed separately.
    (b) Internal Assessment
        i. The internal assessment is continuous as well as periodical. The former is based on the feedback from the senior residents and the consultants concerned. Assessment is held periodically.
        ii. Internal assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.
        iii. The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student.
        iv. Marks should be allotted out of 100 as under
            1) Personal Attributes - 20 marks

a. Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
b. Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
c. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.

2) Clinical Work - 20 marks
   a Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
   b Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
   c Academic Ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities and performs well in oral presentation and departmental tests.
   d Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.
3) Academic Activities - 20 marks
   Performance during presentation at Journal club/ Seminar/Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.
4) End of term theory examination - 20 marks
   End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months.
5) End of term practical examination - 20 marks
   a. End of term practical/oral examinations after 2 years 9 months.
   b. Marks for personal attributes and clinical work should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.
   c. Marks for academic activity should be given by the all consultants who have attended the session presented by the resident.
   d. The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.
   e. Yearly (end of 1st, 2nd & 3rd year) theory and practical examination will be conducted by internal examiners and each candidate will enter details of theory paper, cases allotted (2 long & 2 short) and viva.
   f. Log book to be brought at the time of final practical examination.

APPOINTMENT OF EXAMINERS:
Appointment of paper setters, thesis evaluators, answer books evaluators and practical & viva voce examiners shall be made as per regulations of the National Medical Commission (NMC).

SCHEME OF EXAMINATION:
Scheme of examination in respect of all the subjects of MD/MS shall be as under :

(1) The examination for MD/MS shall be held at the end of three Academic Years.
(2) Examinations shall be organized on the basis of marking system.
(3) The period of training for obtaining MD/MS degrees shall be three completed years including the period of examination.
(4) The University shall conduct not more than two examinations in a year for any subject with an interval of not less than 4 months and not more than 6 months between the two examinations.
(5) The examinations shall consist of:

(a) Thesis :

i. Thesis shall be submitted at least six months before the main Theory examinations.

ii. The thesis shall be examined by a minimum of three examiners – one Internal and two External examiners who shall not be the examiners for Theory and Clinical/Practical.

iii. In departments where besides the two earmarked practical/clinical examiners no one else is a qualified P.G. teacher, in that case the Thesis shall be sent to the third external examiner who shall actually be in place of the internal examiner.

iv. Only on the acceptance of the thesis by any two examiners, the candidate shall be eligible to appear for the final examination.

v. A candidate whose thesis has been once approved by the examiners will not be required to submit the Thesis afresh, even if he/she fails in theory and/or practical of the examination of the same branch.

vi. In case the Thesis submitted by a candidate is rejected, he/she should be required to submit a fresh Thesis.

(b) Theory papers:

i. There shall be four theory papers.

ii. Each theory paper examination shall be of three hours duration.

iii. Each theory paper shall carry maximum 100 marks.

iv. The question papers shall be set by the External Examiners.

v. There will be a set pattern of question papers.
Every question paper shall contain three questions. Each paper shall consist of two long essay questions, three short essay questions and four short notes. All the questions shall be compulsory, having no choice.

vi. The answer books of theory paper examination shall be evaluated by two External and two internal examiners. Out of the four paper setters, the two paper setters will be given answer books pertaining to their papers and the answer books of the remaining two papers will be evaluated by two Internal Examiners. It will be decided by the President as to which paper is to be assigned to which Internal Examiner for evaluation.

vii. A candidate will be required to pass theory and practical examinations separately in terms of the governing provisions pertaining to the scheme of examination in the post graduate regulations. The examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for degree examination to be cleared as "passed" at the said Degree examination.

(c) Clinical/ Practical & Oral examinations:

i. Clinical/Practical and Oral Examination of 400 marks will be conducted by at least four examiners, out of which two (50%) shall be External Examiners.
ii. A candidate will be required to secure at least 50% (viz. 200/400) marks in the Practical including clinical and viva voce examinations.

(6) If a candidate fails in one or more theory paper(s) or practical, he/she shall have to reappear in the whole examination i.e. in all theory papers as well as practical.

GRACE MARKS

No grace marks will be provided in MD/MS examinations.

REVALUATION / SCRUTINY:

No Revaluation shall be permitted in the MD/MS examinations. However, the student can apply for scrutiny of the answer books as per University Rules.

GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MD INPHYSICAL MEDICINE AND REHABILITATION (PMR)

Preamble:

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training.

The **goal** of this programme is to standardize Physical Medicine and Rehabilitation (PMR) teaching at the Post Graduate level throughout the so that it will benefit in achieving uniformity in postgraduate medical education.

Physical Medicine and Rehabilitation (PMR), also called physiatry, (pronounced fizz ee at´ tree), or physical and rehabilitation medicine emphasizes the prevention, diagnosis and treatment of disorders, particularly those of the neuro-musculo-skeletal, cardiovascular, and pulmonary systems, that may produce temporary or permanent activity limitation, disability, or participation restriction. Physical Medicine and Rehabilitation is an independent clinical discipline. PMR has a vast scope as it provides integrated comprehensive care in the diagnosis, treatment and rehabilitation management of neurological, musculo-skeletal, cardio-pulmonary disabilities from acquired or congenital conditions presenting at any stage in life from pediatric to geriatric phases. This specialty focuses on the restoration of function of people to the highest possible level, through a multi-disciplinary team approach, making use of diagnostic and therapeutic armamentarium including education and counseling, prescription of medicines, therapeutic exercises, equipments (mobility aids, orthotic-prosthetic appliances, assistive technology, physical agents and modalities, etc.), injections, surgical interventions for correction of deformities etc. in an institution-based (out-door and in- door/wards/ICUs/Nursing Homes/Old-Age Homes etc.), out-reach (Camps, Mobile Units), or community-based settings (CBR), based on the evaluation of the individual under consideration. It is also involved in disability prevention, evaluation and certification, besides development, monitoring and supervision of a rehabilitation plan and conducting research and development.

The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by subject-content specialists. The Reconciliation Board of the Academic Committee has attempted to render uniformity without compromise to purpose and

content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of "domains of learning" under the heading "competencies".

PROGRAMME OBJECTIVES

The overall objective is to impart a thorough and comprehensive training to a medical graduate so that at the end of this training he/she becomes a knowledgeable, skilled, and competent Physical Medicine and Rehabilitation specialist, capable of discharging his/herduties as expected under different settings, in an ethical manner.

The student should be able to suspect, investigate, diagnose, confirm, evaluate, certify, treat, and rehabilitate if and when a person is suffering from a temporary or permanent limitation in function, disability, or restriction in participation; the student should be able to plan, prescribe, supervise and lead the execution of rehabilitation plan through an integrated, multi-disciplinary team involving various medical, nursing, allied health professionals such as therapists (occupational therapists, physiotherapists, speech therapists etc.), counselors, and technicians (orthotic-prosthetic engineers/ technicians). The student should be able to interpret reports and plan research, teach medical and paramedical personnel, educate (1) the person with disability, (2) family, (3) rehabilitation team members and (4) the community. The student should be well versed with recent advances in the field, and with administrative, financial, ethical and legal aspects related to the specialty.

SUBJECT SPECIFIC LEARNING OBJECTIVES

The post graduate student, on completion of the MD training in Physical Medicine and Rehabilitation, should be able to demonstrate the following:

1. **Theoretical knowledge:** The student should be able to demonstrate possession of basic knowledge of (1) the basic medical sciences such as Anatomy, Biomechanics, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Medical Genetics and Molecular Biology etc. as related to Physical Medicine and Rehabilitation; (2) factors which may disturb structure or function and result in disability; (3) bed-side procedures (diagnostic and therapeutic).

2. **Teaching-Training:** The student should be able to plan educational programmes in Rehabilitation Medicine in association with his senior colleagues/Faculty and be familiar with the modern methods of teaching and evaluation; teach and/or deliver lectures to medical students, residents, other health professionals and persons with disabilities and their family members etc. and hold clinical demonstrations for them; write and discuss a topic for seminar or a symposium and critically discuss it; methodically summarise published articles according to prescribed instructions and critically evaluate and discusseach selected article etc.
3. **Clinical/Practical skills:** The student should understand and develop competence in executing common general procedures employed in diagnosis, investigations and management of conditions encountered in rehabilitation medicine. He/she should be able to practice and handle independently most of the day to day problems as encountered in Rehabilitation Medicine in a safe, effective and ethical manner. He/she should be able to plan a comprehensive rehabilitation service independently. He/she should be able to demonstrate understanding of the fabrication and competence in prescription and check out of orthoses and prostheses, the principles, prescription and supervision of physiotherapy, occupational therapy, psycho-socio-vocational counseling. He/she should be able to practice rehabilitation medicine at the door step of community. He/she should be familiar with the common problems occurring in the urban, semi-urban, and rural areas and deal with them effectively, should be able to organize, conduct, and supervise surveys in rural, urban and industrial communities and in specified groups of population; organise and conduct camps for disability prevention and rehabilitation of disabled persons, and guide rehabilitation workers at the peripheral level for rehabilitation of persons with disabilities.
4. **Research:** The student should be able to recognise a research topic, state the objectives in terms of what is expected to be achieved in the end, plan a rational approach with full awareness of the statistical validity, spell out the methodology and carry out most of the technical procedures required for the study, accurately and objectively record on systematic lines the results and observations made, analyse the data using appropriate statistical approach, interpret the observations in the light of existing knowledge and highlight in what ways the study has advanced existing knowledge on the subject and what remains to be done, draw

conclusions which should be reached by logical deduction and he should be able to assess evidence both as to its reliability and its relevance, write a thesis in accordance with the prescribed instructions, and be familiar with the ethical aspects of research etc.

SUBJECT SPECIFIC COMPETENCIES

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

A. Cognitive domain:

1. Acquire basic knowledge of basic medical sciences such as Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, and Molecular Biology etc. as related to Physical Medicine and Rehabilitation
2. Acquire knowledge on factors which may result in disability
3. Acquire knowledge of basic anatomy and physiology of the musculoskeletal (including Biomechanics), urogenital, cardio-pulmonary and nervous systems
4. Acquire knowledge of basic principles of diagnostic modalities as applied to Physical Medicine and Rehabilitation.
5. Understand philosophy, history, scope and need of Physical Medicine and Rehabilitation.
6. Acquire knowledge of basic concepts in Physical Medicine and Rehabilitation - definitions, rehabilitation team, team members, scope, role and responsibilities of different members.
7. Acquire knowledge of principles of evaluation and rehabilitation management of social problems
8. Acquire knowledge of principles of evaluation and rehabilitation management of vocational problems
9. Understand disability prevention & management- levels and examples
10. Understand epidemiology of disability
11. Understand the outcome measures in Physical Medicine and Rehabilitation
12. Impairment Rating and Disability Evaluation
13. Acquire knowledge of integrative Medicine and Physical Medicine and Rehabilitation

14. Understand Assistive Technology related to Physical Medicine and Rehabilitation
15. Acquire knowledge of basic principles of rehabilitative surgeries
16. Acquire knowledge of Pediatric Rehabilitation including children with AutismSpectrum Disorders, learning disabilities, multiple disabilities etc.
17. Acquire knowledge of Geriatric Rehabilitation
18. Acquire knowledge of Evidence-based Medicine and Physical Medicine and Rehabilitation
19. Understand Legislation in relations to disability- National and International

B. Affective Domain:

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. Develop communication skills to word reports and professional opinion as well asto interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

At the end of the course, the student should acquire the following clinical/practical skills:

Section A:

1. Evaluation Process:
   - History taking in Physical Medicine and Rehabilitation
   - Clinical evaluation, Manual Muscle Strength Testing, Joint Range of Motion, Goniometry, Activities of Daily Living
   - Investigations - Laboratory and Radiological imaging studies including CT Scan, MRI, diagnostic musculoskeletal ultrasound, DEXA Scan etc.
   - Evaluation of neurogenic bowel and bladder dysfunction
2. Gait Analysis - Terminology, types, Clinical Applications
3. Electrodiagnostic Medicine - basic principles, clinical methods, interpretation etc.

4. Outcome Measures in Physical Medicine and Rehabilitation
5. Impairment Rating, Disability Evaluation and Certification

Section B:

6. Therapeutic Exercises- settings, equipments, applications
7. Physical Agents/Modalities - precautions, prescription, application, follow-up etc.
8. Traction, Massage - principles, types, indications, contra-indications,precautions, prescription, application, follow-up etc.
9. Electrical Stimulation - precautions, prescription, application, follow-up etc.
10. Principles and practice of Occupational Therapy
11. Training of A.D.L. (Activities of Daily Living) in various conditions
12. Injection Techniques (e.g. intra-articular, peri-articular, trigger-point, epiduraletc.) in Physical Medicine and Rehabilitation
13. Interventions in Physical Medicine and Rehabilitation e.g. Botulinum toxininjection, Phenol block, Alcohol blocks etc.
14. Upper limb orthotic devices including splints- applications
15. Lower limb orthotic devices including footwear modifications- applications
16. Spinal orthoses - applications
17. Upper limb prosthetics and amputee rehabilitation
18. Lower limb prosthetics and amputee rehabilitation
19. Mobility aids, wheelchairs and seating systems
20. Low back pain and Physical Medicine and Rehabilitation
21. Musculoskeletal trauma and Physical Medicine and Rehabilitation
22. Rehabilitation of persons suffering from:
    - Arthritis including Rheumatoid Arthritis, Osteoarthritis, Ankylosing Spondylitis etc.
    - Spinal deformity
    - Neck Pain, Shoulder Pain etc.
    - Osteoporosis
    - Sports Injury
    - Burns Injury
    - Spinal Cord Injury
23. Rehabilitation of persons:
    - with obesity, dyslipidemia etc.
    - after Arthroplasty
    - after POP cast, Fracture treatment, Surgical intervention

24. Basic principles and practice of interventions and rehabilitative surgeries such as deformity correction in poliomyelitis, cerebral palsy, clubfoot, contractures, revision of amputation stump, closure of pressure sore, tendon transfers etc.

Section C:

25. Rehabilitation of persons suffering from:

- Plexus or Nerve Injury
- Traumatic Brain Injury
- Stroke
- Parkinsonism, Multiple sclerosis, Ataxia, neurodegenerative disorders etc.
- Neuropathy, Bell's Palsy etc.
- Hansen's Disease (Leprosy including leprosy-cured persons)
- diseases of Muscles e.g. myopathy, motor-neuron disease, myasthenia gravis etc.
- Cerebral Palsy
- Spasticity, dystonia, rigidity,
- Poliomyelitis and its sequalae including Post-polio syndrome
- Cardiovascular Disease e.g. CAD, MI, CABG Surgery, Angioplasty, Heart failure, Cardiac transplantation etc.
- Pulmonary Disease e.g. COPD, Bronchiectesis, Cystic fibrosis etc.
- Cancer
- Patients in the ICU setting
- Swallowing disorder
- Bladder dysfunction
- Bowel dysfunction
- Vertigo
- HIV/AIDS
- Chronic Pain
- Organ Transplantation

26. Pediatric Rehabilitation including children with Cerebral palsy, muscular dystrophy, Autism Spectrum Disorders, learning disabilities, neural-tubedefects, multiple disabilities etc.

27. Geriatric Rehabilitation
28. Principles of evaluation and rehabilitation management of persons with:
    - visual impairment
    - mental retardation
    - hearing /speech impairment
    - psychological problems or mental illness
29. Medical/ surgical Emergencies in Physical Medicine and Rehabilitation
30. Sexuality and Disability

Section D:

31. Evidence-based Medicine and Physical Medicine and Rehabilitation
32. Legislation in relations to disability- National and International
33. Schemes and Benefits extended to persons with disabilities by the Govt.
34. Barrier-free Environment and access related issues
35. Computers in Physical Medicine and Rehabilitation
36. Assistive-technologies in rehabilitation
37. Ethical aspects in disability and rehabilitation
38. Recent Advances related to Physical Medicine and Rehabilitation

Syllabus

Course Contents

The course contents for MD (Physical Medicine and Rehabilitation) is divided into four broad sections, covering four theory papers. However, certain degree of overlapping mayoccur among different sections. The content would include the following:

Section A:

1) Basic Anatomy and Physiology of the Musculoskeletal (includingBiomechanics), Urogenital, Cardio-pulmonary and nervous systems, etc.
2) Basics of biochemical aspects of Calcium and Vit. D metabolism,osteoporosis, diabetes mellitus etc.
3) Basic Pathological processes causing diseases and disabilities, healing etc.

4) Basic principles of Pharmacology as applied to the conditions encountered inPhysical Medicine and Rehabilitation.

5) Basic principles of diagnostic modalities as applied to Physical Medicine andRehabilitation.

6) Philosophy, history, scope and need of Physical Medicine and Rehabilitation.

7) Basic concepts in Physical Medicine and Rehabilitation - definitions, rehabilitation team, team members, scope, role and responsibilities of differentmembers etc.

8) Principles of evaluation and rehabilitation management of social problems

9) Principles of evaluation and rehabilitation management of vocationalproblems

10) Organisation and Administration of Physical Medicine and Rehabilitation Services.

11) Disability process. Impairment, disability, International Classifications

12) Disability Prevention- levels and examples

13) Epidemiology of disability, magnitude, causes, changing trends etc.

14) Gait Analysis - Terminology, types, Clinical Applications

15) Electrodiagnostic Medicine - basic principles, clinical methods, interpretationetc.

16) Outcome Measures in Physical Medicine and Rehabilitation

17) Impairment Rating and Disability Evaluation

Section B:

18) Therapeutic exercises - principles, types, indications, contraindications

19) Physical agents/modalities - principles, types, indications, contra-indications,precautions.

20) Manipulation, traction, massage - principles, types, indications, contra-indications, precautions.

21) Electrical stimulation - principles, types, indications, contra-indications, precautions.

22) Principles and scope of Occupational Therapy

23) Rationale of A.D.L. (Activities of Daily Living) in various conditions

24) Integrative Medicine and Physical Medicine and Rehabilitation

25) Upper limb orthotic devices including splints– principles, types, materials andindications,

26) Lower limb orthotic devices including footwear modifications– principles,types, materials and indications

27) Spinal orthoses – principles, types, materials and indications

28) Upper limb prosthetics and amputee rehabilitation,

29) Lower limb prosthetics and amputee rehabilitation

30) Mobility aids, wheelchairs and seating systems,

31) Low back pain and Physical Medicine and Rehabilitation

32) Musculoskeletal trauma and Physical Medicine and Rehabilitation

33) Holistic Rehabilitation of persons suffering from:

- Arthritis, including Rheumatoid Arthritis, Osteoarthritis, AnkylosingSpondylitis etc.
- Spinal deformity
- Neck Pain, Shoulder Pain etc.
- Osteoporosis
- Sports Injury
- Burns Injury
- Spinal Cord Injury (traumatic and non-traumatic)

34) Rehabilitation of persons:

- with obesity, dyslipidemia etc.
- after Arthroplasty
- after POP cast, Fracture treatment, Surgical intervention

35) Principles of Sports Medicine, diagnosis, evaluation, prevention, and management of sports injuries

36) Basic principles of rehabilitative surgeries such as deformity correction in poliomyelitis, cerebral palsy, clubfoot, contractures, revision of amputation stump, closure of pressure sore, tendon transfers etc.

Section C:

37) Holistic Rehabilitation of persons suffering from:

- Plexus or Nerve Injury

- Traumatic Brain Injury
- Stroke
- Parkinsonism, Multiple sclerosis, Ataxia, neurodegenerative disorders etc.
- Neuropathy, Bell's Palsy etc.
- Hansen's Disease
- Diseases of Muscles e.g. myopathy, motor-neuron disease, myastheniagravis etc.
- Cerebral Palsy
- Spasticity
- Poliomyelitis and its sequalae
- Cardiovascular Disease e.g. CAD, MI, CABG Surgery, Angioplasty,Cardiac transplantation etc.
- Pulmonary Disease e.g. COPD, Bronchiectesis, Cystic fibrosis etc.
- Cancer
- Swallowing disorder
- Bladder dysfunction
- Bowel dysfunction
- Vertigo
- HIV/AIDS
- Chronic Pain
- Neural tube defects like meningomyelocele and hydrocephalus etc.

38) Rehabilitation of persons:

- after Organ Transplantation
- in ICU setting

39) Pediatric Rehabilitation including children with Autism Spectrum Disorders,learning disabilities, multiple disabilities etc.

40) Geriatric Rehabilitation

41) Principles of evaluation and rehabilitation management of persons with:

- visual impairment
- mental retardation
- hearing /speech impairment

- psychological problems or mental illness

42) Medical/ surgical Emergencies in Physical Medicine and Rehabilitation

43) Sexuality and Disability

Section D:

44) Evidence-based Medicine and Physical Medicine and Rehabilitation

45) Legislation in relations to disability- National and International

46) Functional evaluation, Impairment rating, disability evaluation and certification including guidelines for these

47) Schemes and Benefits extended to persons with disabilities by the Govt.

48) Barrier-free Environment and access related issues

49) Computers in Physical Medicine and Rehabilitation

50) Assistive Technology related to Physical Medicine and Rehabilitation

51) Recent Advances related to Physical Medicine and Rehabilitation

52) Ethical aspects in rehabilitation

53) Research methodology

TEACHING AND LEARNING METHODS

Post-Graduate Training:

A. Theoretical Methodology:

1. Symposia/Seminars:

The post graduate student would be required to present topics to the combined group of teachers and students. A free discussion would be encouraged in these activities. The topics of the symposia/seminars would be given to the residents with the dates for presentation.

The topics for Seminars could include any of the following: Gait Analysis, Spasticity, Pressure Sores, Spinal Orthoses, Hand Splints, Assistive Technology, Psycho-Social-Vocational Aspects, Cardiac Rehabilitation, Pulmonary Rehabilitation, Neuro-developmental Techniques, Post-Polio Syndrome, Cognitive Rehabilitation, Prosthetic Feet, PTB Prosthetic, Prosthetic Terminal Devices, CAD-CAM, FES, Spinal Deformities, Rehabilitation after Arthroplasty, Epidemiology of Disability, Barrier-free

Environment, Ethical Aspects, Legislation related to Disability and Rehabilitation, Community-Based Rehabilitation, Leprosy Rehabilitation, Sexuality and Disability, Rehabilitation related to HIV/AIDS, Stem Cell Therapy in Rehabilitation, Geriatric Rehabilitation, Sports Injuries Rehabilitation, Rehabilitation after Organ Transplantation, Pain Management, Analgesics, NSAIDs, DMARDs, Disability Evaluation, Interventions in Physical Medicine and Rehabilitation etc.

2. Journal Club:

This should be a regular/weekly activity. The post graduate student would be assigned /allowed to chose an article from amongst the recent publications from the list of recommended journals, present, summarise, and discuss the published article critically. The contributions made by the article in furtherance of the scientific knowledge as well as limitations (if any) should be highlighted.

3. Practical and Clinical Training:

Clinical:

The student would be attached to a Faculty member to be able to pick up methods of history taking and examination in rehabilitation practice. During this period, the student would also be oriented to the common problems that present in the OPD or Wards/ICUs or are encountered in the community. The student would be supervised by Senior Residents and Faculty members.

Bedside:

The student would work up cases; learn management of cases by discussion with the senior residents and faculty of the department. She/he would be trained in management of in-patients including performing certain procedures such as debridement, Plaster cast application, traction, catheterization, intubation etc.

Rehabilitative Interventions and Surgery:

The student would be provided with an opportunity, as far as possible, to observe, learn, assist and once proficient, perform rehabilitative surgical operations such as for correction of deformities in polio, cerebral palsy,

amputation, clubfoot, pressure sore etc. including post-operative care with the assistance of the Senior Residents and/or under the direct supervision of a Faculty member.

The student would also be oriented to the various sections/units in a comprehensive rehabilitation set up (such as occupational therapy, orthotics-prosthetics, physiotherapy, social works, clinical psychology, vocational guidance/counseling, educational institution and Non-Governmental Organization in the disability sector etc.) and be well informed about and demonstrated the various equipments/materials/methods used there, and the scope, role and responsibilities of different members of a rehabilitation team.

4. Training in Research Methodology

The student would carry out the research project and write a thesis. Thesis topic would be finalized by the student in consultation with the Guide and Co-Guides, as per the norms duly approved by the Ethics Committee of the Institution. He would also be given exposure to partake in the research projects going on to learn their planning, methodology and execution to learn various aspects of research.

5. Training in Research Methodology

The student would be given exposure to partake in the research projects going on to learn their planning, methodology and execution to learn various aspects of research.

6. Teaching Skills

The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

7. Continuing Medical Education Programmes (CME)

At least two CME programmes should be attended by each student in 3 years.

8. Conferences

The student should attend courses, conferences and seminars relevant to the speciality.

9. Case presentation, case work up, case handling/management (once a week)

10. Attending clinical grand rounds / clinic-pathological conference

The post graduate students are encouraged to attend lectures and grand rounds ofother clinical and basic science departments of the hospital.

11. Paper/poster presentation:

A post graduate student of a post graduate degree course in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

12. Teaching skills:

The post graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

13. A **logbook** should be maintained recording the duration of posting, the period of absence, if any, skills performed, and remarks if any by the teacher/faculty member.The logbook should also record journal clubs, seminars attended and partaken as well as undergraduate teaching activities the post graduate student has participated and should be signed by the faculty in charge.

14. Department should encourage e-learning activities.

During the training programme, patient safety is of paramount importance, therefore skills are to be learnt initially on the models, later to be performed under supervision followed by performing independently; for this purpose, provision of surgical skills laboratories in medical colleges is mandatory.

ASSESSMENT

FORMATIVE ASSESSMENT i.e., assessment during the training

Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, selfdirected learning and ability to practice in the system.

Quarterly assessment during the MD training should be based on:

1. Journal based / recent advances learning
2. Patient based /Laboratory or Skill based learning
3. Self directed learning and teaching
4. Departmental and interdepartmental learning activity
5. External and Outreach Activities / CMEs

The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).

SUMMATIVE ASSESSMENT, ie., at the end of training

The summative examination would be carried out as per the Rules given in POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.

The examination shall be in three parts:

1. **Thesis**

   Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical examination. A post graduate student shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. **Theory Examination:**

   There shall be four papers each of three hours duration. Each paper shall consist of two long essay questions, three short essay questions and four short notes.

   These are:

   Paper I: Basic Sciences and Basic Concepts as applied to Physical Medicine and Rehabilitation

   Paper II: Principles and Practice of Physical Medicine; and Rehabilitation Management of Musculoskeletal Conditions

   Paper III: Principles and Practice of Rehabilitation Management of Neurological, Cardio-pulmonary and other Conditions

   Paper IV: Legislation, Recent Advances as applied to Physical Medicine and Rehabilitation

3. **Clinical / Practical and viva voce Examination**

   The emphasis would be on the Objective Structured Clinical Examination (OSCE). Practical examination would be conducted as per following:

   Long Case - One
   Short Cases - Three
   Viva-Voce involving
   PMR related X-Ray/CT Scan/MRI /Bone Scan
   FilmsRehabilitation Surgery Instruments
   Physical Medicine Instruments/Equipments/Modalities
   Orthotic-Prosthetic Appliances

   OSCE Based Examination Scheme for MD (PMR) Examinations

Oral/Viva voce examination shall be in the following areas:

	Item
i.	PMR related X-rays, US Scan, CT Scan, MRI, EMG/NCV reports etc.
ii.	PMR related Surgical Instruments
iii.	Prosthetic and Orthotic devices
iv.	Physical Medicine Instruments/Equipments

Please see Annexure 1 for pattern of marking for practical examinations.

Recommended Reading

The list is indicative only, and not exhaustive.

Books (latest edition)

1. Braddom RL. Physical Medicine and Rehabilitation, Saunders
2. DeLisa JA. Rehabilitation Medicine: Principles and Practice. Lippincott
3. Rusk HA. Rehabilitation Medicine. CV Mosby
4. Helander E, Mendis P, Nelson G, Goerdt A. Training in the Community forPeople with Disabilities WHO, Geneva.
5. Helander E. Prejudice and Dignity - An Introduction to Community-Based Rehabilitation. UNDP.
6. Solomon L. Apley's System of Orthopaedics and Fractures. Arnold London
7. Fauci, Braunwald, Kasper, Hauser et al. Harrison's Principles of Internal Medicine McGraw-Hill Company
8. Steven Kirshblum, Denise I Campagnolo. Spinal Cord Medicine, LippincottWilliams & Wilkins
9. Vernon W Lin. Spinal Cord Medicine - Principles and Practice. Demos

Journals

Three international and two national journals (all indexed)

Annexure - I

Postgraduate Students Appraisal Form (Suggested)

Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM……. TO…….

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	5 6	7 8 9	
1.	Medical Knowledge				
2.	Patient Care including documentation				
3.	Procedural/ Surgical Skills				
4.	Professionalism				
5.	Ethical Behavior				
6.	Self Directed Learning				
7.	Participation in Departmental Learning/Teaching activities				
8.	Thesis / Research work				
9.	Log Book Maintenance				
10.	Journal Club				

Participation and presentation during Conference/Workshop/CME Yes/ No

Publications Yes/ No

Remarks*_____

_____

_____

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE SIGNATURE OF CONSULTANT SIGNATURE OF HOD

Annexure II

Practical and Clinical Examination.

The emphasis would be laid on the Objective Structured Clinical Examination (OSCE). All the four examiners conducting practical, clinical and viva voce shall have "equal assessment marks" at their disposal for evaluation of the examinees.

Clinical Examination shall consist of the following: -

a) Long Case
b) Short Cases

System of marking/evaluation and weightage given to each area shall be as follows: -

Long Case, One Case, Maximum Marks: 150.

	Item	**Maximum Marks**
i)	Written Work (Including history, examination, summary & provisional diagnosis)	20
ii)	Presentation Style	20
iii)	Demonstration	
	Elicitation of signs or maneuvers (two)	30
iv)	Discussion	
	Differential Diagnosis	20
	Investigations	10
	Management	30
v)	Attitudes	20

Short Cases, Three Cases, 50 marks each case.

	Item	**Maximum Marks**
i)	Written Work (Including General Physical Examination, Systemic/Regional Examination & diagnosis)	10
ii)	Diagnosis (including Differential Diagnosis)	10
iii)	Demonstration Elicitation of signs (two signs)	10
iv)	Discussion (Differential Diagnosis & Management)	15
v)	Attitudes	5

Viva voce, comprising of 100 Marks, shall be in the following areas:

	Item	**Maximum Marks**
i.	Pathology specimens	10
ii.	X-rays, US Scan, CT Scan, MRI etc.	20
iii.	Surgical Instruments	20
iv.	Prosthetic and Orthotic devices	30
v.	Physical Medicine Instruments/Equipment's	20

MODEL PAPER

MD23301 **MDPMR-I**

MD Examination Month, Year

Physical Medicine and Rehabilitation (PMR)

Paper- I

Basic Sciences and Basic Concepts as applied to Physical Medicine and Rehabilitation

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1 Full Essay Type Question 2 x 18 =36

a) Discuss the temperature regulation in patients with Spinal Cord Injury

b) Discuss the development and biomechanics of arches of foot

Q2 Short Essay Type Question 3 x 12 = 36

a) Discuss about pressure sore, it's grading & management

b) Duchene muscular dystrophy and it's rehabilitation

c) Myofascial Pain Syndrome

Q3 Write short notes on 4 x 7 = 28

a) Micturition Reflex

b) Pathophysiology of spasticity

c) Surgical anatomy of Erb's Palsy

d) Shockwave Therapy

MODEL PAPER

MD23302 **MDPMR-II**

MD Examination Month, Year

Physical Medicine and Rehabilitation (PMR)

Paper- II

Principles and Practice of Physical Medicine; and Rehabilitation Management of Musculoskeletal Conditions

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1 Full Essay Type Question 2 x 18 =36

a) What do you mean by activities of daily living? Discuss the role of electronic aids to daily living in rehabilitation of a patient dependent on wheelchair.
b) Discuss hand deformities in rheumatoid arthritis. How do you prevent progression of deformities of hand and fingers in rheumatoid arthritis?

Q2 Short Essay Type Question 3 x 12 = 36

a) Neurogenic Pain & it's management in a young paraplegic male

b) Define heterotrophic ossification & it's management

c) Antispastic medications & their role in spinal cord injury

Q3 Write short notes on 4 x 7 = 28

a) Mechanism of pain in prolapse inter-vertebral disc.

b) Orthotic knee joints and their uses.

c) Challenges of amputation in children.

d) Complex regional pain syndromes

MODEL PAPER

MD23303 **MDPMR-III**

MD Examination Month, Year

Physical Medicine and Rehabilitation (PMR)

Paper- III

Principles and Practice of Rehabilitation Management of Neurological, Cardio-pulmonary and other Conditions

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1 Full Essay Type Question 2 x 18 =36

a) A transtibial amputation was planned for a 56-year-old male patient with Buerger's disease. Give a brief of pre-operative assessment, surgical procedure, post-operative management including the prosthetic prescription

b) Define and classify stroke. Describe rehabilitation management of a 50-year-old right-handed female teacher with post-stroke right hemiplegia of two months duration.

Q2 Short Essay Type Question 3 x 12 = 36

a) Common sports injuries around elbow & it's management

b) Hallux Valgus & it's management

c) Define upper crossed syndrome & it's management

Q3 Write short notes on 4 x 7 = 28

a) Management of Crouch in Cerebral Palsy.

b) Floor reaction orthosis

c) Basic principles of cardio-pulmonary rehabilitation.

d) Principles of Floor Reaction Orthosis.

MODEL PAPER

MD23304 **MDPMR-IV**

MD Examination Month, Year

Physical Medicine and Rehabilitation (PMR)

Paper- IV

Legislation, Recent Advances as applied to Physical Medicine and Rehabilitation

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1 Full Essay Type Question 2 x 18 =36

a) Discuss pathophysiology of osteoarthritis and role of regenerative medicine in the management of Osteoarthritis.

b) A 30-year-old married male with spinal cord injury at D5 level sustained 8 months ago wants to have children. What are the sexual dysfunctions after spinal cord injury leading to male infertility? Discuss counseling and management of this patient.

Q2 Short Essay Type Question 3 x 12 = 36

a) Role of Spinal orthosis in deformity correction and define Milwaukee Brace

b) Various calcium storage disorders in children's and it's management

c) Post TKR rehabilitation in a 65-year-old lady with long standing pain

Q3 Write short notes on 4 x 7 = 28

a) Neuromuscular diseases associated with the HIV and AIDS

b) Equal opportunities act for persons with disabilities

c) Robotics in PMR practice

d) Baclofen Pump