DM Neurology
Curriculum and Syllabus 2011
Branch Code: 72

SRM Medical College Hospital & Research Centre
SRM University
SRM Nagar, Kattankulathur
Kancheepuram (Dt). 603 203
<table>
<thead>
<tr>
<th>S.NO</th>
<th>CONTENT</th>
<th>PAGE NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GOALS AND OBJECTIVES</td>
<td>03</td>
</tr>
<tr>
<td>2</td>
<td>COURSE OVERVIEW</td>
<td>06</td>
</tr>
<tr>
<td>3</td>
<td>SYLLABUS</td>
<td>07</td>
</tr>
<tr>
<td>4</td>
<td>TEACHING SCHEDULE</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>MAINTENANCE OF LOGBOOK</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>THESIS</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>SCHEME OF EXAMINATION</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>EXAMINATION AND EVALUATION</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>MODEL QUESTION PAPER</td>
<td>19</td>
</tr>
<tr>
<td>10</td>
<td>RECOMMENDED BOOKS &amp; JOURNALS</td>
<td>23</td>
</tr>
</tbody>
</table>
D.M. NEUROLOGY

GOALS:
The aim of teaching postgraduate students in neurology is to prepare them to have adequate knowledge in the subject, covering both theoretical and practical knowledge, in accordance with the institutional goals.

OBJECTIVES:
1). KNOWLEDGE:

At the end of the course, upon successful completion of training and passing the examination the student is expected to
1. Acquire comprehensive knowledge of the basics of Neurology including all allied specialities related to Neurology like Neuroanatomy, Neurophysiology, Neurochemistry, Neuropharmacology, Neuroimaging, Neuropathology, Neuroinfections, Neuroimmunology, Preventive Neurology, Neuroepidemiology, Paediatric Neurology and Neurosurgery.
2. Possess a complete knowledge of all the commonly used Neurophysiological diagnostic Tests like Electroencephalography, Electromyography, evoked Potentials.
3. Possess knowledge of the recent advances in the subject of Neurology and all its allied specialities and working knowledge of the sophisticated and routine equipments, consumables used in Neurology especially with respect to Neurochemistry, Neurogenetic and molecular diagnostic techniques.
4. Possess knowledge of principles of research work in the field of Neurology in both the Clinical and experimental field with the ability to analyse data.
5. Acquire knowledge in the performance and interpretation of special investigations such as Polysomnography, Video EEG, autonomic function tests, Transcranial Doppler tests.
6. Acquire knowledge in interpretation of common neuroimaging investigations such as CT scanning, MRI scanning, MR and Digital subtraction angiography, MR spectroscopy and Single Photon Emission Computerised Tomography.
2). SKILLS

1. Diagnose and manage majority of conditions in the specialty of Neurology on the basis of clinical assessment, and appropriate investigations.
2. Possess complete Clinical Diagnostic Skills for the recognition of common Nervous system diseases.
3. Acquire skills in the performance and interpretation of special investigations such as Polysomnography, Video EEG monitoring, EEG-Telemetry, autonomic function tests, Transcranial Doppler tests.
4. Acquire skills in invasive procedures such as lumbar puncture, intrathecal drug administration, CSF manometry; assisting in digital subtraction angiography and intraarterial thrombolysis; and Nerve and muscle biopsy and their interpretation of relevant histopathology.
5. Acquire exposure in sophisticated neuromodulation procedures such as planning of deep brain stimulation, vagal nerve stimulation.
6. Able to apply sound clinical judgement and rational cost effective investigations for the diagnosis and management of Neurology Cases in the OPD, Wards, Emergency Room and Intensive Care unit.
7. Be able to teach undergraduate students MBBS and Post Graduate Students MD Med or Pediatrics or Psychiatry as well as investigative Neurology.
8. Be able to perform Clinical and Investigative studies and to present in Seminars, meetings and conferences etc.
9. Have the ability to organise specific teaching and training programmes for para medical staff, associated professionals and patient education programmes.
10. Should be able to develop good communication skills and give consultations to all other departments of the hospital.
11. Demonstrate skills in documentation of individual case details as well as morbidity and mortality data relevant to the assigned situation.
12. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectation.
13. Develop skills as a self-directed learner, recognise continuing educational needs: select and use appropriate learning resources.
14. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
HIGHLIGHTS:

This curriculum has at its core MCI recommendations. An attempt has been made to incorporate newer trends in teaching methodology as well as to include recent advances in neurology in the syllabus. This holistic approach is designed so that a graduate once he/ she acquires the Degree is able to discharge the responsibility of a neurophysician. Clinical subjects must essentially be based on bedside teaching. Therefore clinical posting in Neurology is oriented towards teaching in ward, OPD and emergency departments. Teaching takes a personal bearing since no. of students is less. Curriculum objective has been to impart essential clinical knowledge so that he/ she becomes capable of working up and treating a neurological problem in a logical way inculcating preventive and socioeconomic aspects also in care.

MCI has allocated approximately 300 hours for teaching neurology including didactic lectures, demonstration and the seminars in addition to clinical postings. These recommendations have been taken into consideration while designing the curriculum & the teaching hours have been spread over the three-year course. During the period of training, the students follow in-service training-cum-residency programme. He/ she works as a Senior Resident and is given gradually increasing responsibility in decision making process in the clinical and investigative aspects of Neurology and its allied specialties such as Neuroanatomy, Neuropsychiatry, Neuropathology, Neurophysiology, Neurochemistry, Neuroradiology, Neuroanaesthesiology, Neurorehabilitation and Neurosurgery. The day-to-day work of the trainees is supervised by the Professors in the department of Neurology. The posting is so organized that the trainee gets posted in various areas of the department like OPD, wards, laboratories etc. He/ She participates in the consultation service provided by the department to the Institute. Besides in-service activities, a programme of bedside demonstrations, seminars, tutorials, group discussion, workshops, journal clubs and lectures is also organized.
COURSE OVERVIEW

DURATION OF THE COURSE
The period of certified study and training for the Post-Graduate DM NEUROLOGY shall be Three Academic years. (Six academic terms). The academic terms shall mean six months training period.

COMMENCEMENT OF ACADEMIC SESSION
The academic session for the Post-Graduate shall commence from 1st September of the Academic Year.

DATE OF EXAMINATION
The candidates admitted up to 30th September of the academic year shall be registered for that academic year and shall take up their Final Third Year regular examination in September of the due year and March of the academic year after completion of three (3) years.

NUMBER OF EXAMINATIONS
The University shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

ATTENDANCE
All students joining the postgraduate training programme shall work as full time residents during the period of training, attending not less than 80% (eighty percent) of the training during each calendar year, and will be given full time responsibility, assignments and participation in all facets of the educational process.

The period of training for obtaining the degrees shall be three completed years including the period of examination.
DETAILED SYLLABUS:

a) THEORY: The study will cover the entire scope of Neurology.

BASIC SCIENCES RELATED TO NEUROLOGY

1.1). NEUROANATOMY

The Neuroanatomy with special emphasis on development of Neuraxis (brain, spinal cord and neurons and glia), autonomic nervous system and their maturation process in the post natal, childhood and adolescent states; the location and significance of stem cells, CSF pathways, Blood supply and sinovenous drainage of brain and spinal cord, the meninges, skull and vertebral column, the cranial nerves, spinal roots, plexuses, and their relation to neighbouring structures; anatomy of peripheral nerves, neuromuscular junction and muscles; histology of cerebrum, cerebellum, pituitary gland, brain stem and spinal cord, nerves and neuromuscular junction and muscle. Functional anatomy of lobes of cerebrum and white matter tracts of brain and spinal cord, craniovertebral junction, conus and epiconus and cauda equina, brachial and lumbosacral plexuses, cavernous and other venous sinuses; New developments in understanding of ultrastructural anatomy of neurons, axonal transport, neural networks and synapses and nerve cell function at molecular level.

1.2). NEUROPHYSIOLOGY

Neurophysiology will cover all the physiological changes in the nervous system during its normal function with special reference to nerve impulse transmission along myelinated fibres, neuromuscular junction and synaptic transmission, muscle contraction; visual, auditory and somatosensory and cognitive evoked potentials; regulation of secretions by glands, neural control of viscera such as heart, respiration, GI tract, bladder and sexual function; sleep-wake cycles; maintenance of consciousness, special senses, control of pituitary functions, control of autonomic functions, cerebellar functions, extrapyramidal functions, reflexes, upper and lower motor neuron concepts and sensory system.
1.3). MOLECULAR BIOLOGY

Brain is the one structure where maximum genes are expressed in the human body. Principles of molecular biology including Gene Structure, Expression and regulation; Recombinant DNA Technology; PCR Techniques, Molecular basis for neuronal and glial function, Molecular and cellular biology of the membranes and ion-channels, mitochondrial genome, role of RNA in normal neuronal growth and functional expression, receptors of neurotransmitters, molecular and cellular biology of muscles and neuromuscular junction, etc. The Human Genome and its future implications for Neurology including developmental and neurogenetic disorders, bioethical implications and genetic counselling, Nerve growth and other trophic factors and neuroprotectors, Neural Tissue modification by genetic approaches including Gene Transfer, stem cell therapy etc, Molecular Development of neural tissue in peripheral nerve repair are exciting areas where students need to have basic exposure.

1.4). NEUROCHEMISTRY

All aspects of normal and abnormal patterns of neurochemistry including neurotransmitters associated with different anatomical and functional areas of brain and spinal cord, especially with respect to dopaminergic, serotonergic, adrenergic and cholinergic systems, opioids, excitatory and inhibitory aminoacids; their role in pathogenesis of parkinsonism, depression, migraine, dementia, epilepsy; neuromuscular junction and muscle contractions; carbohydrate, aminoacid and lipid metabolism and the neural expression of disorders of their metabolism, electrolytes and their effect on encephalopathies and muscle membrane function, storage disorders, porphyrias.

1.5). NEUROPHARMACOLOGY

Application of neuropharmacology is the mainstay of all medical therapy of epilepsy, parkinsonism, movement disorders, neuropsychiatric syndromes, spasticity, pain syndromes, disorders of sleep and dysautonomic syndromes. Their drug interactions with commonly used other drugs, usage during disorders of renal, hepatic function and in the demented, their adverse reactions etc. are part of basic curriculum for DM course in Neurology.
1.6). NEUROPATHOLOGY

All pathological changes in various neurological diseases with special reference vascular, immune mediated, de/dysmyelinating, metabolic and nutritional, genetic and developmental, infectious and iatrogenic and neoplastic aetiologies to clinical correlation included. Special emphasis on pathological changes in nerve and muscle in neuropathies and myopathies. Ultrastructural pathologies such as apoptosis, ubiquitinopathies, mitochondrioses, channelopathies, peroxisomal disorders, inclusion bodies, prion diseases, disorders mediated by antibodies against various cell and nuclear components, paraneoplastic disorders etc.

1.7). NEUROMICROBIOLOGY

The various microbiological aspects of infectious neurologic diseases including encephalitis, meningitis, brain abscess, granulomas, myelitis, cold abscess, cerebral malaria, parasitic cysts of nervous system, rhinocerebral mycoses, leprous neuritis, Primary and secondary CNS HIV infections, congenital TORCH infections of brain, slow virus infections such as JCD and SSPE, neurological complications of viral infections such as Polio, EBV, Chickenpox, Rabies, Herpez, Japanese encephalitis and other epidemic viral infections.

1.8). NEUROTOXICOLOGY

Organophosphorus poisoning, hydrocarbon poisoning, lead, arsenic, botulinumtoxin and snake, scorpion, spider, wasp and bee stings are important tropical neurotoxic syndromes whose prompt diagnosis and effective therapy are crucial in life saving.

1.9). NEUROGENETICS AND PROTEOMICS:

Autosomal dominant and recessive and Xlinked inheritance patterns, disorders of chromosomal anomalies, Gene mutations, trinucleotide repeats, dysregulation of gene expressions, enzyme deficiency syndromes, storage disorders, disorders of polygenic inheritance, and proteomics in health and disease.
1.10). NEUROEPIDEMIOLOGY:

Basic methodologies in community and hospital based neuroepidemiological studies such as systematic data collection, analysis, derivation of logical conclusions, concepts of case-control and cohort studies, correlations, regressions and survival analysis; basic principles of clinical trials.

II) CLINICAL NEUROLOGY INCLUDING PEDIATRIC NEUROLOGY and NEUROPSYCHIATRY.

2.1). GENERAL EVALUATION OF THE PATIENT

2.2). COMA

2.3). SEIZURES AND EPILEPSY and SYNCOPE

2.4). HEADACHES AND OTHER CRANIAL NEURALGIAS

2.5). CEREBROVASCULAR DISEASES

2.6). DEMENTIAS

2.7). PARKINSONISM AND MOVEMENT DISORDERS

2.8). ATAXIC SYNDROMES

2.9). CRANIAL NEUROPATHIES

2.10). CNS INFECTION

2.11). NEUROIMMUNOLOGIC DISEASES

2.12). NEUROGENETIC DISORDERS

2.13). DEVELOPMENTAL DISORDERS OF NERVOUS SYSTEM

2.14). MYELOPATHIES

2.15). PERIPHERAL NEUROPATHIES

2.16). MYOPATHIES AND NEUROMUSCULAR JUNCTION DISORDERS

2.17). PAEDIATRIC NEUROLOGY:

2.18). COGNITIVE NEUROLOGY AND NEUROPSYCHIATRY:

2.19). TROPICAL NEUROLOGY
TEACHING SCHEDULE:

FIRST YEAR:

During the first year, the student will be working fully in the Department of Neurology. In the morning time, he/she will be familiarized with clinical neurology, neurological examination, localization and differential diagnosis, relevant laboratory and radiological investigations and pharmacotherapeutics. He/she will attend all the outpati-ent services and get himself/herself aware of the common neurological problems. In addition, he/she will work in the electrophysiology laboratories and get himself/herself fully familiar with EMG, evoked potential and electroencephalography (EEG). He/she should be competent to handle the equipments and report independently. In the afternoon, he/she will concentrate on the basic sciences and will undertake the research study within three months after admission.

SECOND YEAR:

The student may be sent to the best centre for training and learning the following subjects. This comes under ‘visit to other centres’. The total period is for five months.
Following will be the subject and duration of training:-
Neuropathology – 30 days.
Neuro-radiology (including interventional radiology) – 30 days.
Intensive Care in Neurology – 30 days.
Psychiatry – 15 days.
Paediatric Neurology – 30 days.
Neurosurgery – 15 days.

THIRD YEAR:

During the period, the student will work in the Neurology department concentrating on clinical and theoretical neurology, clinical psychiatric relevant investigations and medical as well as para medical management of the patients. Besides, he shall handle and report the EEG and EMG by himself/herself.
TEACHING PROGRAMME:

The following teaching Programme is prescribed for the course:
The Outpatient service - 3 days a week
Major ward rounds - 3 days a week
D M Seminars - Once a Month
Journal club - Once in two weeks
Neuroradiology (teaching session) - Once a week
EEG/ EMG etc. - Once a week
Teaching of M D Medicine, Psychiatry, Physiology, Rehabilitation Medicine & Pediatrics residents by the D M students if available, is part of the training.

MAINTENANCE OF LOGBOOK

1. The Post Graduate students shell maintain a record of day to day activities carried out by them and training program undergone including details of procedures carried out individually or assisted. They will also incorporate details of rare cases discussed in the clinical discussions and references from the literatures for the rare case.

2. The students shall record the details of the journals they discussed in the journal club.

3. The logbook should contain various CME’s conferences (National & International) attended by the student during the study period.

4. The students should record the teaching sessions and the topic discussed by the faculty during their visit to other centres of excellence during the second year.

It is preferable that a post graduate student during the course to present one poster presentation and /or platform presentation at a national /state conference and /or to present one research paper which can be published/accepted for publication/sent for publication during the period of his/her postgraduate studies.
THESIS

Every student registered as post graduate shall carry out research project under the guidance of a recognized post graduate teacher, the result of which shall be written up and submitted in the form of a thesis.

Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis shall be submitted at least six months before the theoretical and clinical / practical examination.

The thesis shall be a bound volume of a minimum of 50 pages and not exceeding 75 pages of typed matter (Double line spacing and on one side only) including certification, acknowledgements, annexure and bibliography.

Thesis should consist of
(a) Introduction
(b) Review literature
(c) Aims and objectives
(d) Material and methods
(e) Result
(f) Discussion
(g) Summary and conclusion
(h) Annexure
(i) Bibliography

Five copies of thesis shall be submitted six months prior to the commencement of the theory examinations on the date prescribed by the Controller of Examinations of this University. the same has to be forwarded to the Controller of Examinations, by the head of the department through the Dean of the college.

Two copies in addition are to be submitted as an electronic version of the entire thesis in a standard C.D. format by mentioning the details and technicalities used in the C.D. format.

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; and on the acceptance of the thesis by two examiners, the student shall be allowed to appear for the final examination.
EVALUATION OF THESIS :

ACCEPTED / NOT ACCEPTED

No marks will be given

SCHEME OF EXAMINATION

SRM UNIVERSITY EXAMINATION PATTERN:

Theory papers: There shall be four theory papers.

Marks: 100 marks per paper

Duration: Three Hours each

Paper I: Basic Sciences – consisting of Neuro anatomy, Neuro physiology, Neuro chemistry, Neuro pathology, Neuro Microbiology, Parasitology, Immunology, Epidemiology and Genetics.

- 100.

Paper II: Clinical Neurology

- 100.


- 100.

Paper IV: Recent advances in Neurology.

- 100.

TOTAL 400 Marks
PRACTICAL/CLINICAL AND VIVA VOCE EXAMINATION

<table>
<thead>
<tr>
<th>NO. OF CASES</th>
<th>DURATION</th>
<th>MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG CASE</td>
<td>One</td>
<td>One Hour</td>
</tr>
<tr>
<td>SHORT CASE</td>
<td>Two</td>
<td>One Hour</td>
</tr>
<tr>
<td>(30 Mts. Each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WARD ROUNDS</td>
<td>Four</td>
<td>One Hour</td>
</tr>
<tr>
<td>(Minimum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Viva Voce Examination

| TOTAL        |            | 400   |

Viva includes Pathology slides, specimens, EEG, EMG and other diagnostic records, X-ray, CT scan, MRI, Angiogram and others.

Note: Not more than three students will be examined in Practical examinations per day.

MARKS QUALIFYING FOR A PASS:

<table>
<thead>
<tr>
<th>MARKS QUALIFYING FOR A PASS</th>
<th>MAXIMUM MARKS</th>
<th>QUALIFYING FOR A PASS 50% MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>400</td>
<td>200</td>
</tr>
<tr>
<td>Practical/ Clinical Viva</td>
<td>400</td>
<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>800</td>
<td>400</td>
</tr>
</tbody>
</table>

A student shall secure not less than 50% marks in each head of passing which shall include 1. Theory 2. Practical including clinical and viva voce examination.
EXAMINATION AND EVALUATION

(1) EXAMINERS

(a) All the Post Graduate Examiners shall be recognised Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned.

(b) For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners, who shall be invited from other recognised universities from outside the State and other two will be internal examiners for D.M.

(c) Under exceptional circumstances, examinations may be held with 3 (three) examiners provided two of them are external and Medical Council of India is intimated the justification of such action prior to publication of result for approval. Under no circumstances, result shall be published in such cases without the approval of Medical Council of India.

(d) In the event of there being more than one centre in one city, the external examiners at all the centres in that city shall be the same. Where there is more than one centre of examination, the University shall appoint a Supervisor to coordinate the examination on its behalf.

(e) The guidelines regarding appointment of examiners are as follows:-

1. No person shall be appointed as an examiner in any subject unless he/ she fulfills the minimum requirements for recognition as a Post Graduate teacher as laid down by the Medical Council of India and has teaching experience of 8 (Eight) years as a Lecturer / Assistant Professor out of which he/ she has not less than 5 (Five) years teaching experience after obtaining Post Graduate degree. For external examiners, he/ she should have minimum three years experience of examinership for Post Graduate diploma in the concerned subject. Out of internal examiners, one examiner shall be a professor and Head of Department.
2. There shall be at least four examiners in each subject at an examination out of which at least 50% (Fifty percent) shall be external examiners. The external examiner who fulfils the condition laid down in clause – 1 above shall ordinarily be invited from another recognised university, from outside the State: provided that in exceptional circumstances examinations may be held with 3 (three) examiners if two of them are external and Medical council of India is intimated with the justification of such examination and the result shall be published in such a case with the approval of Medical council of India.

3. An external examiner may be ordinarily been appointed for not more than three years consecutively. Thereafter he/ she may be reappointed after an interval of two years.

4. The internal examiner in a subject shall not accept external examinership for a college from which external examiner is appointed in his/ her subject.

5. The same set of examiners shall ordinarily be responsible for the written, practical or part of examination.

6. In the event of there being more than one centre in one city, the external examiners at all the centres in the city shall be the same.

7. There shall be a Chairman of the Board of paper – setters who shall be an external examiner and shall moderate the question papers.

8. Where there is more than one centre of examination, there shall be Co-ordinator appointed by the University who shall supervise and Co-ordinate the examination on behalf of the University with independent authority.

9. The Head of the Department of the institution concerned shall ordinarily be one of the internal examiners and second internal examiner shall rotate after every two year.
(2) **Number of candidates**

The maximum number of candidates to be examined in Clinical / practical and Oral on any day shall not exceed three for D.M. degree examination.

3) **Number of examinations**

The university shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the examinations.

II. **Doctor of Medicine (D.M.) Neurology**

The examination shall consist of: Theory and Clinical/ Practical and Oral.

(a) **Theory**

There shall be four theory papers, one paper out of these shall be on Basic Medical Sciences, and another paper on Recent Advances. The theory examination will be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the start of the clinical/ Practical and Oral examination.

(b) **Clinical / Practical and Oral**

Practical examination shall consist of carrying out special investigative techniques for Diagnosis and Therapy. Oral examination shall be comprehensive to test the candidate’s overall knowledge of the subject.

A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory (2) Practical including clinical and viva voce examination.

**Evaluation of Answer Scripts**

The answer books will be valued by two examiners. One of the two examiners will be from this university and the other will be from any other university. The Average of the two marks secured by the candidate will be taken into account. If the difference between two marks exceeds 10%, the answer scripts shall be valued by the third examiner. The average of the nearest two marks shall be considered as the final mark.
MODEL QUESTION PAPER

DM Neurology

Paper I

Basic Sciences – consisting of Neuro anatomy, Neuro physiology, Neuro chemistry, Neuro pathology, Neuro Microbiology, Parasitology, Immunology, Epidemiology and Genetics.

Time: Three hours  Maximum Marks: 100

Answer all Questions

Draw suitable diagrams wherever necessary.

I. Essays: 2 x 20 = 40 Marks

1. Discuss formation, circulation and absorption of cerebrospinal fluid.
2. Discuss neurobiology of memory.

II. Write short notes on: 10 x 6 = 60 Marks

1. Triplet repeat disorders.
2. Circle of Wills.
3. Toxoplasmosis.
4. Ion channels.
6. Pathophysiology of migraine.
8. Beta amyloid protein.
10. Tumefactive demyelination.
DM Neurology
Paper II
Clinical Neurology

Time: Three hours

Maximum Marks: 100

Answer all Questions

Draw suitable diagrams wherever necessary.

I. Essays: 2 x 20 = 40 Marks

1. Neuropsychiatric manifestations in degenerative disorders of the nervous system.
2. Discuss the differential diagnosis of a floppy infant.

II. Write short notes on: 10 x 6 = 60 Marks

1. Allien hand syndrome.
2. Pervasive developmental disorders.
3. Neuropsychological evaluation in dementia.
4. Tourette syndrome.
5. Orthostatic hypotension.
6. Sleep apnoea.
7. Rett syndrome.
8. Choroid plexus papilloma.
DM Neurology

Paper III

Neuro Radiology, Electro Physiology, Neuro Otology, Neuro Ophthalmology and other investigatory procedures

Time: Three hours  Maximum Marks: 100

Answer all Questions

Draw suitable diagrams wherever necessary.

I. Essays: 2 x 20 = 40 Marks

1. Discuss on Magnetic Resonance Imaging (MRI) based approach to white matter disorders.
2. Discuss role of electrophysiological tests in the evaluation and management of carpal tunnel syndrome.

II. Write short notes on: 10 x 6 = 60 Marks

1. Paroxysmal Vertigo.
2. Acute unilateral visual loss.
3. Transcranial doppler.
4. Laboratory diagnosis of tuberculous meningitis.
5. Sympathetic skin response.
6. Dynamic posturography.
7. Photic stimulation.
8. Laboratory diagnosis of Eaton Lambert Syndrome.
10. Magneto encephalography.
DM Neurology

Paper IV

Recent advances in Neurology

Time: Three hours

Maximum Marks: 100

Answer all questions

Draw suitable diagrams wherever necessary.

I. Essays: 2 x 20 = 40 Marks

1. Discuss the role of stem cell therapy in neurology.
2. Recent advances in the management of Parkinson’s disease.

II. Write short notes on: 10 x 6 = 60 Marks

1. Restless leg syndrome.
2. Cluster headache.
3. Carotid endarterectomy.
4. IVIG in neurological disorders.
5. Non-convulsive status epilepticus.
6. New variant CJD.
7. Narcolepsy.
8. Megalencephalic leukodystrophy.
10. Channelopathies.
RECOMMENDED BOOKS AND JOURNALS


JOURNALS

1. Annals of Indian Academy of Neurology

2. Neurology India

3. Neurology


5. Journal of the Neurological Sciences.


7. Brain

8. Stroke
10. Current opinion in Neurology
11. The Lancet
14. Bulletin of the ICMR
15. Bulletin of the WHO
17. Medical Clinics of North America.

The Student should also be familiarized with Internet browsing for Journals, Special Articles, Review Articles and other recent recommendations of International Societies like the World Federation of Neurology, American academy of Neurology and World Stroke Association.

**Failure is a success if we learn from it**

- Macolmb S Forbes