

Syllabus for the post of

Associate Professor, Neuro Surgery, Class-I (Advt. No. 36/2023-24)

Marks – 200

Questions – 200

Medium - English

1. Basics in Neuroanatomy, Neurophysiology, Neuropathology, Electrophysiology, Neuropharmacology, Neurobiochemistry, Neuroimmunology with reference to neurosurgery.

2. Knowledge of the history of neurological surgery and its allied disciplines with special reference to India.

3. Neuroradiology:

- Normal skull & spine, changes in skull and spine due to SOL, special views. Contrast studies – DSA, Isotopic scanning & diagnostic procedures – C.T. Scan, M.R.I & P.E.T Scan etc.
- Performance and interpretation of Neuroradiological procedures, such as carotid arteriography and myelography. Familiarity with the technique of selective arteriography and its interpretation
- Principles and interpretation of computerized axial tomography, MRI and other modern investigations.

4. Neurology:

Methods of clinical examination, General diagnostic principles, Localisation
With specific reference to function of brain & spinal cord.

5. Clinical Neurosurgery including:

history taking, physical examination, diagnosis, selection and planning of relevant investigations, appropriate treatment and rehabilitation of patients with neurosurgical disorders including those presenting as emergencies.

6. Neurosurgery:

a. Basic principles.

b. Vascular Neurosurgery.

c. Neuro- oncology:

Tumours of the skull, Chordomas and Chondrosarcomas of the Cranial Base, trigeminal Neurinomas, Other cranial Nerve Schwannomas, Transfacial- Transmaxillary Approach to the Anterior Skull Base, Transoral Approaches to the clivus and upper cervical spine, Anterolateral cervical approach to the craniovertebral junction, Surgical anatomy of the cavernous sinus, Surgical treatment of tumors involving the cavernous sinus, Approaches to petroclival tumors., primitive neuroectodermal tumors, primary central nervous system lymphomas.

d. Surgery for congenital malformation like Hydrocephalus, craniovertebral anomalies, syringomyelia , spinal dysraphism management etc.

e. Traumatic brain and spinal & peripheral nerve Injuries

f. Spinal instrumentation.

g. Different approaches for disc surgeries.

h. Management of brain secondaries.

i. Infection of CSF:

➤ Antimicrobials for use in neurosurgical patients, Diagnosis and management of brain abscess, Acute bacterial meningitis, Spinal epidural and subdural abscesses, Fungal infection.

➤ Developmental anomalies and neurosurgical disorders of childhood- Neuroembryology, Spinal dysraphism, Tethered cord syndrome, Diastematomyia, Chiari malformations, Hydromyelia, Syringomyelia, Hydrocephalus: Pathophysiology and clinical features, Hydrocephalus: Treatment, Shunt system, Shunt complications,

j. Pediatric neurosurgery.

k. Minimal Invasive and neuroendoscopy..

l. Functional neurosurgery.

m. Vascular Diseases of The Nervous System :

- General information, Measurement of cerebral blood flow, Occlusive cerebrovascular disease, Pathology of ischemic cerebrovascular disease, Thrombolytic therapy for occlusive cerebrovascular disease, surgery for acute brain infarction with mass effect, Extracranial to Intracranial bypass grafting, Aneurysms and Subarachnoid haemorrhage Microsurgical anatomy of saccular aneurysms, Pre- and postoperative management of a patient with ruptured aneurysm, Ophthalmic segment aneurysm, other aneurysms of internal carotid artery, Middle cerebral artery aneurysms , Anterior communicating artery aneurysms, Distal anterior cerebral artery aneurysms, posterior circulation aneurysms, management of intracranial aneurysms and arteriovenous malformations during pregnancy .
- Vascular malformations and fistulas Intracranial arteriovenous malformations, Vein of Galen malformation, Stereotactic radiosurgery of intracranial arteriovenous malformations, Spinal vascular malformations.
- Other vascular disorders Spontaneous intraspinal hemorrhage, Spontaneous intraparenchymal brain hemorrhage.

7. Tumor:

- **Metastatic brain tumor**-Surgery for a single brain metastatic, Meningeal carcinomatosis
- **Meningiomas- Meningiomas:** Pathology, Imaging, Supratentorial meningiomas:clinical features and surgical management, Infratentorial and foramen magnum meningiomas
- **Epidermoid and dermoid tumor**-Epidermoid and dermoid tumors: Pathology, Imaging, Clinical features and surgical management.
- **Tumors in the region of the pineal gland**-Classification and pathology, Clinical features and surgical management, Surgical approaches to pineal tumors.
- **Cerebellopontine angle tumor**-Tumor of the cerebellopontine angle: Pathology,Tumor of the cerebellopontine angle: Neuro-otologic aspects of

diagnosis, tumor of the cerebelloponine angle: clinical features and surgical management via a retrosigmoid approach.

- **Posterior fossa tumors**-Imaging of posterior fossa tumors, Microsurgical Anatomy of the fourth ventricle, Cerebellar Astrocytomas, Medulloblastomas, pediatric brain stem gliomas, Ependymoma, Subependymomas
- **Sellar and Parasellar tumors**- Microsurgical anatomy of sellar region, Imaging of Sellar and Parasellar Lesions, Classification and Pathology of Pituitary tumors, Prolactinomas, Cushing's Disease and Nelson's Syndrome, Pituitary Apoplexy, Trans-sphenoidal Approach to the Pituitary Gland, Transcranial approaches to the Pituitary Gland and Sellar region, Craniopharyngiomas, Optic Gliomas, Suprasellar germinomas, Lateral and Third Ventricle Tumours, Tumours of the Orbit.

8. **Landmarks in the history of neurosurgery, micro neurosurgery, neuroradiology.**
9. **Biostatistics, Research Methodology and Clinical Epidemiology**
10. **MEDICO LEGAL ASPECTS RELEVANT TO THE DISCIPLINE.**
11. **Health Policy issues as may be applicable to the discipline**
12. **INDIAN MEDICAL COUNCIL (PROFESSIONAL CONDUCT, ETIQUETTE AND ETHICS) REGULATIONS, 2002.**
13. **CURRENT TRENDS AND RECENT ADVANCEMENTS IN THE FIELD OF NEUROSURGERY.**