

Reg. No.

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**M.Ch. (NEURO SURGERY) DEGREE EXAMINATION – JULY 2022**

**SUBJECT: PAPER I**

Monday, July 18, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **All questions are compulsory.**

✍ **Long Essay:**

1. Describe the anatomy of the craniovertebral junction with emphasis on embryology.  
(20 marks)

2. Describe the surgical anatomy of the third ventricle.  
(20 marks)

3. **Short Notes:**

3A. Neurophysiology of Spasticity

3B. Auditory pathway and BERA

3C. Pathophysiology of normal pressure hydrocephalus

3D. Tumour markers

3E. Diabetes insipidus

3F. Neurocysticercosis

(10 marks × 6 = 60 marks)



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**SUBJECT: PAPER II**

Tuesday, July 19, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

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✍ **All questions are compulsory.**

✍ **Long Essay:**

1. Etiopathogenesis, clinical features, grading and management guidelines for cerebral AVMs.  
(20 marks)

2. Diagnosis of spinal instability and basic principles of spinal instrumentation.  
(20 marks)

3. **Short notes:**

3A. Caroticocavernous fistula

3B. Pyogenic Brain abscess

3C. Post traumatic epilepsy

3D. Intramedullary spinal cord tumours – types and clinical features

3E. Chiari malformation – types and clinical features

3F. Craniostenosis – classification and management principles

(10 marks × 6 = 60 marks)



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**SUBJECT: PAPER III**

Wednesday, July 20, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **All questions are compulsory.**

✍ **Long Essay:**

1. Safe entry zones to the brain stem.

(20 marks)

2. Approaches to the pineal region.

(20 marks)

3. **Write briefly on:**

3A. Approaches to the orbit

3B. Low grade gliomas – controversies in surgical management

3C. Brain stem gliomas

3D. Risk stratification in medulloblastoma

3E. Incidental Colloid cysts of the third ventricle – management controversy

3F. Type II odontoid fracture

(10 marks × 6 = 60 marks)



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**SUBJECT: PAPER IV**

Thursday, July 21, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

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✍ **Answer ALL questions.**

✍ **Draw diagrams whenever necessary.**

✍ **Essay:**

1. Discuss role of deep brain stimulations for movement disorders.

(20 marks)

2. Discuss role of endoscopy in Neurosurgery.

(20 marks)

3. **Short Essays:**

3A. Proton radiosurgery

3B. MOMs trial

3C. Contribution of Dr. Ramamurthy

3D. Artificial disc

3E. Dynamic spinal instrumentation

3F. Transcranial doppler

(10 marks × 6 = 60 marks)

