THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0124] JANUARY 2024 Sub. Code :1516

D.M. – NEURO ANEASTHESIA

PAPER – I – BASIC SCIENCES, NEURO ANATOMY, PHYSIOLOGY, PHARMOCOLOGY

Q.P. Code: 161516

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss in detail the various techniques available for the measurement of Cerebral Blood Flow and their principles.

2. Describe in detail the eloquent cortex and its relevance in Neurosurgical procedures.

II. Write notes on: **(10 x 7 = 70)**

1. Blood Supply of the Spinal cord.
2. Define compliance and describe the Pressure – Volume compliance Curve.
3. Hyperosmolar agents used in Neurosurgery.
4. Describe the various ascending tracts and their functions.
5. Vasopressin Receptor Antagonists.
6. Trigemino cardiac Reflex.
7. Compare and Contrast Mannitol and Hypertonic Saline.
8. Discuss the mechanism of action and side effect of Levetiracetam.
9. Illustrate with a diagram the structures involved with the Brain Herniation syndrome.
10. Describe the various processes involved with the formation of Cerebrospinal fluid.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0225] **FEBRUARY 2025** **Sub. Code :1516**

D.M. – NEURO ANAESTHESIA

PAPER I – BASIC SCIENCES, NEURO ANATOMY, PHYSIOLOGY, PHARMOCOLOGY

Q.P. Code: 161516

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe in detail the clinical anatomy and physiology of the pituitary gland.

2. Describe in detail the pathophysiology of the Ischaemic Cascade.

II. Write notes on: **(10 x 7 = 70)**

1. Describe the normal Intracranial Pressure (ICP) waveform and the factors which influence ICP.

2. Describe the venous anatomy of the brain.

3. Discuss in brief the Neuron-Glia Metabolic Coupling.

4. Elaborate the mechanism of action of Gabapentin and its role in the perioperative period.

5. Pressure Reactivity Index and its applications in Neurocritical Care.

6. Discuss in brief the Contrast agents used in Neuroradiology and precautions with their use.

7. Illustrate with a diagram, the motor pathway and its relevance to various Intraoperative Neuromonitoring Techniques.

8. Describe the mechanism of action of Nimodipine and discuss with evidence its role in aneurysmal Subarachnoid Hemorrhage (aSAH).

9. Describe in brief the embryological development of the brain.

10. Discuss the role of adenosine in Neurovascular procedures.

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[DM 0126] **JANUARY 2026** **Sub. Code :1516**

D.M. – NEURO ANAESTHESIA

PAPER I – BASIC SCIENCES, NEURO ANATOMY, PHYSIOLOGY, PHARMOCOLOGY

Q.P. Code: 161516

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe in detail the various strategies for neuro protection of the Brain.

2. Describe in detail
   a) Anatomy and Physiology of the Neuromuscular Junction. (10)
   b) Various modalities available for the intraoperative monitoring of Neuromuscular Junction. (5)

II. Write notes on: **(10 x 7 = 70)**

1. Discuss in brief the venous anatomy of the brain.

2. Elaborate on the embryological development of the nervous system.

3. Mention in brief the functions of the Blood Brain Barrier.

4. Discuss in detail the role of Nitric Oxide in the autoregulation of the brain.

5. Define Cerebrovascular Reserve. How do you assess Cerebrovascular Reserve?

6. Discuss in detail the Metabolic Coupling Hypothesis of the brain.

7. Discuss the various techniques used to assess autoregulation with a Transcranial Doppler.

8. Discuss in brief the non-neurological causes of cerebral edema and its management.

9. Compare and Contrast Phenytoin and Fosphenytoin.

10. Discuss the aetiopathogenesis of Posterior Reversible Encephalopathy Syndrome (PRES).

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