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

[MD 0524] **MAY 2024** **Sub. Code: 4015**

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – SYSTEMIC PHYSIOLOGY

(SYSTEM CONCERNED WITH REGULATION, NEURAL CONTROL AND PROCREATION)

Q.P. Code: 204015

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

I. Essay Questions: **(2 x 15 = 30)**

1. Describe the pain pathways and the endogenous analgesic systems.

2. With experimental and clinical evidence describe the hormonal interactions leading to the initiation and maintenance of lactation.

II. Short notes: **(10 x 5 = 50)**

1. Dystrophin – glycoprotein complex.
2. Compound action potential.
3. What is refractory period? Mention its types.
4. Ghrelin and its clinical significance.
5. Feto-placental unit.
6. Muscle spindle.
7. Physiological basis of the therapeutic uses of cortisol.
8. Macula lutea.
9. Auditory pitch perception.
10. Implicit memory.

III. Reasoning Out: **(4 x 5 = 20)**

1. Explain the hyperphagia in diabetes mellitus stressing the role of hypothalamus.
2. What are the advantages of dual autonomic innervations?
3. Plant-derived arrow poison causes paralysis.
4. Conduction can occur in either along an axon but is only direction at a chemical Synaptic Junction.

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

[MD 1224] **DECEMBER 2024** **Sub. Code: 4015**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER III – SYSTEMIC PHYSIOLOGY
(SYSTEM CONCERNED WITH REGULATION, NEURAL CONTROL AND PROCREATION)

Q.P. Code: 204015

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

I. Essay Questions: **(2 x 15 = 30)**

1. Explain in detail about the descending tracts of Spinal cord, add a note on Brown-Sequard syndrome.

2. a) Trace out the Visual Pathway.
   b) Write in brief about lesions at various levels.
   c) Add a note on Rod's Potential.

II. Short notes: **(10 x 5 = 50)**

1. Papez circuit.
2. Reticular formation.
3. Vestibular apparatus.
4. Disynaptic reflex with diagrammatic representation.
5. Functions of Hypothalamus.
6. Properties of receptors.
7. Hans Berger.
8. Excitatory Neurotransmitters.
9. Gate theory of pain.
10. Closed circuit of cerebellum.

III. Reasoning Out: **(4 x 5 = 20)**

1. Phantom limb – Justify it.
2. Retropulsion in Parkinsonism.
3. Dysmetria in cerebellar lesion – Justify.
4. Two extremes of temperature of water instillation produce nystagmus – Justify it.

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

[MD 0525] **MAY 2025** **Sub. Code: 4015**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER III – SYSTEMIC PHYSIOLOGY

(SYSTEM CONCERNED WITH REGULATION, NEURAL CONTROL AND PROCREATION)

Q.P. Code: 204015

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

I. Essay Questions: **(2 x 15 = 30)**

1. Describe Nuclei Afferent and Efferent Connections and Functions of Cerebellum. Add a Note on Cerebellar Lesions.

2. Describe the Neural Functions of Retina. Add a Note on Photochemistry of Vision.

II. Short notes: **(10 x 5 = 50)**

1. What is Synaptic Delay? What is its Significance in Brain Function?
2. Inverse Stretch Reflex.
3. What are the Stages of Complete Section of Spinal Cord?
4. Endo Cochlear Potentials.
5. Huntington's Disease.
6. Mechanism of Hearing.
7. Taste Pathway and its Disorders.
8. Intraocular Pressure.
9. Function of Thalamus.
10. Errors of Refraction and their Correction.

III. Reasoning Out: **(4 x 5 = 20)**

1. What is Near Point of Vision? Why does it Recede Throughout Life?
2. Clonus in Upper Motor Lesion.
3. Fibrillations and fasciculations.
4. Explain how middle ear infections interfere with hearing.

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

[MD 1025] **OCTOBER 2025** **Sub. Code: 4015**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER III – SYSTEMIC PHYSIOLOGY
(SYSTEM CONCERNED WITH REGULATION, NEURAL CONTROL AND PROCREATION)

Q.P. Code: 204015

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

I. Essay Questions: **(2 x 15 = 30)**

1. Discuss the connections and functions of basal ganglia. Discuss its clinical disorders and physiological basis of treatment.

2. Describe the mechanism of hearing and discuss about theories of hearing.

II. Short notes: **(10 x 5 = 50)**

1. EEG.
2. Visual pathway and its defects.
3. Neural control of sex behaviour.
4. Wernick's area.
5. Aqueous humor.
6. Feeding and satiety.
7. Papez circuits and their clinical significance.
8. Plasticity of Brain.
9. Composition and functions of Cerebro Spinal fluid (CSF).
10. Hemiplegia.

III. Reasoning Out: **(4 x 5 = 20)**

1. Pilots wear red goggles before they enter the flight cabin - Reason out.
2. "Botulinum toxin" for the treatment of spasticity – Explain.
3. What is the reason for habituation?
4. Give reason for the type of tremor in cerebellar disease.

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

[MD 0526] **MAY 2026** **Sub. Code: 4015**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER III – SYSTEMIC PHYSIOLOGY
(SYSTEM CONCERNED WITH REGULATION, NEURAL CONTROL AND PROCREATION)

Q.P. Code: 204015

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

I. Essay Questions: **(2 x 15 = 30)**

1. Mention the afferent and efferent connections of Hypothalamus and explain its functions.

2. Describe the endometrial and ovarian cycles and explain their hormonal basis.

II. Short notes: **(10 x 5 = 50)**

1. Length –tension relation in a striated muscle contraction.
2. Wallerian degeneration.
3. Neuromuscular blockers.
4. Photochemistry of vision.
5. Neural control of Sex behaviour.
6. Impedance matching in middle ear.
7. Wernicke's area.
8. Calbindin – D proteins.
9. Actions of aldosterone.
10. Importance of hormonal responses in stress.

III. Reasoning Out: **(4 x 5 = 20)**

1. In severe diabetes, there is a negative nitrogen balance why?
2. What is the cause of anomic aphasia?
3. Why children with Cretinism have short stature and mental insufficiency?
4. Why visceral pain is poorly localized?

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