

April-2001

[KD 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

Branch V — Physiology

(New/Revised Regulations)

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

1. What are the Nuclei connections and functions of Basal Ganglia? Add a note on paralysis Agitans. (25)
 2. Describe the mechanism of Hearing and discuss about theories of Hearing. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Photo-Chemistry of Vision.
 - (b) EEG and its uses.
 - (c) Neural control of sex behaviour.
 - (d) Functions of ventro-medial hypothalamus.
 - (e) Functions of smell and its disorders.
-

November-2001

[KE 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(New/Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

1. Describe the plan of arrangement of Autonomic Nervous System. What are the functions of the Sympathetic Nervous System. How are they explained.
(25)
 2. Describe the auditory pathway. Discuss the functions of the Inferior Colliculus and the Auditory Cortex.
(25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Alpha-Gamma Linkage.
 - (b) Rapid-Eye Movement (REM) Sleep.
 - (c) Retinal receptor potentials.
 - (d) Feeding and Satiety.
 - (e) Aqueous humour.
-

March-2002

[KG 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(New/Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND
SPECIAL SENSES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

1. Describe the regulation of muscle tone and its disturbances in various neurological disorders. (25)
 2. Describe the various neural mechanisms responsible for perception of colour vision. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Babinski's sign.
 - (b) Impedance matching in middle ear.
 - (c) Brain's opiate system.
 - (d) Wernick's area.
 - (e) Axon reflex.
-

September-2002

[KH 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Describe basic circuitry, connections and functional organization of cerebellum. (25)
 2. Write a brief essay on production and perception of pain. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Organ of corti
 - (b) Inverse stretch reflex
 - (c) Argyl Robertson's pupil
 - (d) Rapid eye movement sleep
 - (e) Muscle spindle.
-

April-2003

[KI 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

1. Describe the mechanisms involved in arousal and wakefulness. (25)
 2. Discuss the modern views in the mechanism of color vision and describe the pathophysiology of color blindness. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Speech audiometry
 - (b) Macula Lutea
 - (c) Wernicke's area
 - (d) Sham rage
 - (e) Intraocular pressure.
-

[KJ 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL SENSES

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the
answer sheet provided as per the instructions on the
first page.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. Discuss the connections and functions of Basal ganglia. Discuss its clinical disorders and physiological basis of treatment. (15)

2. Discuss the mechanism of hearing in detail. Add a note on tests for hearing and auditory defects. (15)

3. Write notes on :

(10 × 5 = 50)

- (a) Cerebellar function tests
- (b) Referred pain
- (c) Prostaglandins
- (d) Errors of Refraction and their correction
- (e) Visual pathway and its defects
- (f) Electroretinogram
- (g) Impedence matching
- (h) Colour vision and its defects
- (i) Taste pathway and its disorders
- (j) Papez circuits and their clinical significance.

[KL 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Draw a diagram of the cerebral cortex and mark therein the areas concerned with voluntary movement. Describe motor homunculus. (15)

(2) Draw a diagram to show the pathway involved in the near response. Explain the purpose of these changes. (15)

II. Write short answers on : (10 × 5 = 50)

- (a) Endogenous analgesia system
- (b) Referred pain
- (c) Effects of sectioning a series of dorsal nerve roots
- (d) Audiogram
- (e) Axonotmesis
- (f) Blood brain barrier
- (g) Give the basis of Spinal shock
- (h) Distance perception by the eye
- (i) Auditory pitch perception
- (j) Tactile localization.

[KM 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL SENSES

Time : Three hours **Maximum : 100 marks**

Theory : Two hours and forty minutes	Theory : 80 marks
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M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay: (2 × 15 = 30)

(1) Describe the nuclear arrangement of the hypothalamus. Explain the physiological role of hypothalamus in mediating bodily functions.

(2) (a) What do you mean by photochemistry of vision? What are the photochemical changes normally accompanied during vision?

(b) What is visual acuity? What are the applications of ophthalmoscopy? (9 + 2 + 4)

II. Write short notes on : (10 × 5 = 50)

- (a) Astereognosis.
- (b) Phantom-limb syndrome.
- (c) Neural pathways for olfaction.
- (d) What is rem sleep? What are the EEG changes during rem sleep?
- (e) Describe muscle spindle and its functions.
- (f) What is parkinson's disease? What are the basis of clinical features and different types of treatment?
- (g) Types of inhibition.
- (h) Physiological basis of glaucoma.
- (i) Erlanger-garser and lloyd classification of nerve fibres.
- (j) Describe the physiological basis of neuro-muscular blockers.

[KP 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

Branch V — Physiology

Paper III — NERVOUS SYSTEM AND SPECIAL
SENSES

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay Questions :

(1) Describe the pain pathways and the
endogenous analgesic systems. (20)

(2) Write in detail the properties of sensory
receptors. (15)

(3) Explain the organisation of neural elements
of retina and the neural pathway for the visual cortex.
(15)

II. Write Short notes on : (6 × 5 = 30)

(a) Presbyopia.

(b) Implicit memory.

(c) Mass reflex.

(d) GABA (Gamma Amino Butyric Acid).

(e) Reciprocal innervation.

(f) Suprachiasmatic nucleus.

[KQ 122]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

Branch V — Physiology

NERVOUS SYSTEM AND SPECIAL SENSES

Common to :

Paper III — (Old/New/Revised Regulations)

(Candidates admitted from 1988–89 onwards)

and

Paper III — (for candidates admitted from 2004–2005
onwards)

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes .

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Discuss the role of various reflexes integrated at the levels of spinal cord and medulla in the regulation posture and movement. (20)

2. Describe various properties of receptors. With the help of a suitable diagram, explain how the sensation of crude touch is projected from the receptor to the cortex. (15)

3. Discuss the connections and functions of brainstem Reticular Activating System (RAS). Explain the role of RAS in the genesis of EEG waves. (15)

II. Write short notes on : (6 × 5 = 30)

- (a) Mechanism of hearing.
 - (b) Visual cortex.
 - (c) Hair cells of vestibular apparatus.
 - (d) Parkinsonism.
 - (e) Cortical plasticity.
 - (f) Concept of categorization of cerebral hemisphere.
-

MARCH 2008

[KS 123]

Sub. Code : 2020

M.D. DEGREE EXAMINATION.

Branch V – Physiology

NERVOUS SYSTEM AND SPECIAL SENSES

(Common to all candidates)

Q.P.Code : 202020

Time : Three hours

Maximum : 100 marks

Draw diagrams wherever necessary.

Answer ALL questions.

I. Essay questions: (2 × 20 = 40)

1. Describe the posture regulating mechanisms in the body.
2. Mention the afferent and efferent connections of Hypothalamus and explain its functions.

II. Write Short notes on : (10 × 6 = 60)

1. Sleep.
 2. Final common pathway.
 3. Memory.
 4. Intrinsic analgesic system.
 5. Colour vision.
 6. Cochlea.
 7. Cholinergic projections to cerebral cortex from basal forebrain.
 8. Huntington's disease.
 9. Taste receptors and signal transduction.
 10. Supra chiasmatic nuclei
-

September 2008

[KT 123]

Sub. Code: 2020

M.D. DEGREE EXAMINATION

Branch V – Physiology

Paper III – NERVOUS SYSTEM AND SPECIAL SENSES

(Common to all candidates)

Q.P. Code : 202020

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 X 20 = 40)

1. Describe nuclei afferent and efferent connections and functions of cerebellum. Add a note on cerebellar lesions.
2. Describe visual pathway and effects of lesions at various levels.

II. Write short notes on :

(10 X 6 = 60)

1. Endo cochlear potentials.
 2. Renshaw cell inhibition.
 3. Role of nervous system in the behavioural functions of the body.
 4. Neural mechanisms of REM sleep.
 5. Pain perception.
 6. Speech audiometry.
 7. Nucleus tractus solitarius.
 8. Neurotrophins and their use in various disease
 9. Memory.
 10. Role of Hypothalamus in food intake.
-

March 2009

[KU 123]

Sub. Code: 2020

M.D. DEGREE EXAMINATION

**Branch V – PHYSIOLOGY
(Common to all candidates)**

Paper III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 x 20 = 40)

1. Describe the nuclei, afferent and efferent connections of basal ganglia.
Add a note on parkinsonism.
2. Discuss the 'Theories of Hearing'. Add a note on audiometry.

II. Write short notes on :

(10 x 6 = 60)

1. Reciprocal innervation.
2. Inverse stretch reflex.
3. Decerebrate rigidity.
4. split brain animal.
5. Experimental neurosis.
6. Opioid peptides.
7. Pain pathway and referred pain.
8. Theories of color vision.
9. Refractive errors.
10. Cochlear microphonics.

March 2010

[KW 123]

Sub. Code: 2020

M.D. DEGREE EXAMINATION

**Branch V – PHYSIOLOGY
(Common to all candidates)**

Paper III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 x 20 = 40)

1. Discuss the postural reflexes.
2. Describe the auditory pathway. Add a note on conductive deafness.

II. Write short notes on :

(10 x 6 = 60)

1. Prefrontal lobes.
2. EEG.
3. Ascending reticular activating system (ARAS).
4. Broca's area.
5. Reciprocal innervation.
6. Brown sequard syndrome.
7. Synaptic plasticity.
8. Taste pathway.
9. Theories of hearing.
10. Hemianopia.

September 2010

[KX 123]

Sub. Code: 2020

M.D. DEGREE EXAMINATION

Branch V – Physiology

Paper III – NERVOUS SYSTEM AND SPECIAL SENSES

(Common to all candidates)

Q.P. Code : 202020

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 X 20 = 40)

1. Describe the latest concepts on the Neurophysiology of pain and their modulation? How is pain different from other sensations?
2. Enumerate the theories of Hearing. Discuss the merits and demerits of each of them.

II. Write short notes on :

(10 X 6 = 60)

1. Accommodation reflex pathway? What is Argyll Robertson's pupil?
2. Prefrontal lobe syndrome.
3. Describe the functions of important areas of the limbic system.
4. Mechanism by which the eye focuses images on the retina.
5. Nerve Growth Factor.
6. Functions of Thalamus.
7. Parkinsonism.
8. Brown Sequard Syndrome.
9. Micro anatomy of retina.
10. Evoked Potential.

MAY 2011

[KY 123]

Sub. Code: 2020

**M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
NERVOUS SYSTEM AND SPECIAL SENSES**

Q.P. Code : 202020

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Explain the perception, modulation and the pathway of pain.	6	15	10
2. Trace the visual pathway and describe the effect of lesion at different levels in the right eye.	6	15	10
II. Short Questions:			
1. Synaptic inhibition.	3	8	5
2. Inverse stretch reflex.	3	8	5
3. Functions of reticular formation.	3	8	5
4. Difference between NREM sleep and REM sleep.	3	8	5
5. Brown Sequard Syndrome.	3	8	5
6. Taste pathway.	3	8	5
7. Functions of middle ear.	3	8	5
8. Stereopsis.	3	8	5
III. Reasoning Out:			
1. List the features of Parkinsonism. Explain the physiological basis of the drugs used in its treatment.	4	10	5
2. Explain the hyperphagia in Diabetes mellitus stressing the role of hypothalamus.	4	10	5
3. What are the advantages of dual autonomic innervations?	4	10	5
4. Explain how middle ear infections interfere with hearing.	4	10	5
IV. Very Short Answers :			
1. Name the area concerned with speech.	1	4	2
2. Functions of Neuroglia.	1	4	2
3. Name two facilitatory and two inhibitory neurotransmitters and their site of action.	1	4	2
4. Papez circuit.	1	4	2
5. What is Weber-Fechner law?	1	4	2
6. What are the components of a reflex arc?	1	4	2
7. What are the stages of complete section of spinal cord?	1	4	2
8. What type of threshold olfaction has? Name the chemical added to provide olfactory message of gas leakage.	1	4	2
9. Place theory.	1	4	2
10. Functions of tectorial membrane in the cochlea.	1	4	2

October 2011

[KZ 123]

Sub. Code: 2020

M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

I. Essay :

Pages Time Marks
(Max.) (Max.) (Max.)

- | | | | |
|---|---|----|----|
| 1. Describe the muscle spindle and golgi tendon organ. Analyze their function as apart of a feedback system that control muscle length and muscle force respectively. | 6 | 15 | 10 |
| 2. Describe the neural function of retina. Add a note on photochemistry of vision. | 6 | 15 | 10 |

II. Short Questions:

- | | | | |
|--|---|---|---|
| 1. Write the physiology of glutamate receptors in brain. | 3 | 8 | 5 |
| 2. Electrical events during neuronal inhibition. | 3 | 8 | 5 |
| 3. Cortical plasticity. | 3 | 8 | 5 |
| 4. Neurophysiology of excitation of ganglion cells. | 3 | 8 | 5 |
| 5. Colour blindness. | 3 | 8 | 5 |
| 6. Theories of hearing. | 3 | 8 | 5 |
| 7. Mechanisms of determination of direction of sounds. | 3 | 8 | 5 |
| 8. Prefrontal lobe. | 3 | 8 | 5 |

III. Reasoning Out:

- | | | | |
|--|---|----|---|
| 1. What is final common path? Give its physiological basis. | 4 | 10 | 5 |
| 2. Why visceral pain is poorly localized? | 4 | 10 | 5 |
| 3. What is the cause of anomic aphasia? | 4 | 10 | 5 |
| 4. What is near point of vision? Why does it recede throughout life? | 4 | 10 | 5 |

IV. Very Short Answers :

- | | | | |
|--|---|---|---|
| 1. Functions of aqueous humor. | 1 | 4 | 2 |
| 2. Consolidation of memory. | 1 | 4 | 2 |
| 3. Hypokinetic features of Parkinsonism. | 1 | 4 | 2 |
| 4. What is synaptic delay? What is its significance in brain function? | 1 | 4 | 2 |
| 5. Give four examples for tonic receptor. | 1 | 4 | 2 |
| 6. What is Doctrine of specific nerve energies and what is its physiological significance. | 1 | 4 | 2 |
| 7. State Bell – Magendie law and give its physiological implication. | 1 | 4 | 2 |
| 8. What are orientation columns and how are they mapped experimentally? | 1 | 4 | 2 |
| 9. What is tympanic reflex? | 1 | 4 | 2 |
| 10. Neural mechanism of stereopsis. | 1 | 4 | 2 |

APRIL 2012

[LA 123]

Sub. Code: 2020

**M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES
Q.P. Code : 202020**

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Discuss the functions of cerebellum in overall motor Control of the body.	9	15	10
2. Discuss the physiology of pain. Add a note on visceral Pain.	9	15	10
II. Short Questions:			
1. Trace the olfactory pathway.	3	8	5
2. Discuss about the receptor potential of the paccinian Corpuscles.	3	8	5
3. Explain the reward and punishment function of the limbic System.	3	8	5
4. Discuss the photochemistry of vision.	3	8	5
5. Discuss about the transmission of sound waves in the cochlea.	3	8	5
6. Write the differences between REM and NREM sleep.	3	8	5
7. Write about cortical plasticity.	3	8	5
8. Discuss about the errors of refraction and its correction.	3	8	5
III. Reasoning Out:			
1. Lower motor neuron is also called as the final common path.	5	10	5
2. Contraction of ciliary muscles of the eye causes increased Refractory power of the lens. How?	5	10	5
3. Habituation and sensitization are related to release of Neurotransmitter at synapse.	5	10	5
4. Two point discriminatory ability is different in different places of the Body. Why?	5	10	5
IV. Very Short Answers :			
1. Define Weber Feschner Law.	1	4	2
2. What is the area for naming objects?	1	4	2
3. Write the functions of frontal lobe.	1	4	2
4. Define summation. Mention its types.	1	4	2
5. What is papez circuit?	1	4	2
6. What is decerebrate rigidity?	1	4	2
7. Write about the changes that occurs after the ablation of antitemporal cortex.	1	4	2
8. What is itch and tickle?	1	4	2
9. What are otolith organs?	1	4	2
10. Name the receptor for temperature.	1	4	2

[LB 123]

OCTOBER 2012

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Discuss the connections and functions of Thalamus Control of the body.	9	15	10
2. How is pain perceived? Discuss the descending pain control mechanism.	9	15	10
II. Short Questions:			
1. Write Neural circuit for transmission of taste signal	3	8	5
2. Describe the electrophysiology of photo receptors.	3	8	5
3. Define stretch reflex? Discuss Inverse stretch reflex.	3	8	5
4. What is Babinski sign? What its physiological & pathological Significance.	3	8	5
5. Describe the parkinson's disease and huntington's disease.	3	8	5
6. Discuss function of hair cells in Vestibular apparatus.	3	8	5
7. Describe the structure and function of limbic system.	3	8	5
8. Discuss the pathophysiology of fever.	3	8	5
III. Reasoning Out:			
1. Why dysmetria seen in cerebellar disease?	5	10	5
2. The nerve gases that were developed for chemical warfare generally inhibit acetyl choline esterase. Why this inhibition produce death?	5	10	5
3. In a normal subject, central delay for a given reflex response was about .9 ms. Explain your answer.	5	10	5
4. Human can discriminate between many different odours. What are the mechanism that make this possible?	5	10	5
IV. Very Short Answers :			
1. Name the four types of eye movements & the function	1	4	2
2. What is a "final common path" & its Importance.	1	4	2
3. What is Bell Magendie law & its importance.	1	4	2
4. Explain hyperalgesia and allodynia.	1	4	2
5. Define somnambulism and narcolepsy.	1	4	2
6. List the clinical use of EEG	1	4	2
7. What is mass reflex?	1	4	2
8. Name the five types of neuron found in the cerebellar cortex.	1	4	2
9. What is an intention tremor?	1	4	2
10. Mention the various type of memory?	1	4	2

(LC 123)

APRIL 2013

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time: Three Hours

Maximum: 100 marks

I. Essay: (2X10=20)

1. Discuss the mechanism concerned with maintenance of equilibrium. Add a note on motion sickness.
2. Discuss in detail about the connections and functions of cerebellum. Add a note on reverberating circuits.

II. Short Questions: (8X5=40)

1. Discuss the lesions at different levels of visual pathway
2. What is Renshaw cell inhibition and its significance
3. Explain the perception modulation of pain.
4. Discuss the clinical importance of Babinski's sign
5. Discuss the clinical applications of evoked potential
6. Discuss the formation, flow and absorption of Cerebrovascular fluid
7. Discuss the different types of brain waves that are present in a normal electroencephalogram.
8. Explain the neural mechanisms in fixation movement of eyes

III. Reasoning Out: (4X5=20)

- 1 Bilateral removal of hippocampus produces anterograde amnesia, Explain.
- 2 Deep anaesthesia is usually required for intra abdominal operation. Explain with physiological basis.
- 3 In children, the refractory power of the lens of the eye can be increased voluntarily from 20 D to 34 D. As a person grows older, it decreases. Why?
- 4 A Caricature of the normal standing position in decerebrate animal. Why?

IV. Very Short Answers: (10X2=20)

1. Write about the functions of nerve growth factor
2. What is near point?
3. What is endocochlear potential?
4. What is taste blindness?
5. What is crossed extensor reflex?
6. What is colour blindness?
7. What is accentuation reflex?
8. What is masking effect?
9. What is global aphasia?
10. Define visual acuity

[LD 123]

OCTOBER 2013

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time: Three Hours

Maximum: 100 marks

I. Essay:

(2 x 10 = 20)

1. Tabulate the neurological findings in *hemi-section of the spinal cord at the level of second lumbar spinal segment on the left side (L2, left)* under the following headings: sensory system, motor system, superficial and deep reflexes. (Specify the reflexes).
2. Describe the following terms:
Habituation, Sensitization, Classical and Operant conditioning. What type of 'memory' do these phenomena represent? Discuss the molecular mechanisms of any two of these 4 phenomena, with experimental evidences.

II. Short Questions:

(8 x 5 = 40)

1. Discuss the physiological role of Hippocampus.
- 2.
2. State the origin and termination of climbing fibres and their role in cerebellar function.
3. Describe the nuclei, internal and external connections of Basal ganglia. State the pathophysiology of Parkinson's disease.
4. Discuss the role of muscle spindles. What is the role of gamma motoneurons in muscle spindle function?
5. Discuss the endogenous mechanisms for pain control.
6. Classify the receptors for the major excitatory neurotransmitter in the brain. How are they different from each other functionally?
7. Describe the mechanism of action of:
(a) Local anaesthetics
(b) Succinyl choline
8. Describe the term 'hemi neglect'. What lesion leads to this condition?

[PTO]

III. Reasoning Out:

(4 x 5 = 20)

1. With the aid of a diagram discuss the visual field defects that result from various lesions of the optic pathway. Give reasons for your answer.
2. State the results of 'tests of hearing' in a patient who has:
 - (a) Middle ear infection on the left side
 - (b) Cochlear disease on the left side
3. Describe the features of Decorticate and Decerebrate rigidity. If a patient who shows signs of decorticate rigidity develops decerebrate posturing, what is the prognosis? In an experimental preparation, how can you prove that decerebrate rigidity is reflexive?
4. What are the features of 'REM' sleep? What happens to muscle tone during this phase and why?

IV. Very Short Answers:

(10 x 2 = 20)

1. How are frequency and intensity of sound coded for in auditory sensation?
2. Which are the inhibitory neurotransmitters which are ionotropic?
3. Classify cholinergic receptors and state one location for each.
4. What is the pathophysiology of organophosphorous poisoning?
5. Define astigmatism. How is it corrected?
6. What is 'Substantia gelatinosa'? What is its significance?
7. What happens to direct and consensual pupillary reflexes in
 - (a) Right optic nerve lesion
 - (b) right oculomotor nerve lesion?
8. What are the receptors responsible for:
 - (1) inverse stretch reflex
 - (2) flexion withdrawal reflex?
9. List the extrapyramidal tracts.
10. With the aid of a diagram show the location of the primary sensory cortex in the brain.

[LE 123]

APRIL 2014

Sub. Code: 2020

**M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES**

Q.P. Code :202020

Time : Three hours

Maximum : 100 marks

I. Essay:

(2X10=20)

1. Name the ascending tracts. Describe the origin, course, termination and sensation carried by tract of Goll and Burdach.
2. What are the postural reflexes that can be studied in a midbrain animal?

II. Short Questions:

(8X5=40)

1. Long-Term potentiation.
2. Doctrine of specific nerve energies.
3. Theories of color vision.
4. Taste pathway.
5. Pheromones.
6. Alpha Block in EEG.
7. Cortical motor areas.
8. Papez circuit.

II. Reasoning Out:

(4X5=20)

1. What is the reason for habituation?
2. Explain the physiological basis for pain in phantom limb.
3. Reason out the physiology in masking.
4. Explain the physiological basis for dissociated anaesthesia in syringomyelia.

IV. Very Short Questions:

(10X2=20)

1. What is law of projection?
2. What is nodal point?
3. What is prosopagnosia?
4. What is implicit memory?
5. What is déjà vu phenomenon?
6. What is anomia?
7. Which cortical area is called 'suppressor strip'? What is its function?
8. Name the cerebellar deep nuclei.
9. Name the neurotransmitters concerned with sleep.
10. What is 'Engram'?

[LF 123]

OCTOBER 2014

Sub. Code: 2020

**M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY**

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code :202020

Time : Three Hours

Maximum : 100 marks

I. Essay:

(2 x 10 = 20)

1. Explain how conduction of nerve impulses in a myelinated nerve fibre differs from a non myelinated nerve fibre. What are the factors influencing myelination of nerve fibres?
2. What do you mean by Reticular Formation? What are the components and functions of Reticular formation?

II. Short Questions:

(8 x 5 = 40)

1. Neuroglial cells.
2. Taste receptors
3. Mechanism of action of Opioids.
4. Inverse Stretch Reflex.
5. Motor Homunculus.
6. Functions of Basal ganglia.
7. Evoked Potentials.
8. CircumVentricular organs.

II. Reasoning Out:

(4 x 5 = 20)

1. Visual acuity is greater in Fovea centralis.
2. Pendular knee jerk is seen in cerebellar lesions.
3. Soldiers wounded in battle field are unaware of pain.
4. Jendrassik's maneuver helps in eliciting deep tendon reflexes.

IV. Very Short Questions:

(10 x 2 = 20)

1. Syringomyelia.
2. Babinski's sign and its clinical importance.
3. Kallman's syndrome.
4. Wernicke's pupil.
5. Aphasia
6. Vestibulo ocular reflex.
7. Reduced eye of Listing.
8. Differences between spasticity and rigidity.
9. What is Hyperopia?
10. What is Tympanic Reflex?

[LG 123]

APRIL 2015

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code : 202020

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Essay:

(2 x 10 = 20)

1. Write an essay on modulation of pain perception.
2. Describe in detail about the synaptic transmission. What are the properties of a synapse?

II. Short Questions:

(8 x 5 = 40)

1. Photochemistry of vision.
2. Alpha Gamma linkage.
3. Generator potential.
4. Long term memory.
5. Properties of reflexes.
6. Waves of Electroencephalogram (EEG).
7. Neural control of sex behavior.
8. Aphasia.

III. Reasoning Out:

(4 x 5 = 20)

1. Clonus in upper motor neuron lesion.
2. Sildenafil causes blue vision.
3. NSAIDS are used to alleviate pain.
4. Intentional tremors in cerebellar lesion.

IV. Very Short Answers:

(10 x 2 = 20)

1. Sham rage.
2. Aqueous humor.
3. Renshaw cell inhibition.
4. Axon reflex.
5. Language interpretative area.
6. Bell Magendie law.
7. Otolith organs.
8. Blind spot.
9. Babinski sign.
10. Sensory ataxia.

[LI 123]

APRIL 2016

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code :202020

Time : Three Hours

Maximum : 100 Marks

I. Essay:

(2 x 10 = 20)

1. Describe the mechanism of hearing. What is presbycusis?
2. Write an essay on modulation of pain perception.

II. Short Questions:

(8 x 5 = 40)

1. Properties of reflexes.
2. Generator potential.
3. Composition and functions of Cerebrospinal fluid (CSF).
4. Neocerebellum and its connections.
5. Sensory homunculus with a diagram and label it.
6. Craniosacral autonomic outflow.
7. Peculiarities of olfactory pathway.
8. Short term memory.

III. Reasoning Out:

(4 x 5 = 20)

1. Informations are coded in the sensory nerves. Justify.
2. Clonus in upper motor neuron lesion.
3. Hippocampal lesion causes anterograde amnesia.
4. L-Dopa alone is used in the treatment of Parkinsonism. Why?

IV. Very Short Questions:

(10 x 2 = 20)

1. Circumventricular organs.
2. Cortical plasticity.
3. Renshaw cell.
4. Neurotrophins.
5. Parosmia.
6. Intentional tremors.
7. Cochlear potentials.
8. Phasic receptors.
9. Nissl bodies.
10. Effect of tetanus toxin and botulinum toxin.

[LJ 123]

OCTOBER 2016

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code :202020

Time : Three Hours

Maximum : 100 Marks

I. Essay:

(2 x 10 = 20)

1. How will you classify reflexes? Add a note on properties of reflexes. How will you test superficial and deep tendon reflexes?
2. Name the parts of Cerebellum. Explain the role of cerebellum in maintaining posture of the body with the relevant connections.

II. Short Questions:

(8 x 5 = 40)

1. Blood CSF barrier.
2. Dark adaptation.
3. Muscle spindle and its functions.
4. Wallerian degeneration.
5. Righting reflexes.
6. Role of hypothalamus in feeding and satiety.
7. Kluver Bucy Syndrome.
8. Operant Conditioning.

III. Reasoning Out:

(4 x 5 = 20)

1. Pilots wear red goggles in dim light.
2. Incidence of cataract is very high in Diabetes Mellitus patients.
3. Retinal detachment damages photoreceptors.
4. Sniffing is a semi reflex response when new odour attracts attention.

IV. Very Short Questions:

(10 x 2 = 20)

1. What is Abulia?
2. What is Charcot's triad?
3. What is Mass reflex?
4. What is Korsakoff's psychosis?
5. What is functions of melatonin?
6. Vomeronasal organ.
7. Anisometria.
8. Scotomas.
9. What is Pendred's syndrome?
10. What is Miraculin?

[LK 123]

MAY 2017

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code :202020

Time : Three Hours

Maximum : 100 Marks

I. Essay:

(2 x 10 = 20)

1. Describe in detail about the synaptic transmission. What are the properties of synapse?
2. Write an essay on neurophysiology of sleep-wakefulness.

II. Short Questions:

(8 x 5 = 40)

1. Erlanger Gasser classification and its significance.
2. Peculiarities of Pain sensation.
3. Functions of thalamus.
4. Electroencephalogram (EEG).
5. Properties of reflexes.
6. Reciprocal innervation.
7. Neural control of sex behavior.
8. Auditory pathway.

III. Reasoning Out:

(4 x 5 = 20)

1. Two outputs of Autonomic nervous system is synergistic. Justify.
2. Sildenafil causes blue vision.
3. Clonus in upper motor lesion.
4. Two point discrimination is different in different places of body.

IV. Very Short Questions:

(10 x 2 = 20)

1. Macula lutea.
2. Intraocular pressure.
3. Betz cell.
4. Astereognosis.
5. Broca's area.
6. Place theory.
7. Tympanic reflex.
8. Tonic receptors.
9. Babinski sign.
10. Sham rage.

[LL 123]

OCTOBER 2017

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code :202020

Time : Three Hours

Maximum : 100 Marks

I. Essay:

(2 x 10 = 20)

1. Write an essay on the organisation of Neural elements of Retina and Trace the Visual pathway.
2. Describe in detail, the connections and functions of Vestibular Apparatus. Add a note on Tests for Vestibular Function.

II. Short Questions:

(8 x 5 = 40)

1. Synaptic Plasticity.
2. Motor Homunculus.
3. Inverse Stretch Reflex.
4. Role of Limbic system in Reward and Punishment.
5. Pathophysiology and clinical features of Parkinsonism.
6. Brown Sequard Syndrome.
7. Categorical and Representational Cerebral hemisphere.
8. Waveforms of Electroencephalography and their physiological basis in a healthy person.

III. Reasoning Out:

(4 x 5 = 20)

1. Give reason for the type of tremor in Cerebellar disease.
2. The accommodative power of the eye can never compensate for Astigmatism. Why?
3. Jet Lag.
4. Give reason for the Spinal Shock following spinal cord transection.

IV. Very Short Questions:

(10 x 2 = 20)

1. What are Neuromodulators?
2. Evoked Potential.
3. Prosopagnosia.
4. Horner's Syndrome.
5. Hyperalgesia and Allodynia.
6. Weber – Fechner Law.
7. Attenuation Reflex.
8. Circadian Rhythm Entrainment.
9. What is Taste threshold? Who are Supertasters?
10. Impedance matching.

M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES
Q.P. Code :202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Describe the nuclei afferent and efferent connections and functions of Hypothalamus. Add a note on the functions of limbic system.
2. Sound transmission through middle and internal ear. Add a note on Brainstem auditory evoked potentials.

II. Short notes:

(10 x 5 = 50)

1. Cicumventricular organs.
2. Demyelinating diseases.
3. Types of memory.
4. Pain perception.
5. Taste pathway.
6. Analysis of visual information pathways.
7. Hemianopia.
8. Tests for hearing.
9. Neuronal circuit of cerebellum.
10. Nerve Growth Factors.

III. Reasoning Out:

(4 x 5 = 20)

1. Mirror neurons.
2. Fibrillations and fasciculations.
3. Glutamate and neurotoxicity.
4. Horner syndrome.

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. a) Describe the connections and
b) Functions of Basal ganglia.
c) Explain the reason for reduction in the psychic drive for motor activity in Paralysis agitans.
2. a) Describe the pathway for fast pain.
b) Pathway for slow pain.
c) Explain the Analgesia system in the brain.

II. Short notes:

(10 x 5 = 50)

1. Reflex arc for myotactic reflex.
2. Functions of ascending reticular activating system.
3. Wernicke's area.
4. Molecular mechanism for intermediate memory.
5. Aphasia.
6. Functions of primary and secondary visual areas of cortex.
7. Transmission of sound waves in the cochlea.
8. Vestibular reflexes.
9. Young-Helmholtz theory of colour vision.
10. Cerebral cortical reflexes for maintaining body posture.

III. Reasoning Out:

(4 x 5 = 20)

1. Signals from both ears are transmitted to both sides of auditory pathways.
2. Decerebrate rigidity is spasticity due to facilitation of myotactic reflex.
3. The membrane potential of glial cell is more negative than neurons.
4. Most of the retinal neurons conduct their visual signals by electro tonic conduction.

M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Discuss the physiology of pain. Add a note on visceral Pain.
2. Describe the mechanisms involved in short term and long term memory.
Add a note on Alzheimer's disease.

II. Short notes:

(10 x 5 = 50)

1. Role of hippocampus in learning.
2. Photochemistry of vision.
3. Theories of hearing.
4. Cortical plasticity.
5. Withdrawal reflex.
6. Connections of cerebellum.
7. Cochlear implants.
8. Physiology of language.
9. Olfactory pathway.
10. Receptor potential.

III. Reasoning Out:

(4 x 5 = 20)

1. Dysfunction of sixth cranial nerve in cerebral oedema.
2. Habituation and sensitization are related to release of Neurotransmitter at synapse.
3. Accommodation preserved in Argyll Robertson pupil.
4. Post micturition syncope.

M.D. DEGREE EXAMINATION
BRANCH V – PHYSIOLOGY
PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. a) Compare monosynaptic and polysynaptic reflexes.
b) Explain dynamic and static Stretch reflex.
c) Explain how unexpectedly heavy load is lifted using the mechanism at the spinal cord level?
2. a) Describe the functional nomenclature of cerebellum and
b) intrinsic Circuit of cerebellum.
c) Explain in detail the role of spinocerebellum in subconscious control of voluntary motor activity.

II. Short notes:

(10 x 5 = 50)

1. Sham rage.
2. Taste pathway.
3. Brain pathways for communication.
4. Pathway for light reflex.
5. Functions of middle ear.
6. Functions of prefrontal cortex.
7. Desynchronized sleep.
8. Referred pain.
9. Split brain.
10. Circumventricular organs.

III. Reasoning Out:

(4 x 5 = 20)

1. Endogenous opiate system is normally dormant.
2. Collateral fibers from specific sensory tracts funnel into reticular Activating system of brain stem.
3. Botulinum toxin is approved for the treatment of spasticity.
4. The highest frequency of sounds is detected nearest the oval window.

[LQ 123]

**AUGUST 2020
(MAY 2020 SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Describe the regulation of muscle tone and its disturbances in various neurological disorders (8+7=15)
2. Describe the various neurological mechanisms responsible for perception of colour vision

II. Short notes:

(10 x 5 = 50)

1. Babinsky's sign
2. Wernick's area
3. Axon reflex
4. Impedence matching in middle ear
5. Rapid eye movement sleep
6. Argyl Robertson's pupil
7. Organ of Corti.
8. Electroencephalogram
9. Auditory pathway and its disorders
10. Papez circuits and their clinical significances

III. Reasoning Out:

(4 x 5 = 20)

1. List the features of Parkinsonism. Explain the physiological basis of the drugs used in its treatment.
2. Explain the hyperphagia in Diabetes mellitus stressing the role of hypothalamus
3. Why visceral pain is poorly localised?
4. What is near point of vision? Why does it recede throughout life?

[LS 123]

**NOVEMBER 2020
(OCTOBER 2020 SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Discuss the mechanism concerned with maintenance of equilibrium. Add a note on motion sickness. (8+7=15)
2. Describe the various neurological mechanisms responsible for perception of colour vision 15 marks

II. Short notes:

(10 x 5 = 50)

1. Babinsky's sign
2. Discuss the clinical applications of evoked potential
3. Discuss the formation, flow and absorption of Cerebrospinal fluid
4. Impedance matching in middle ear
5. Discuss the lesions at different levels of visual pathway
6. What is Renshaw cell inhibition and its significance
7. Organ of Corti.
8. Discuss the different types of brain waves that are present in a normal electroencephalogram
9. Auditory pathway and its disorders
10. Papez circuits and their clinical significances

III. Reasoning Out:

(4 x 5 = 20)

1. List the features of Parkinsonism. Explain the physiological basis of the drugs used in its treatment.
2. Explain the hyperphagia in Diabetes mellitus stressing the role of hypothalamus
3. Bilateral removal of hippocampus produces anterograde amnesia, Explain.
4. Deep anaesthesia is usually required for intra abdominal operation. Explain with physiological basis.

[MD 0721]

**JULY 2021
(MAY 2021 SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Discuss in detail about the nuclei, connections and functions of basal ganglia. Add a note on paralysis agitans.
2. Explain the organisation of neural elements of retina and the neural pathway for visual cortex.

II. Short notes:

(10 x 5 = 50)

1. Role of hypothalamus in food intake.
2. Properties of synapse.
3. Pyramidal tract.
4. Cerebellar lesion.
5. Complete transection of spinal cord.
6. REM sleep.
7. Physiology of speech.
8. Reticular formation.
9. Neurotrophins.
10. Audiogram.

III. Reasoning Out:

(4 x 5 = 20)

1. Innocuous stimuli induce pain after injury. Reason out.
2. Reason out spastic rigidity in decerebrate animal.
3. Reason out the results of tests of hearing in a patient who has:
(a) Middle ear infection on left side (b) Cochlear disease on left side
4. Two point discrimination ability is different in different sites of body. Reason out.

[MD 1121]

**NOVEMBER 2021
(OCTOBER 2021 SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Describe the structure of Synapse. Elaborate on the properties of synapse. Add a note on GABA.
2. What are the effects of Hemisection of spinal cord at 1st Thoracic segment?

II. Short notes:

(10 x 5 = 50)

1. Final common pathway.
2. Phototransduction.
3. Endocochlear potentials and Cochlear microphonics.
4. Purkinje Samson images.
5. Dejerine Roussay syndrome.
6. Sperry's work.
7. Caudate circuit of Basal ganglion.
8. Speech areas.
9. Long term memory.
10. Brain Analgesic system.

III. Reasoning Out:

(4 x 5 = 20)

1. Babinski sign is positive in Upper motor neuron lesion. Reason out.
2. Comment on the tone in Cerebellar lesion. Justify.
3. Pilots wear red goggles before they enter the flight cabin. Reason out.
4. Conducive environment is important for onset of sleep. Explain.

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

[MD 0522]

MAY 2022

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. What is Reticular formation? Describe the connections and functions of Reticular formation.
2. What are the types of synapses? List the properties of synaptic transmission. Explain the excitatory and inhibitory post synaptic potential.

II. Short notes:

(10 x 5 = 50)

1. Role of Hypothalamus in the regulation of appetite.
2. Describe the Dorsal Column medial lemniscal pathway.
3. Connections and functions of temporal lobe.
4. Righting reflexes.
5. Brain waves in the normal electroencephalogram (EEG).
6. Ocular dominance columns.
7. Young-Helmholtz-Theory.
8. Transmission of sound waves in cochlea.
9. Membrane potential and action potentials in olfactory cells.
10. Denervation hypersensitivity.

III. Reasoning Out:

(4 x 5 = 20)

1. Dendrites have voltage gated ion channels.
2. Angular acceleration is detected by semicircular canal.
3. Prolonged use of corticosteroids can cause Glaucoma.
4. Habituation versus Reinforcement in Reward and punishment learning.

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

[MD 1022]

OCTOBER 2022

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Describe the regulation of muscle tone and its disturbances in various neurological disorders.
2. Describe the normal sleep cycle at various ages and discuss the neurochemical mechanisms of sleep and arousal. Add a note on sleep disorders.

II. Short notes:

(10 x 5 = 50)

1. Occlusion and subliminal fringe.
2. Functions of Glial cells.
3. Analgesic system in the brain.
4. Brown sequard syndrome.
5. Decerebrate and Decorticate rigidity.
6. Categorical and Representational hemisphere.
7. Discuss the lesions at different levels of visual pathway.
8. Endocochlear potential.
9. Describe the receptors for taste and smell.
10. Axonal regeneration.

III. Reasoning Out:

(4 x 5 = 20)

1. Oligodendrocytes are involved in pH regulation of the brain.
2. Comment on the tone in Cerebellar lesion.
3. Asymmetries in the size of left and right planum temporale.
4. Flight-or-Fight Response is massive and nonspecific.

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

[MD 0723]

**JULY 2023
(MAY 2023 EXAM SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Draw a neat diagram and describe the origin, course and termination of Pyramidal Tract. Add a note on the differences between Upper Motor Neuron and Lower Motor Neuron Lesion.
2. Explain in detail how auditory impulse travels from cochlear hair cells to the auditory cortex with a neat labelled diagram. Add a note on Sensorineural Deafness.

II. Short notes:

(10 x 5 = 50)

1. Properties of Receptors.
2. Motor aphasia.
3. Dopamine as Neurotransmitter.
4. Pupillary light reflex.
5. Role of Vitamin A in scotopic vision.
6. Functions of Thalamus and Thalamic syndrome.
7. Cortical plasticity.
8. Functions of Corpus callosum.
9. Pathophysiology of Alzheimer's disease.
10. Referred pain.

III. Reasoning Out:

(4 x 5 = 20)

1. Give reason for pendular knee jerk in cerebellar lesion.
2. Allergic rhinitis impairs sensation of smell. Justify.
3. Sleep improves memory - Justify.
4. Give reason why movies begin to flicker when projector speed decreases.

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

[MD 1223]

**DECEMBER 2023
(OCTOBER 2023 EXAM SESSION)**

Sub. Code: 2020

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER III – NERVOUS SYSTEM AND SPECIAL SENSES

Q.P. Code: 202020

Time : Three Hours

Maximum : 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Enumerate the Layers of Cerebral Cortex. Explain in detail about Pyramidal Tract. Add a note its Applied Physiology.
2. Discuss in detail about the Mechanism of Hearing. Add a note on theories of Hearing.

II. Short notes:

(10 x 5 = 50)

1. Pain pathway.
2. Functions of Hypothalamus.
3. Punishment centers of Brain.
4. Taste pathway.
5. Rapid Eye Movement (REM) sleep.
6. Open circuit of Cerebellum.
7. Alzheimer's disease.
8. Aphasia.
9. Putamen circuit.
10. Renshaw cell inhibition.

III. Reasoning Out:

(4 x 5 = 20)

1. Levodopa in Parkinsonism. Why not Dopamine? Reason out.
2. Babinski's sign is positive in infants. Reason out.
3. Middle ear infection affects hearing. Reason out.
4. Give reason why movies begin to flicker when projector speed decreases.
