PHYSIOLOGY

PAPER – III

PHY/D/13/36/III

Time : 3 hours
Max. Marks : 100

Important instructions:

- *Attempt all questions in order.*
- *Each question carries 10 marks.*
- *Read the question carefully and answer to the point neatly and legibly.*
- *Do not leave any blank pages between two answers.*
- *Indicate the question number correctly for the answer in the margin space.*
- *Answer all the parts of a single question together.*
- *Start the answer to a question on a fresh page or leave adequate space between two answers.*
- *Draw table/diagrams/flowcharts wherever appropriate.*

1. Discuss why the depth of the object cannot be appreciated in the dim light at night. Explain the neural processes underlying in the appreciation of depth of an object. — 5+5

2. Compare and contrast the following emphasizing the underlying neurophysiological principles: — 5+5
   a) Tremors of cerebellum and basal ganglia lesion
   b) Akinesia and rigidity of Parkinson's disease

3. Describe the role of hypothalamus in the regulation of food intake. Compare and contrast hypothalamic obesity with genetic obesity. — 6+4

4. Describe the genesis of receptor potential in Pacinian corpuscles. Briefly explain the phenomenon of receptor recruitment. — 5+5

5. Draw a labeled diagram of the neuro-muscular junction. Describe the steps in neuro-muscular transmission. Mention the rationale for the step targeted in the management of myasthenia gravis. — 4+4+2

6. Comment on the pattern of muscle contraction in terms of velocity, timing and precision in cerebellar lesions. Support your answer with the signs and symptoms for each of these parameters. — 4+3+3

7. Describe the ultrastructure and the nerve supply of muscle spindle. Explain the effect of gamma motor neurons on muscle tone and movement. — 5+5

8. Compare and contrast the genesis & features of decerebrate rigidity with decorticate rigidity. — 5+5

9. Describe the autonomic functions of spinal cord. Explain the sensory, motor deficits following hemisection of thoraco-lumbar segment of spinal cord. — 4+6

10. Describe the functions of neuroglia. — 10

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