



**PHYSIOLOGY**

**PAPER – III**

PHY/14/40/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. Explain with the help of suitable diagram(s) the physiological basis of generation of action potential in a nerve fibre. 10
2. Describe the molecular basis of smooth muscle contraction. Explain the phenomenon of plasticity in smooth muscles. 5+5
3. Discuss Length-Tension relationship in skeletal muscle. Discuss its physio clinical significance. 5+5
4. List the properties of synapses in CNS. Briefly explain the mechanism of feedback and feed forward inhibition with examples. Explain how botulinum toxin paralyzes synaptic transmission. 2+6+2
5. What do you understand by phototransduction? Describe various events involved in phototransduction in rods and cones. Write a note on melanopsin. 2+6+2
6. Describe the structure and placement of semicircular canals. Discuss how they are stimulated. Explain their role in balance and equilibrium. 4+3+3
7. Outline the pathway by which impulse generated in olfactory mucus membrane reach cerebral cortex. Briefly describe and analyze olfactory sensitivity, discrimination and adaption. 3+7
8. Explain briefly the physiological basis of colour perception in men. 10
9. What is rage response? Describe the role of various parts of the CNS in rage response. What is sham rage? 3+5+2
10. Name various forms of memory. Discuss molecular basis of memory. List various events in pathogenesis of Alzheimer's disease. 2+6+2

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