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PHYSIOLOGY
PAPER – III

Time : 3 hours
Max. Marks : 100

PHY/D/17/36/III

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.*

Write short notes on:

1. a) Draw a labeled diagram of neuro muscular junction in smooth muscle. 3+5+2
   b) Molecular basis of smooth muscle contraction.
   c) Plasticity in smooth muscles

2. A. Sensory transduction in: (2+4+2)+2
      a) Mechanoreceptors
      b) Cochlear hair cells
      c) Taste buds
   B. Weber-Fechner Law

3. a) Define learning and memory. 2+5+3
   b) Classification of memory and their neural basis.
   c) Alzheimer's disease

4. a) Draw a schematic diagram to trace the pain pathway 3+3+4
   b) Types and qualities of pain
   c) Central inhibition of pain

5. a) What are the association areas of cerebral cortex and where are they located? 4+6
   b) Functions of various association areas

6. a) Draw a schematic diagram of Papez circuit 4+6
   b) What is the role of limbic system in regulation of rage and fear?

7. a) Enumerate the properties of synapses 2+5+3
   b) Direct and indirect inhibition of synapses
   c) Long term potentiation and depression.

P.T.O.

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8. a) List the postural reflexes integrated at the level of spinal cord, medulla, midbrain and cortex — 4+3+3
   b) Hemisection of spinal cord
   c) Decerebrate rigidity

9. a) Differentiate between REM and NREM sleep — 6+4
   b) Mechanism of alerting response

10. a) Biological rhythms in humans — 7+3
    b) Physiological basis of Jet lag.

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