

PHYSIOLOGY

PAPER-I

Time: 3 hours
Max. Marks:100

PHY/D/20/36/I

Important Instructions:

- *You are provided with 5 answer sheet booklets. Each individual answer sheet booklet consists of 10 pages excluding the covering jackets.*
- *Answers to all the questions must be attempted within these 5 answer sheet booklets which must be later tagged together at the end of the exam.*
- *No additional supplementary answer sheet booklet will be provided.*
- *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. Write the general principles how the body act as an organized solution. Why newborn and infants go into dehydration rapidly? 7+3
2. Describe with diagrammatic outline of transcription to translation in gene expression. What is the importance of post translational modification? Name two diseases due to mitochondrial DNA disorder. 5+3+2
3. Mention some common mechanisms by which chemical messengers act. Name some abnormalities caused by loss or gain of function mutations of heterotrimeric G protein-coupled receptors and G proteins. 6+4
4. Describe the membrane phospholipids and signal transduction pathways. 10
5. Describe nervous and hormonal control of smooth muscle contraction. Mention the source of calcium ions for smooth muscle contraction. 7+3
6. What is the role of positive feedback mechanism on initiation of action potential? With the help of a suitable diagram, explain how recording of membrane potential is done. 5+5
7. a) Classify nerve injuries. 2+5+3
b) Discuss the changes in neuron following nerve injury.
c) Enumerate factors influencing nerve regeneration.
8. What are the age related changes occur in different system? Can anything modulate the process of aging? 7+3
9. Discuss the effect of extracellular ionic changes on action potentials. 10
10. What are the Type I and Type II error of hypothesis testing? Explain three common methods for determining the significance of difference. 5+5
