

PHYSIOLOGY

PAPER – I

PHY/D/13/36/I

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. Define fibrinolysis. Discuss its components and mechanism of activation. Write a note on its physiological significance. 1+(2+4)+3
2. What is pressure-flow relationship in different segments of systemic vascular tree? Discuss autoregulation of blood flow, its basis and significance giving examples. 3+7
3. What is sinus arrhythmia? Give its physiological basis. Add a note on sick sinus syndrome. 2+4+4
4. Define pH. Give the normal range of pH in various cellular and fluid compartments of the body. Describe the mechanism of pH maintenance by the kidneys. 1+4+5
5. What do you understand by Ventilation-Perfusion Ratio (VA/Q)? Discuss briefly about physiological variations in VA/Q. 4+6
6. What is hypovolemic shock? Describe pathophysiology related to its signs and symptoms. Discuss various compensatory mechanisms operating during this condition. 2+4+4
7. Describe briefly about the sequence of events during micturition. Draw labeled diagrams to show pressure - volume changes in urinary bladder and micturition reflex. 4+(3+3)
8. Define elastance of the lungs and describe the forces responsible for it. How does it affect the work of breathing? What is the effect of surfactant on it? (1+2)+2+5
9. Describe the phagocytic function of neutrophils. Add a note on its disorders. 6+4
10. What is ejection fraction? What are its determinants? Give a detailed account of its physio-clinical significance. 2+3+5
