

PHYSIOLOGY

PAPER – I

PHY/D/15/36/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.

Write short notes on:

| | | |
|-----|---|-------------|
| 1. | a) Define the terms: tonicity, hypotonic and hypertonic. b) Explain Gibbs-Donnan equation and Nerst equation. | 3+(3+4) |
| 2. | a) Define recombinant DNA technology. b) Its stages. | 2+8 |
| 3. | a) Physical properties of the sound stimulus. b) Biophysical basis of loudness of sound. | 4+6 |
| 4. | a) Draw and discuss the myeloid series. b) Mechanism by which neutrophils and macrophages defend against infections. | 4+6 |
| 5. | a) Define anemia. b) Give its etiological and morphological classifications. c) Salient features of the commonest anaemia in India. | 1+5+4 |
| 6. | a) Define renal clearance. b) Significance of renal clearance as kidney function test c) GFR measurement by renal clearance tests. | 1+3+6 |
| 7. | a) Mechanism of concentration of urine. b) Bartter's syndrome. | 8+2 |
| 8. | How will you define obesity? What is the marker of obesity? List its causes. Name the genes which can contribute to obesity. | 2+2+3+3 |
| 9. | a) How much is the total body iron, and what is the distribution? b) Mechanism of absorption of iron and its regulation. | (1+2)+(4+3) |
| 10. | a) Define apoptosis. b) Factors, physiological significance & applied aspects of apoptosis. | 2+(3+3+2) |
