No. of Printed Pages : 3

MBCE–013

M. SC. (BIOCHEMISTRY) (MSCBCH)

Term-End Examination

June, 2025

MBCE-013 : HUMAN PHYSIOLOGY

Time : 3 Hours *Maximum Marks : 100*

Note : *Answer any* ***five*** *questions. All questions carry equal marks. Draw diagram and flowcharts wherever required.*

1. (a) Describe the role of intercellular junctions in enhancing the integrity of epithelial layers. 5

   (b) What is basal lamina ? How do laminins and associated proteins contribute the cellular functions (tissue organization) ? 10

   (c) Describe the components of homeostasis control systems. 5

2. (a) Illustrate and explain the pulmonary gas exchange. 10

   (b) Write short notes on the following : 2×5=10

   (i) Regulation of respiration

   (ii) Neural regulation of body temperature

3. (a) Describe the role of Peristalsis in the digestive system. How does it facilitate the movement of food through gastrointestinal tract ? 10

   (b) Draw and explain the structure of a nephron. 5

   (c) How do kidneys regulate acid-base balance in the body ? 5

4. (a) Explain the role of liver and pancreas in digestion. 10

   (b) Write short notes on the following : 2×5=10

   (i) Glomerular filtration

   (ii) Metabolic acidosis

5. (a) Describe the regulation of heart rate. 10

   (b) Describe the extrinsic pathway of blood clotting. 10

6. (a) What is hematopoiesis ? Enlist various sites of hematopoiesis according to age. 7

   (b) Explain ABO blood group system. 7

   (c) Describe the importance of cerebro-spinal fluid and its functions. 6

7. (a) Explain the main contractile and regulatory proteins found in muscle tissue and their role in muscle contraction. 10

   (b) What is the role of neuromuscular junction in the excitation of striated muscle ? How does neurotransmission occur at this junction ? 10

8. (a) Draw a flowchart and explain the classification of human nervous system. 10

   (b) Explain the following using suitable examples : 2×5=10

   (i) Ionophores

   (ii) Toxins

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