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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.

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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

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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 cerebrospinal 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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