

**M. SC. (HONOURS)
(BIOCHEMISTRY) (MSCBCH)**

Term-End Examination

June, 2026

MBCE-013 : HUMAN PHYSIOLOGY

Time : 3 Hours

Maximum Marks : 100

Note : Answer any *five* questions. All questions carry equal marks. Draw figures wherever required.

1. (a) What are intercellular junctions ?
Explain different types of junctions and give their functions. 10
- (b) Discuss thermoregulation. Explain the process of heat exchange between human body and environment. 10
2. (a) Explain the mechanism of gaseous exchange between alveoli and tissues. 10
- (b) Enlist and elaborate the physiological functions of various layers of gastrointestinal tract. 10

3. (a) Draw a neatly labelled diagram of internal structure of kidney. 5
- (b) Give a detailed account on mechanism of urine formation. 15
4. (a) Define the following : $2 \times 2 = 4$
- (i) Diuresis
- (ii) Hematuria
- (b) Explain the role of kidney in metabolic acidosis and alkalosis. 6
- (c) Write disorders associated with heart along with their causes and symptoms. Enlist lifestyle measures to avoid heart problems. 10
5. (a) Differentiate between any *two* of the following : $2 \times 4 = 8$
- (i) RBC and WBC
- (ii) CNS and PNS
- (iii) ICF and ECF
- (b) Describe the extrinsic pathway of blood clotting. 12

6. (a) Draw the structure of brain depicting all lobes. How do Purkinje cells contribute to the functioning of cerebellum ? Enlist *five* regions of spinal cord. 10
- (b) Define neurotransmitters. Explain their classification with suitable examples. 2+8
7. (a) Discuss the structure of Sarcoplasmic reticulum and its role in muscle contraction. 12
- (b) What are phosphagens ? Explain their physiological importance. 8
8. (a) What is electrocardiograph ? With the help of a suitable diagrams explain, different peaks obtained in an E.C.G. 2+8
- (b) Discuss any *two* processes involved in regulation of blood volume. 5+5

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