No. of Printed Pages : 3 **MBCE–013**

M.SC. IN BIOCHEMISTRY

(MSCBCH)

Term-End Examination

December, 2025

MBCE-013 : HUMAN PHYSIOLOGY

Time : 3 Hours *Maximum Marks : 100*

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

1. (a) Explain how do the primary germ layers give rise to the formation of different types of tissues in the body ? Give examples of tissues derived from each germ layer. 10

   (b) Describe various types of homeostasis control systems. 10

2. (a) Give a detailed account on transport of O_2 and CO_2 in blood. 10

   (b) Explain the receptors and their effectors involved in thermoregulation. 10

3. (a) Explain the processes involved in the absorption of carbohydrates, proteins and lipids. 10

   (b) Draw and describe the structure of Bowman's capsule and Glomerulus. 5

   (c) Discuss the role of ADH in water balance. 5

4. Write short notes on the following : 4×5=20

   (a) Renal regulation of blood buffer system

   (b) Diuresis

   (c) Micturition

   (d) Saliva

5. (a) How is heart rate regulated ? What mechanisms the body employ to maintain blood pressure homeostatics ? 12

   (b) Explain the Fibrinolytic System. 8

6. (a) Differentiate between of the following : 2×5=10

   (i) Arteries and Veins

   (ii) Skeletal muscle and Smooth muscle

   (b) Discuss the components of blood along with their roles. 10

7. (a) Describe the energy metabolism in muscle cells. What pathways do muscles utilize to generate ATP ? 10

   (b) Describe various components of the human brain. 10

8. (a) What is a Synapse ? Explain the process of synaptic transmission. 10

   (b) Discuss the role of sarcoplasmic reticulum in muscle contraction. 5

   (c) What are muscular dystrophies ? Name any *two* with their inherited causes and general features. 5

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