PHYSIOLOGY QUESTION BANK (TNMGRMU)

Based on University Question Pattern & Bloom's Taxonomy

CHAPTER 1: BASIC CONCEPTS OF CELL STRUCTURE, COMPONENTS, FUNCTIONS & TRANSPORT

A. Very Short Answer Questions (2 Marks – Knowledge)

1. Define a cell.
2. List any two functions of plasma membrane.
3. Name the organelle known as the powerhouse of the cell.
4. What is cytosol?
5. Define diffusion.
6. Define osmosis.
7. Mention two functions of endoplasmic reticulum.
8. What is active transport?
9. Name any two components of nucleus.
10. Define homeostasis at cellular level.

B. Short Answer Questions (5 Marks – Understanding)

1. Describe the structure of plasma membrane with diagram.
2. Explain the structure and functions of mitochondria.
3. Write a note on ribosomes and protein synthesis.
4. Explain facilitated diffusion with examples.
5. Describe the structure and functions of Golgi apparatus.
6. Explain osmotic pressure and its physiological significance.
7. Describe lysosomes and their clinical importance.
8. Explain the role of sodium–potassium pump.

C. Short Essays (5 Marks – Application)

1. Apply principles of diffusion and osmosis to explain edema formation.
2. Explain how active transport helps in nerve impulse transmission.

3. Illustrate the role of cell membrane transport in glucose absorption.
4. Apply knowledge of organelles to explain muscle cell specialization.

D. Long Essays (10 Marks – Analysis)

1. Describe in detail the structure of a typical cell and functions of its organelles.
2. Analyze different mechanisms of membrane transport with suitable examples.
3. Compare diffusion, facilitated diffusion, and active transport.
4. Explain membrane transport mechanisms and their clinical relevance.

E. Long Essays (10 Marks – Evaluation)

1. Evaluate the importance of plasma membrane integrity in maintaining cellular homeostasis.
2. Critically discuss the role of mitochondria in health and disease.

F. Creative / Diagram-Based Questions (10 Marks – Creation)

1. Draw and label a neat diagram of a typical cell and explain its components.
2. Construct a flowchart depicting mechanisms of membrane transport.

CHAPTER 2: STRUCTURE, FUNCTIONS & TEMPERATURE REGULATION OF HUMAN BODY

A. Very Short Answer Questions (2 Marks – Knowledge)

1. Define body temperature.
2. What is normal body temperature in humans?
3. Name the heat-regulating center of the body.
4. Define hypothermia.
5. Define hyperthermia.
6. Mention any two mechanisms of heat loss.
7. What is basal metabolic rate?
8. Name any two factors affecting body temperature.
9. Define fever.

10. What is insulation of the body?

B. Short Answer Questions (5 Marks – Understanding)

1. Describe the structure and functions of skin related to temperature regulation.
2. Explain mechanisms of heat production in the human body.
3. Describe mechanisms of heat loss.
4. Explain the role of hypothalamus in temperature regulation.
5. Write a note on circadian rhythm of body temperature.
6. Describe fever and its stages.

C. Short Essays (5 Marks – Application)

1. Apply principles of thermoregulation to explain heat exhaustion.
2. Explain temperature regulation during exercise.
3. Apply physiological principles to explain hypothermia in elderly.
4. Explain how sweating helps in temperature regulation.

D. Long Essays (10 Marks – Analysis)

1. Describe in detail the mechanisms of regulation of body temperature.
2. Analyze heat gain and heat loss mechanisms with suitable diagrams.
3. Compare hypothermia and hyperthermia.

E. Long Essays (10 Marks – Evaluation)

1. Evaluate the role of thermoregulation in maintaining internal environment.
2. Critically discuss physiological changes during fever.

F. Creative / Diagram-Based Questions (10 Marks – Creation)

1. Draw a neat diagram showing temperature regulation mechanism and explain.
2. Construct a flowchart explaining heat balance in the human body.
