

**QP Code : BM3351**  
**THE KAVERY ENGINEERING COLLEGE**  
**(An Autonomous Institution)**  
**UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APR/MAY 2026**

**Third Semester**

**Biomedical Engineering**

**BM3351 ANATOMY AND HUMAN PHYSIOLOGY**

**Regulations - 2021**

**Duration : 3 Hrs**

**Maximum : 100 Marks**

**PART – A(ANSWER ALL QUESTIONS) (Marks 10\*2=20)**

| Q.No | Questions                                                                        | BTL | CO | Marks |
|------|----------------------------------------------------------------------------------|-----|----|-------|
| 1.   | Name the powerhouse of the cell and state its primary function.                  | 2   | 1  | 2     |
| 2.   | Differentiate between the three types of muscle tissue                           | 2   | 1  | 2     |
| 3.   | Explain the function of cartilage and mention any two types with their locations | 2   | 2  | 2     |
| 4.   | Describe the structural features of a neuromuscular junction                     | 1   | 2  | 2     |
| 5.   | List the main components of blood and state their primary functions              | 1   | 3  | 2     |
| 6.   | Differentiate between arteries, veins and capillaries                            | 2   | 3  | 2     |
| 7.   | Illustrate how villi and microvilli aid in the process of nutrient absorption    | 1   | 4  | 2     |
| 8.   | Analyze how the skin and sweat glands regulate body temperature                  | 1   | 4  | 2     |
| 9.   | List the main parts of the central nervous system                                | 2   | 5  | 2     |
| 10.  | Define reflex action                                                             | 1   | 5  | 2     |

**PART – B (ANSWER ALL QUESTIONS) (Marks 5\*16 = 80)**

| Q.No    | Questions                                                                                                                                   | BLT | CO | Marks |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-------|
| 11. a i | Evaluate the statement: "The fluid mosaic model is a complete representation of the cell membrane." Justify your position with evidence.    | 3   | 1  | 16    |
|         | <b>Or</b>                                                                                                                                   |     |    |       |
| b i     | Differentiate between active transport and passive transport across the cell membrane, providing one key difference.                        | 2   | 1  | 16    |
| 12. a i | Can you explain the physiology of bone formation and analyze how types of bones contribute to the structural organization in human skeleton | 2   | 2  | 16    |
|         | <b>Or</b>                                                                                                                                   |     |    |       |
| b i     | Describe the structure and properties of skeletal muscle.                                                                                   | 2   | 2  | 8     |
| ii      | Evaluate the physiological changes that occur during muscle contraction                                                                     | 2   | 2  | 8     |
| 13. a i | Elaborate the cardiac cycle in detail.                                                                                                      | 3   | 3  | 8     |
| ii      | Analyze how the conduction system of the heart coordinates the sequence of events.                                                          | 3   | 3  | 8     |
|         | <b>Or</b>                                                                                                                                   |     |    |       |
| b i     | Tell about the physiology of respiration and evaluate how gas exchange transport takes place in body.                                       | 2   | 3  | 16    |
| 14. a i | Describe the process of digestion and absorption of macromolecules in the gastrointestinal tract.                                           | 2   | 4  | 16    |
|         | <b>Or</b>                                                                                                                                   |     |    |       |
| b i     | Explain the structure of nephron and evaluate the physiological mechanisms involved in urine formation.                                     | 2   | 4  | 16    |

|           |   |    |                                                                                        |   |   |    |
|-----------|---|----|----------------------------------------------------------------------------------------|---|---|----|
| 15.       | a | i  | Draw the structure of the brain and explain its functions                              | 3 | 5 | 10 |
|           |   | ii | Describe the structure spinal cord with neat diagram.                                  | 3 | 5 | 6  |
| <b>Or</b> |   |    |                                                                                        |   |   |    |
|           | b | i  | Explain the physiology of special sensory organs of vision, hearing, smell, and taste. | 3 | 5 | 16 |

\*\*\*\*\*