

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***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)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Differentiate between passive and active transport across the membrane.	L1	1	2
2.	What is homeostasis? Give one example.	L2	1	2
3.	List the types of bones based on shape.	L1	2	2
4.	Mention the function of cartilage in the skeletal system.	L2	2	2
5.	What is tidal volume? Mention its normal value in adults.	L2	3	2
6.	Discuss the main components of blood.	L2	3	2
7.	Define nephron and state its main function.	L1	4	2
8.	Discuss the role of sweat glands in temperature regulation.	L1	4	2
9.	Outline the structure of a neuron.	L1	5	2
10.	How the synapse plays an important role in nerve conduction.	L1	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Discuss the generation and propagation of action potential in a neuron. Illustrate the role of ion channels and membrane permeability. Or	L2	1	16
	b Describe the mechanisms of transport across the cell membrane and explain how the Nernst and Goldman equations are used to calculate membrane potentials.	L2	1	16
12.	a Analyze the relationship between the structure of different types of joints and their range of movements. Explain how the type of cartilage present in each joint supports its function. Or	L3	2	16
	b Discuss how the physiological and biochemical events occurring during skeletal muscle contraction and relaxation, emphasizing the role of the neuromuscular junction.	L3	2	16
13.	a Explain the structure and working of the human heart. Or	L2	3	16
	b With neat diagram discuss the structure and functions of the respiratory system.	L2	3	16

14.	a	Differentiate and analyze how the structural and secretory specializations of various parts of the gastrointestinal tract contribute to the process of digestion and absorption.	L3	4	16
		Or			
	b	Examine and interpret the relationship between the structure of the nephron and the physiological processes of urine formation.	L3	4	16
15.	a	Describe the structure of a neuron and explain its function.	L2	5	16
		Or			
	b	Compare the mechanisms of sensory perception in vision, hearing, taste, and olfaction. Examine how structural specializations in each sensory system support accurate signal transduction and interpretation in the CNS.	L2	5	16