

Reg.No.:

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 120010

B.E. / B.Tech. DEGREE END - SEMESTER EXAMINATIONS – NOV. / DEC. 2025

Third Semester

Biomedical Engineering

U23BM301 – ANATOMY AND HUMAN PHYSIOLOGY

(Regulation 2023)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define Homeostasis and state its importance.	2	K1	CO1
2.	Differentiate between smooth and rough endoplasmic reticulum.	2	K1	CO1
3.	Name the different types of joints and give one example each.	2	K2	CO2
4.	Identify the role of calcium ions in muscle contraction.	2	K2	CO2
5.	State the phases of the cardiac cycle.	2	K2	CO3
6.	Define tidal volume and mention its normal value.	2	K2	CO3
7.	Write the major secretions of the stomach and their functions.	2	K1	CO4
8.	Give the importance of skin in temperature regulation.	2	K1	CO4
9.	Differentiate between the central and peripheral nervous system.	2	K2	CO5
10.	Mention the sensory receptors involved in vision and hearing.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain the structure and functions of various cell organelles with neat diagram.	13	K2	CO1

		(OR)			
	b)	Describe the transport mechanisms across cell membrane and explain the concept of resting membrane potential.	13	K2	CO1
12.	a)	Detail the mechanism of muscle contraction and the role of neuromuscular junction.	13	K2	CO2
		(OR)			
	b)	Explain the physiology of bone formation and classify the types of muscles with suitable examples and neat diagrams.	13	K2	CO2
13.	a)	Explain the structure and conduction system of the heart with a neat labelled diagram.	13	K2	CO3
		(OR)			
	b)	Describe the process of gaseous exchange in the lungs and explain the neural and chemical regulation of respiration.	13	K2	CO3
14.	a)	Elaborate the physiology of digestion and absorption in the gastrointestinal tract.	13	K2	CO4
		(OR)			
	b)	Describe the structure and function of the nephron in the mechanism of urine formation, and explain the physiological processes involved in body temperature regulation.	13	K2	CO4
15.	a)	Explain the structure and function of the brain and spinal cord.	13	K2	CO5
		(OR)			
	b)	Describe the olfactory system and discuss the physiology of vision and hearing as special senses.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Explain how the cardiovascular and respiratory systems coordinate to maintain adequate oxygen supply and removal of carbon dioxide from body tissues.	15	K2	CO3
	(OR)			
b)	Describe how digestion, absorption and circulation process are linterlinked in supplying nutrient to the tissues.	15	K2	CO4