



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Accredited by NAAC-UGC with 'A++' Grade (Cycle III) &

Accredited by NBA (B.E - CSE, EEE, ECE, Mech & B.Tech.IT)

COIMBATORE-641 035, TAMIL NADU



Reg. No:

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B.E/B.Tech - Internal Assessment - III
Academic Year 2024-2025 (Even Semester)
Fourth Semester
Biomedical Engineering
23BMT204 -Biomedical Instrumentation



Time: 1^{1/2} Hours

Maximum Marks: 50

Answer All Questions

PART – A (5*2=10 Marks)				Bloom's Level	CO	Industry / GATE
1.	Define Pedobarograph and its clinical application.			REM	CO4	-
2.	Mention two fatigue characteristics observed in EMG signal analysis.			REM	CO4	GATE 2023 BM
3.	Identify the impact of conductive surfaces on patient safety.			UND	CO5	-
4.	Outline the concept of patient's electrical environment.			UND	CO5	(GATE 2022 BM)
5.	List two basic electrical safety codes applicable to medical instruments.			APP	CO5	-
PART – B (2*13=26 Marks)						
				Bloom's Level	CO	Industry / GATE
6.	(a)	Compare the clinical effectiveness of nerve stimulation based on Gate Control Theory vs Endorphin Theory of pain modulation. Which mechanism is more suitable for chronic pain management?	13	APP	CO4	-
		(OR)				
	(b)	Illustrate the nerve conduction velocity measurement process and discuss its clinical relevance.	13	APP	CO4	-
7.	(a)	Examine the physiological effects of electricity on the human body with appropriate susceptibility parameters.	13	ANA	CO5	(GATE 2020 BM)
		(OR)				
	(b)	Compare the approaches for handling micro shock versus macro shock risks in ICU settings using protective system.	13	ANA	CO5	(GATE 2021 BM)
PART – C (1*14=14 Marks)						
				Bloom's Level	CO	Industry / GATE
8.	(a) (i)	Propose a muscle stimulator design for physiotherapy applications with adjustable pulse width and frequency. Justify its relevance for different muscle groups	07	ANA	CO4	-

	(ii)	Break down the root causes of electrical shock incidents in hospital dialysis units and propose technical safety upgrades.	07	ANA	CO5	-
		(OR)				
8.	(b) (i)	Analyze the use of EMG signals in identifying abnormalities during the stance and swing phases of the gait cycle	07	ANA	CO4	-
	(ii)	Evaluate the role of electrical safety analyzers in pre-surgical checks. How can test results prevent equipment-related hazards?	07	ANA	CO5	-

Bloom's Taxonomy: REM – Remember UND – Understand APP – Apply ANA – Analyze EVA - Evaluate CRT - Create

Faculty in-charge

Teaching Coordinator

HoD