



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

SLOT: G2 + TG2

SCHOOL OF ELECTRICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2025-2026

Programme Name & Branch	:	B.Tech EEE & EIE	
Course Code and Course Name	:	BEIE301L - Biomedical Instrumentation	
Faculty Name(s)	:	Dr.M.Monica Subashini	
Class Number(s)	:	VL2025260101066	
Date of Examination	:	11-10-2025	
Exam Duration	:	90 minutes	Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes
CO2: Apply the knowledge to select appropriate diagnostic instruments and advanced techniques
CO3: Design and develop therapeutic devices in medical practices.

Q. No	Question	Module	Marks	CO	BL
1.	A patient monitoring system requires amplification of ECG signals in a noisy hospital environment. Compare the suitability of an instrumentation amplifier vs. an isolation amplifier for this application. Justify your choice with circuit-level reasoning and safety considerations.	2	10	CO2	BL 4
2.	A medical device connected to a patient develops a leakage current above safe limits. Explain the implications and describe the design modifications and safety measures required to meet relevant standards.	2	10	CO2	BL 4
3.	If you see a person suddenly collapse and pass out, or if you find a person already unconscious, confirm that the person can't respond. Check the person's breathing and pulse. If breathing and pulse are absent or irregular, which instrument can be used to restore the pulse? Design the instrument to provide a potential of 5000 V dc. Assume necessary capacitance and calculate the energy stored.	4	10	CO3	BL 3
4.	Which machine takes over the heart by replacing the heart's pumping action and by adding oxygen to the blood, removing carbon dioxide from your blood? Enumerate the functioning of the machine with suitable block diagram.	4	10	CO3	BL 2 & BL 3
5.	An incision is made near your belly button and a thin tube called a catheter is inserted through the incision into the space inside your abdomen. Identify the medical trauma for which this treatment is followed and write a short note on the equipment that is being used on the patient.	4	10	CO3	BL 2
