

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 3171104

Date: 26/06/2023

Subject Name: Biomedical Electronics

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed

		Marks
Q.1	(a) Explain different types of noises.	03
	(b) Explain Major Systems of the Body.	04
	(c) Explain how to Matching the Sensors to a Circuit.	07
Q.2	(a) Explain Classification Of Biomedical Instruments.	03
	(b) Write different medical measurement constraints	04
	(c) Draw and explain generalized medical instrumentation system.	07
	OR	
	(c) Explain Medical Measurement Constraints in detail.	07
Q.3	(a) Explain Bioelectric Amplifiers.	03
	(b) Explain SNR and Noise Factor in detail.	04
	(c) Explain Noise Reduction Strategies in Sensors.	07
	OR	
Q.3	(a) Explain Electrode-Electrolyte Interface.	03
	(b) Explain Network equivalent circuit of nerve.	04
	(c) How Noise affects in Cascade Amplifiers?	07
Q.4	(a) Give classification of EEG Rhythms with different frequency bands.	03
	(b) Explain Body-Surface Recording Electrodes.	04
	(c) Differentiate Polarizable and Non-polarizable Electrodes.	07
	OR	
Q.4	(a) Explain Microelectrodes in detail.	03
	(b) Enlist the typical EEG system faults.	04
	(c) Explain ECG Amplification and Signal Conditioning Circuit.	07
Q.5	(a) Discuss Organization of the nervous system.	03
	(b) Enlist various types of bioelectrical signals found in human body.	04
	(c) Explain body surface electrodes with neat diagrams	07
	OR	
Q.5	(a) Enlist the applications of PET Scan Technology.	03
	(b) Discuss: Cranial x-rays.	04
	(c) Explain Macro shock Hazards in detail	07