

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code: 3160301

Date: 20-05-2025

Subject Name: Diagnostic Instrumentation

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) Draw neat Block diagram of ECG machine.	03
	(b) Explain Pure Tone Audiometer with necessary Block Diagram.	04
	(c) Differentiate between Unipolar and Bipolar leads of ECG measurement and Explain 12-Lead ECG Electrode placement with necessary diagram.	07
Q.2	(a) What is Halter Monitoring? What is the need of Halter Monitoring?	03
	(b) Define cardiac Output. Explain any one method of Cardiac output measurement.	04
	(c) Give the Characteristics of Lubb and Dubb. Explain phonocardiography with necessary Block Diagram.	07
	OR	
	(c) Give the significance of ECG wave form. And Explain Atrial Fibrillation, Atrial Flutter, Atrial Enlargement, Bradycardia, Tachycardia.	07
Q.3	(a) Describe in Brief: Epilepsy, ALS, Alzheimer's Disease	03
	(b) Explain different type of Electrodes are used for EMG Measurement.	04
	(c) Give Working principles of Pneumotachometers and Explain construction of it with necessary Diagram.	07
	OR	
Q.3	(a) Enlist and Explain Different types of Artifacts associated with EMG Measurement.	03
	(b) Explain different type of Electrodes are used for EEG Measurement.	04
	(c) Give Frequency range of EMG. Explain EMG machine with necessary Block Diagram.	07
Q.4	(a) Enlist and Explain Essential Parameters for Telemedicine.	03
	(b) Explain: Diabetic Retinopathy, Age Related macular degeneration, Strabismus, Nystagmus	04
	(c) What is Spirometry? Enlist Different Types of Spirometry. Explain Construction of Wedge spirometer with necessary diagram.	07
	OR	
Q.4	(a) Define: FEV, VC, Compliance	03
	(b) Draw neat Block Diagram of Pulmonary Function analyzer.	04
	(c) What is Tonometry? Explain various Contact type of Tonometry in Detail.	07
Q.5	(a) What is Masking in Audiometry? Give Importance of Masking.	03
	(b) What is telemedicine? Give applications of telemedicine.	04
	(c) Draw and Explain Bekesy Audiometer with necessary block diagram.	07

OR

- Q.5** (a) Explain various information delivery modes in Brief. **03**
- (b) Give Audible frequency range for human and Explain mechanism of Hearing. **04**
- (c) Explain Multichannel wireless Telemetry system with necessary block diagram. **07**