

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI EXAMINATION – WINTER 2025

Subject Code: 3160301

Date: 02-12-2025

Subject Name: Diagnostic Instrumentation

Time: 02:30 PM TO 05:00 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) Give Frequency Components of various states of EEG.	03
	(b) Explain Various Protocols for tread Mill test.	04
	(c) Enlist and explain various nervous system Disorders. Draw and Explain EEG machine with necessary Block Diagram.	07
Q.2	(a) Give the Normal Frequency range of ECG, EEG and EMG.	03
	(b) Enlist and Explain various Unipolar and Bipolar leads used for ECG measurement.	04
	(c) Explain Construction and Working of basic Spirometer with necessary Diagram.	07
	OR	
	(c) Explain Basic Working principles of Pneumotachometer and Describe Construction of Pneumotachometer.	07
Q.3	(a) Define: VC, RV, ERV.	03
	(b) Explain Magneto encephalography in a brief.	04
	(c) Explain Instrumentation of PCG machine in detail.	07
	OR	
Q.3	(a) Define: TV, TLC, IRV.	03
	(b) Give Significance of ECG wave form.	04
	(c) Explain various techniques for Heart Rate Measurement.	07
Q.4	(a) Explain Myopia, Glaucoma and Astigmatism.	03
	(b) What is Visual Acuity? Differentiate between Static and Kinetic perimetry in a brief.	04
	(c) Give the Full Form of ABER and ASSR. And Explain Evoked Response Audiometry System.	07
	OR	
Q.4	(a) What is Nystagmus? Explain ENG in a Brief.	03
	(b) Differentiate between Pure Tone and Speech Audiometry.	04
	(c) Enlist Various Contact and Non-Contact Type of Tonometer and Explain Gold Man Tonometer in a Detail.	07
Q.5	(a) Explain Advantages of telemetry in a Brief.	03
	(b) Give the Range of Human Audible Frequency. Differentiate between Air Conduction and Bone Conduction.	04
	(c) Explain Multichannel Wireless Telemetry System with Necessary Block diagram.	07

OR

- Q.5** (a) What is Masking in Audiometry? **03**
(b) Enlist Essential Parameters of telemedicine. **04**
(c) Explain ECG telemetry System with Necessary Block diagram. **07**