

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3160301****Date:02-12-2023****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Describe correlation between ECG waveform and Physiology of Heart.	<b>03</b>
	(b) Draw 12 Lead ECG configurations.	<b>04</b>
	(c) Explain block diagram of ECG machine.	<b>07</b>
<b>Q.2</b>	(a) Write a short note on EMG machine.	<b>03</b>
	(b) What is NCV? How it can be measured?	<b>04</b>
	(c) Define Cardiac output. Enlist Cardiac output measurement techniques and explain any one in detail.	<b>07</b>
	<b>OR</b>	
	(c) Explain EEG machine with neat diagram.	<b>07</b>
<b>Q.3</b>	(a) Explain any three Respiratory system disorders.	<b>03</b>
	(b) Design Signal conditioning circuit for EEG.	<b>04</b>
	(c) Describe Respiration Rate measurement techniques.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Give normal amplitude and frequency of EEG waves.	<b>03</b>
	(b) Enlist types of Spirometer and explain any one.	<b>04</b>
	(c) With neat diagram, explain Pulmonary Function Analyzer.	<b>07</b>
<b>Q.4</b>	(a) What is Air conduction and Bone conduction?	<b>03</b>
	(b) Explain construction and working of Slitlamp with neat diagram.	<b>04</b>
	(c) What is Evoked Response Audiometry System? Explain in detail.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) What is Perimetry? Explain it.	<b>03</b>
	(b) Write a short note on Electroretinography(ERG).	<b>04</b>
	(c) Explain Audiometer System Bekesy with neat diagram.	<b>07</b>
<b>Q.5</b>	(a) What is Wireless Telemetry? Explain its importance.	<b>03</b>
	(b) Describe Applications of Telemedicine.	<b>04</b>
	(c) Explain ECG Telemetry system in details.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Write a short note on Phonocardiography.	<b>03</b>
	(b) Explain Implantable Multi-sensor Radiotelemetry.	<b>04</b>
	(c) What is Telemedicine? Explain Essential Parameters of Telemedicine.	<b>07</b>

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