		: Enrolment		
		GUJARAT TECHNOLOGICAL UNIVERSITY BE SEMESTER- 7th EXAMINATION - SUMMER 2015		
Subject code: 171006 Date: Subject Name: Biomedical Instrumentation			06/05/2015	
			Total Marks: 70	
ın	1 2	ctions: . Attempt all questions Make suitable assumptions wherever necessary Figures to the right indicate full marks.		
Q.1	(a)	What is biotelemetry? Explain the components of a biotelemetry system in detail.	07	
	<b>(b)</b>	State the methods for prevention of electric hazards and accidents in hospitals.	07	
Q.2	(a)	Define the terms: Action Potential and Resting Potential. With neat figures, explain the depolarization and repolarization process.	07	
	<b>(b)</b>	What is the difference between active and passive transducers? Explain different transducers used for biomedical applications.  OR	07	
	<b>(b)</b>	Explain, in brief, indirect method of blood pressure measurement.	07	
Q.3	(a)	What is an electrode? Explain various types of electrodes used for biomedical signals acquisition.	07	
	<b>(b)</b>	Draw the block diagram of an electrocardiograph (ECG) machine and explain different blocks in detail.	07	
		OR		
Q.3	(a)	What is the difference between electrocardiography and echocardiography?	07	
	<b>(b)</b>	What is the necessity of pacemaker and defibrillator? Explain the working principles of these instruments.	07	

Draw and explain the block diagrams of EEG and EMG machines.

OR

Explain the principle of radiation. Draw and explain the block diagram of an x-

Explain the working of Heart-Lung machine.

**Q.4** 

(a)

**(b)** 

Q.4 (a)

**07** 

**07** 

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	<b>(b)</b>	Explain the operating principle of Ultrasound imaging.	07
Q.5	(a)	Explain the working of Diathermy unit for surgery and therapy.	07
	<b>(b)</b>	State and explain the equipments in intensive care unit (ICU). Explain the role of LASER in surgery.	07
		OR	
Q.5	(a)	Draw the diagram of a man-instrument system and explain each block in detail.	07
	<b>(b)</b>	State various physiological systems of the human body and explain any one of them in detail.	07

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