Seat No.:	Enrolment No
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

## **BE - SEMESTER-IV • EXAMINATION - SUMMER 2013**

Su	bject	Code: 140302 Date: 17-06-2013 Name: Physiological Measurement Techniques  O 20 cm	
	ructio 1. 2.	0.30 am - 01.00 pm ons: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a) (b)	Explain internal structure of eye with necessary figure. Explain placement of electrode in EOG, ERG and type of signal obtained with characteristics. Explain filtering methods for the same.	07 07
Q.2	(a) (b)	Explain 12 and 24 electrode method for taking EEG. Discuss various types of waveforms obtained with frequency and amplitude.  Explain spinal cord structure in detail. Explain in detail thoracic and lumbar region.	07 07
	<b>(b)</b>	OR  Explain how signals are taken from body parts to brain and control signals from brain to body parts with necessary detailing.	07
Q.3	(a) (b)	Explain how blood pressure is caused due to heart.  Explain conduction system of heart and various sounds associated with it.  OR	07 07
Q.3	(a) (b)	Explain ECG in detail.  Explain different types of electrodes used in ECG, EOG, EMG, ERG & EEG and Give difference between them. Explain electrode standards.	07 07
Q.4	(a) (b)	Explain cardiac cycle of heart.  Explain membrane and action potential.  OR	07 07
Q.4	(a) (b)	Explain Inductive and capacitive type of transducer used in biomedical measurement.  Explain phenomenon of transfer of ions and molecules through cell membranes.	07 07
Q.5	(a) (b)	Explain invasive and non invasive electrodes. What are advantages and disadvantages of invasive electrodes?  Explain Homeostasis, Endocytosis and Exocytosis.	07 07
Q.5	(a) (b)	OR  Explain the structure of Internal and micro electrodes with its application.  Write a short note on Interference signals and their elimination.	07 07

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