

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV • EXAMINATION – SUMMER 2013

Subject Code: 140302**Date: 17-06-2013****Subject Name: Physiological Measurement Techniques****Time: 10.30 am - 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.

- Q.1** (a) Explain internal structure of eye with necessary figure. **07**
(b) Explain placement of electrode in EOG, ERG and type of signal obtained with characteristics. Explain filtering methods for the same. **07**
- Q.2** (a) Explain 12 and 24 electrode method for taking EEG. Discuss various types of waveforms obtained with frequency and amplitude. **07**
(b) Explain spinal cord structure in detail. Explain in detail thoracic and lumbar region. **07**
- OR**
- (b) 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) Explain how blood pressure is caused due to heart. **07**
(b) Explain conduction system of heart and various sounds associated with it. **07**
- OR**
- Q.3** (a) Explain ECG in detail. **07**
(b) Explain different types of electrodes used in ECG, EOG, EMG, ERG & EEG and Give difference between them. Explain electrode standards. **07**
- Q.4** (a) Explain cardiac cycle of heart. **07**
(b) Explain membrane and action potential. **07**
- OR**
- Q.4** (a) Explain Inductive and capacitive type of transducer used in biomedical measurement. **07**
(b) Explain phenomenon of transfer of ions and molecules through cell membranes. **07**
- Q.5** (a) Explain invasive and non invasive electrodes. What are advantages and disadvantages of invasive electrodes? **07**
(b) Explain Homeostasis, Endocytosis and Exocytosis. **07**
- OR**
- Q.5** (a) Explain the structure of Internal and micro electrodes with its application. **07**
(b) Write a short note on Interference signals and their elimination. **07**
