



Printed Pages : 2

TEE - 031

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0290

Roll No.

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## B. Tech.

(SEM. VIII) EXAMINATION, 2008-09

### BIO-INSTRUMENTATION

Time : 3 Hours]

[Total Marks : 100

- Note :
- (1) Attempt **all** questions
  - (2) All questions carry **equal** marks.

1 Attempt any **two** parts of the following :

- (a) Discuss the cardiovascular system. How is the ECG signal generated, propagated and distributed? What are the transducers used to measure ECG?
- (b) Explain electrode theory. Discuss different types of electrodes used for bioelectric potentials. Discuss the major problem in measuring living things.
- (c) Draw and level the waveforms of EEG and EMG. What are the transducers used to measure the EFG and EMG?

2 Attempt any **two** parts out of the following :

- (a) Discuss a method to measure blood pressure. Explain the characteristics of blood flow.
- (b) Discuss different types of bio-chemical transducers and mention their merits, demerits and applications.
- (c) Explain various ECG lead systems and einthoven triangle.



- 3 Attempt any **two** parts :
- (a) Discuss EPSP and IPSP organisation of the brain. What are the measurements made from nervous system?
  - (b) Write short notes on body and skin temperature measurement.
  - (c) Define systole and diastole. Explain the different methods of measurement of cardiac output.
- 4 Attempt any **two** parts :
- (a) Explain the patient care monitoring system.
  - (b) What is a pace-maker? Give the classification of various pace-makers. Also explain demand type pace-maker.
  - (c) What is defibrillator? Explain the working of different types of defibrillator.
- 5 Write short notes on any **two** of the following :
- (a) Interfacing of computer with medical instrumentation.
  - (b) Shock hazards from electrical equipments.
  - (c) Instrumentation for diagnostic X-Ray.

