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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) (2012 Onwards E-I)
(Sem.-6)
BIOMEDICAL INSTRUMENTATION
Subject Code : BTEE-605D
M.Code : 71155

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A**1. Answer briefly :**

- a. Discuss the need of biomedical instrumentation.
- b. Explain the principle of LVDT.
- c. What is EEG? Discuss.
- d. What do you mean by compensation? Why is it required in thermistors? Discuss.
- e. What is thermography? Explain.
- f. Why tonometer is used? Discuss.
- g. Discuss briefly the use of ultrasonic in biomedical.
- h. What do you mean by prosthesis? Discuss.
- i. What is the need of a pacemaker? Explain.
- j. What is harness control? Why is it required? Explain.

SECTION-B

2. What is the principle of strain gauge transducer? Discuss how strain gauge is used as respiratory flow transducer.
3. Explain the principle of working of piezoelectric transducer. Draw its equivalent circuit and discuss its applications in biomedical.
4. What is biotelemetry? Explain in detail the radio telemetry of biological signals.
5. What is the need of defibrillators? Explain the principle and working of a defibrillator.
6. Discuss the EMG-controlled externally powered prosthesis in detail.

SECTION-C

7. Explain (in detail) :
 - a. ESR Measurement
 - b. Diathermy
8.
 - a. Explain the different sources of noise and its removal during the measurement and recording of bioelectric signals.
 - b. What are X-rays? Explain the use of X-rays in biomedical instrumentation.
9. Discuss the following :
 - a. Thermistor
 - b. Variable capacitance transducer

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.