Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE/Electrical & Electronics) (2011 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) Why instrumentation is required in biomedical?

b) Explain the principle of capacitive transducer.

c) What is EEG? Discuss.

d) List the various methods of blood flow.

e) What is plethysmograph? Explain.

f) What do you mean by isotopes? Explain.

g) Discuss the applications of ultrasonic in biomedical.

h) Discuss the importance of X-rays in biomedical.

i) What is the need of a diathermy? Explain.

j) List the various frequency design considerations in biotelemetry.

## SECTION-B

2. What is a thermistor? Why is it used? Discuss the characteristics of a thermistor.

3. Discuss the principle and working of Linear variable differential transformer. Also discuss where it is used in biomedical applications.

4. What is the need of telemetry in biomedical? Explain in detail the radio telemetry of biological signals.

5. Explain in detail the construction and working of electromagnetic blood flow meter.

6. What do you mean by prosthesis? Explain the EMG-controlled externally powered prosthesis in detail.

## SECTION-C

7. Explain (in detail) the need of :

   a) Pacemakers

   b) Defibrillators

8. a) Explain the principle of working of piezoelectric transducer. Draw its equivalent circuit and discuss its applications in biomedical.

   b) What is EMG? Explain the different instruments used for picking and reproducing EMG signals.

9. Explain the measurement and recording of :

   a) Pressure

   b) Respiration rate



**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.**