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
Paper ID : [A2342]

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) Explain thermistor as temperature sensing element and its characteristics.

(b) Explain how radio-telemetry of biological signal is used.

(c) Explain erythrocyte sedimentation rate measurement.

(d) What is thermography? How it is used in medical application?

(e) What is the basic difference of using x-rays and ultrasound for diagnostic applications?

(f) List the applications of radiography image isotopes and nuclear medicine.

(g) What are the antenna and frequency design considerations?

(h) What is difference between pulmonary and systemic circulation?

(i) What is the basic difference for selecting X-ray and ultrasound for diagnosis?

(j) Explain gas analysis used for the blood test analysis.

SECTION-B

2. Draw and explain electromagnetic blood flow meter.

3. Explain surgical diathermy.

4. What is respiration? What chemical action takes place in human body during respiration? Also explain mechanics of breathing.

5. Explain what are the different configuration and application for measurement of muscular tremor.

6. Explain basic concept used for monofunctional and multifunctional devices used in prosthetics.

SECTION-C

7. What are the types of ultrasound imaging? What is difference between A-scan and B-scan? Discuss at least one application of C-scan.

8. Give basic concept of radio-telemetry of biological signal, its sources and frequency design considerations. Explain with a single unit FM units.

9. Write notes on :

   (a) Diathermy

   (b) X-ray