

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech/(EIE-NEW)/SEM-6/EI-604A/2013

2013

BIOMEDICAL INSTRUMENTATION

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :
 $10 \times 1 = 10$

i) Biomedical sensor can sense the energy form of

- | | |
|---------------|------------------|
| a) Electrical | b) Physical |
| c) Chemical | d) all of these. |

ii) Ultrasound waves are above

- | | |
|-------------------|-------------------|
| a) 20 Hz | b) 20 kHz |
| c) both (a) & (b) | d) none of these. |

iii) Which type of fluid is blood ?

- | | |
|------------------|-------------|
| a) Newtonian | b) Dilatant |
| c) Non-Newtonian | d) Bingham. |

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8. What is the principle of generation of X-ray ? Mention the important control systems for X-ray generation. What are the applications of computer in medicine ? Describe the data acquisition system of CT. 4 + 5 + 2 + 4
9. a) Discuss the indirect method of blood pressure measurement.
- b) Explain the function of sphygmomanometer.
- c) What are the values of systolic and diastolic pressure for a normal human being ? 7 + 5 + 3
10. a) What do you mean by cardiac pacemaker ? How does it work ?
- b) Discuss some types of cardiac pacemaker.
- c) What do you mean by EMG ? State two electrodes for EMG measurement.
- d) What is electrocardiography ? 5 + 4 + 4 + 2
11. Write short notes on any *three* of the following : 3 × 5
- a) MRI
- b) Patient care monitoring unit
- c) CAT
- d) Half-cell potential
- e) Biopotential amplifier.