Total No. of printed pages = 3

CAI-601/BI/6th Sem/2016/N

BIOMEDICAL INSTRUMENTATION

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *seven* questions.

1. (a) Describe about cardiovascular circulation system of human being. 8

   (b) Distinguish between absolute and relative refractory period. 2

2. (a) What are the general characteristics of human cell ? 5

   (b) What is a neuron ? Define the various parameters associated with it. 5

[Turn over

3. (a) Name the five different frequency bands of EEG. 5

(b) Draw an action potential waveform and label the amplitude and time values. 5

4. (a) Define the processes 'Diffusion', 'Active transport' and 'Pincytosis' of cell. 6

(b) Differentiate between 'Prokaryotic' and 'Eukaryotic' cell. 2

(c) What is EOG ? Which type of electrode is used to record it ? 2

5. (a) What is isotonic and isometric contarction ? 3

(b) Distinguish between Systemic and Skin-surface temperature. 5

(c) What is the advantage of using unipolar limb leads in ECG ? 2

6. (a) What are the assumptions based on which Einthoven derived the equilateral triange ? 5

(b) State the different classifications of bio-medical instruments with suitable examples. 5

7. (a) Define 'systole' and 'diastole'. 4

(b) What do you understand by the term 'MAP' ? 3

(c) What is meant by central nervous system ? 3

8. (a) Draw the waveform of arterial blood pressure as a function of time. Label the dicrotic notch in the waveform and explain the reason of its appearance. 5

(b) Briefly explain how the irregularity in the heart beating can be controlled by a pacemaker. 5

9. Write short notes on any *two* of the following : 10

(i) DC defibrilator

(ii) ECG amplifier

(iii) Plethysmograph

(iv) X-ray machine

(v) Pacemaker.