

Total No. of Questions : 10]

SEAT No. :

P4568

[Total No. of Pages : 2

[4958] - 1079

T.E. (Instrumentation & Control)

BIOMEDICAL INSTRUMENTATION

(2012 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn whenever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

- Q1)* a) Define the Electrode offset potential, Action potential, Evoked potential. [6]
- b) Define bio electrode. Polarizable electrode, Non-polarizable electrode. [4]

OR

- Q2)* a) Why silver - silver chloride electrode is suitable in biomedical applications. [6]
- b) Define Tachy cardia and Bradycardia state of Heart rhythm. [4]
- Q3)* a) Discuss the Invasive and non-invasive methods of Blood pressure measurement with respect to their advantages and disadvantages. [6]
- b) What is Phono-cardiogram? List out the various heart sound frequencies in Phonocardiograph. [4]

OR

- Q4)* a) Draw and explain the principle of Photo plethysmography. [5]
- b) Explain the principle of Electromagnetic Blood flowmeter. [5]

P.T.O.

- Q5)** a) Draw and explain the various cerebral lobes. What do you mean by efferent and afferent nerves. [10]
b) Explain the functions of the followings. [8]
Cerebellum, Thalamus and Hypothalamus, Medulla oblongata , Pons

OR

- Q6)** a) What is an EEG? Explain the EEG Montage system. [12]
b) Explain the various types of EEG Electrodes. [6]
- Q7)** a) Draw and explain Electromyograph. [8]
b) Explain various errors in vision with its ways of correction. [8]

OR

- Q8)** a) What is audiometer? Briefly explain the basic types of Audiometers. [10]
b) What are Rods and Cones in the Human vision system? Explain the function performed by each of them. [6]
- Q9)** a) Explain the breathing physiology with active and passive respiration. [8]
b) Define the followings terms with respect to respiratory system. [8]
i) Internal Respiration
ii) Tidal Volume
iii) Total Lung Capacity
iv) Expiratory reserve volume

OR

- Q10)**a) Draw & explain Inverted bell Spiro meter for respiratory measurement. [8]
b) Draw and explain Oxygen gas analyzer. [8]

