

Total No. of Questions : 8]

SEAT No. :

P2261

[Total No. of Pages : 2

[5254]-598

B.E. (Electronics Engineering) (End - Semester)

BIOMEDICAL SIGNAL PROCESSING

(2012 Pattern)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. No. 5 or Q. 6, Q.7 or Q. 8.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of Calculator is allowed.*
- 5) *Assume Suitable data if necessary.*

- Q1)** a) Draw & explain block of Biomedical instrumentation system. [8]
- b) What is baseline wandering? Explain method to remove it from ECG signal? [6]
- c) Explain the structure and function of neuron. [6]

OR

- Q2)** a) Explain different type of electrodes for measurement of Bio signal. [8]
- b) Write short notes on plethysmography. [6]
- c) Write short notes on nervous system. [6]

- Q3)** a) Draw block diagram of EEG machine. Explain in detail. [8]
- b) Explain α , β & θ in relation with EEG. [8]

OR

- Q4)** a) Draw and explain 10-20 electrodes system for EEG Recording. [8]
- b) List out the applications of EEG and explain in brief brain machine Interface. [8]

P.T.O.

- Q5)** a) Explain different grounding technique used in medical instruments. [8]
b) Write requirement of basic amplifier and Explain the use of Instrumentation amplifier. [8]

OR

- Q6)** a) Explain the concept for design of LPF and HPF and its application in Biomedical Field. [8]
b) What is adaptive filter? Explain the principle noise cancellation model.[8]

- Q7)** a) Design a frequency domain filter to remove high frequency noise with minimal loss of signal component in specified pass-band. [10]
b) Explain in detail, stationary and non-stationary Bio signals. [8]

OR

- Q8)** a) What is Digital signal processing? Explain Characteristics of Digital signal processing in Biomedical Application. [10]
b) Explain the selection criteria of filter for biomedical application. [8]

