

B.E. (Electronics Engineering) Seventh Semester (C.B.S.)
Elective – I : Biomedical Instrumentation

P. Pages : 2

Time : Three Hours



TKN/KS/16/7536

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.
 10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain the following physiological systems of Human body. 6
 - i) Cardiovascular System.
 - ii) Respiratory System.
 - iii) Nervous System.b) Explain with block diagram the Basic medical instrumentation system. 7
- OR**
2. a) Discuss the origin of various Biomedical Signals. 5
b) Explain the following Bioelectric signals with waveforms. 8
 - i) ECG
 - ii) EEG
 - iii) EMG
 3. a) Explain the role of displacement transducer in biomedical instrumentation system. 6
b) How Human body temperature can be measured? Explain. 8
- OR**
4. a) What is the significance of pressure transducer in Biomedical instrumentation? Explain. 7
b) Explain with suitable diagram smart sensors in instrumentation. Also write its limitations. 7
 5. a) Explain the working of Biomedical recorders with suitable diagram. 6
b) Explain Electro cardiograph with suitable diagram. Also write its limitations. 8
- OR**
6. a) What is phonocardiograph? Explain with suitable diagram. 7
b) Explain working principle of Electroencephalography. With diagram. 7
 7. a) What are the various patient monitoring systems? Explain the significance of each. 8

b) Explain Cardiac monitor with suitable diagram. 5

OR

8. a) Explain Bedside patient monitoring systems. 7

b) Explain Blood pressure monitoring system with suitable diagram. 6

9. a) Explain Basics of X-ray machine. 6

b) Explain Basics of CT-Scanning machine. 7

OR

10. a) Explain Ultrasonic basic pulse echo apparatus with neat sketch. 7

b) Explain basic components of MRI machine. 6

11. a) Explain patient safety while treatment and measurements. 6

b) Explain Electrical Safety analyzers. 7

OR

12. a) Explain testing of Biomedical equipments. 7

b) Explain safety code for electrical equipment. 6
