B.Tech. (Electronics Telecommunication Engg./ Electronics Communication Engg./ Electronics Engineering) Seventh Semester (C.B.C.S.)

Open Elective-II : Bio-engineering

P. Pages : 2 **PSM/KW/23/2862**

Time : Three Hours * 2 3 1 4 * Max. Marks : 70

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. Assume suitable data whenever necessary.
8. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Discuss the scope of Electronics in biomedical Engineering with advantages. **7**

b) Discuss the characteristics of ECG,EEG and EMG. **7**

OR

2. a) State and explain the dynamic characteristics of biomedical engineering in electronics. **7**

b) Discuss the design of filter suitable for biomedical signal analysis. **7**

3. a) How data processing is carried out in biomedical applications. **7**

b) Explain the different parameters of physical measurement in bio-engineering. **7**

OR

4. a) Explain the following: **7**

a) EMG sensor. b) GSR sensor.

c) Heart rate sensor.

b) Explain the data collection of biomedical data & sensing information in smart room. **7**

5. a) Explain X-ray computed tomography process. **7**

b) Discuss applications of virtual reality technology. **7**

OR

6. a) Explain the process of medical infrared imaging. **7**

b) Explain magnetic resonance microscopy. **7**

7.	a)	Explain the function of instrumentation biomedical amplifier with its advantages.	**7**
	b)	What are the types of biomedical instrumentation.	**7**

OR

8.	a)	Explain different medical instruments and devices used in the home.	**7**
	b)	How is biomedical impedance measured?	**7**
9.	a)	Discuss ethical issues associated with use of medical technology.	**7**
	b)	Discuss computer based patients record.	**7**

OR

10.	a)	Discuss hospital information system in detail.	**7**
	b)	How advancing technology is helping first responder.	**7**

****