B.E. Electronics & Telecommunication / Communication Engineering / Electronics Engineering
Seven Semester

EC7054 / EN7051 - Elective-I : Biomedical Engineering

P. Pages : 2 **GUG/W/18/1800**

Time : Three Hours * 1 4 0 9 * Max. Marks : 80

Notes : 1. All questions carry marks. as indicated.

1. a) With the help of neat diagram explain relationship of heart sound to function of the cardiovascular system. **8**

b) Describe origin of Bio-electric signal in details. **8**

OR

2. a) Explain ECG and EEG signal with neat diagram. **8**

b) What is nervous system. Explain in details. **8**

3. a) What is a displacement transducer and what are their types. Describe any one of them in detail with the help of a diagram. **8**

b) Define gauge factor and its significance in blood pressure measurements. **8**

OR

4. a) Define a photoelectric transducer. What are the types of photoelectric cell? Illustrate the principle of a photo multiplier with the help of a diagram. **8**

b) What is mean by temperature transducer. Describe thermocouple. **8**

5. a) Draw and explain block diagram of microprocessor based three channel ECG machine. **8**

b) Draw the block diagram of PCG set up explain the function of each block. **8**

OR

6. a) Describe the common methods available for computerized analysis of EEG signals. **8**

b) Explain the function of an electromyograph machine. What are the special characteristics of preamplifiers used in EMG machines. **8**

7. a) What is Blood pressure measurement? Explain Indirect Blood pressure measurement method. **8**

b) Describe the objective of using patient monitoring systems. List out the important parameters which are essential for patient monitoring. **8**

OR

8.	a)	Write a short note on Instantaneous Heart rate meter with its block diagram.	**8**
	b)	What are the general precautions to be observed to minimize electric shock hazards.	**8**
9.	a)	How are X-rays produced? Explain the working of a x-ray tube.	**8**
	b)	What is computed tomography. Explain the technique with the help of a diagram.	**8**

OR

10.	a)	Describe with the help of a block diagram the construction of a CT scanner.	**8**
	b)	Describe the basic NMR imaging system with the help of a diagram.	**8**

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