B.E. Electronics Engineering / Electronics & Telecommunication / Communication Engineering
Sem-VII (CBS)

EN7051 / EC7054 - Elective-I : Biomedical Engineering

P. Pages : 1 **GUG/S/19/1800**

Time : Three Hours * 1 3 8 2 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 , Q. 7 or Q. 8 and Q. 9 or Q. 10
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1.	a)	What is EEG? What are various waveforms of EEG? Enlist them and give their significance.	**8**
	b)	Write a short note on EMG.	**8**
		OR	
2.	a)	Explain different specifications of Biomedical Instrumentation system.	**8**
	b)	Define half cell potential. How to remove the same while measuring the biopotential?	**8**
3.	a)	Explain in detail about Electrical Resistance Thermometer.	**8**
	b)	Explain Photoelectric transducer in detail.	**8**
		OR	
4.	a)	Explain pressure transducer in detail.	**8**
	b)	Write a short note on potentiometric transducers.	**8**
5.	a)	Explain 10-20 electrode placements for EEG recording.	**8**
	b)	Draw and explain block diagram of ECG machine.	**8**
		OR	
6.	a)	Write a short note on effect of artefacts on ECG recording.	**8**
	b)	Write a short note on origin of heart sound used in PCG. Also draw its waveforms.	**8**
7.	a)	Explain how respiration rate is measured?	**8**
	b)	Explain the indirect method of blood pressure measurement.	**8**
		OR	
8.	a)	Explain in brief the plethysmography.	**8**
	b)	Explain about the electric shock hazards.	**8**
9.	a)	Explain the first generation (Parallel Beam Geometry) of CT scan in short.	**8**
	b)	With neat sketch describe system components of CT scan.	**8**
		OR	
10.	a)	Explain ultrasonic Imaging Instrumentation system with neat block diagram.	**8**
	b)	Describe in short about X-ray production technique.	**8**

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