B.E.-Instrumentation Engineering Sem VI

IN602 - Bio-Medical Instrumentation-I

P. Pages : 1 **GUG/S/18/5387**

Time : Three Hours * 1 4 3 5 * Max. Marks : 80

Notes : 1. Same Answer book must be used for each section.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1.	a)	Describe the structure of human cell and its constituents with neat diagram.	**8**
	b)	Discuss the Cardiac cycle in detail.	**8**
		OR	
2.	a)	Illustrate electrocardiogram with suitable diagram.	**8**
	b)	Write in brief characteristics of blood.	**8**
3.	a)	Enlist any four most significant bioelectric potentials obtained from body. Discuss their characteristics and use.	**8**
	b)	Describe the factors to be considered in the design of Medical instrumentation system.	**8**
		OR	
4.	a)	Discuss intelligent medical instrumentation system.	**8**
	b)	Discuss about the constraints in design of medical instrumentation system and regulation of medial devices.	**8**
5.	a)	Define half cell potential. What is polarisable and non-polarisable electrodes.	**8**
	b)	Draw the electrical equivalent circuit of a microelectrode and explain its electrical nature.	**8**
		OR	
6.	a)	Discuss the characteristics of resting potential with reference to Nerst's equation.	**8**
	b)	Explain with neat sketch various types of electrodes.	**8**
7.	a)	Enlist various waveforms of EEG and give their significance.	**8**
	b)	Describe the sources of noise in recording circuits with suitable diagram.	**8**
		OR	
8.	a)	Classify various biomedical signal analysis technique.	**8**
	b)	Clarify the different leads system in ECG waveform recording.	**8**
9.	a)	Discuss the different modes of operation of cardiac pacemaker.	**8**
	b)	Illustrate the importance of medical diagnosis with chemical test.	**8**
		OR	
10	a)	Give detail construction & working of spectrophotometer.	**8**
	b)	Distinguish between pacemaker and defibrillators.	**8**

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