B.E.(with Credits)-Regular-Semester 2012-Instrumentation Engineering Sem VII

IN-Elective-I : Bio-Medical Instrumentation-II

P. Pages : 1 **GUG/S/18/6613**

Time : Three Hours * 2 0 9 9 * Max. Marks : 80

Notes : 1. Same Answer book must be used for each section.
2. All questions carry marks as indicated.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1.	a)	Explain the separation of alpha, beta, theta & delta waves from EEG.	**8**
	b)	Explain sensory pathways & motor system.	**8**
		OR	
2.	a)	How to remove the noise & compensate the signal for reducing ECG artifacts in an EMG recording.	**8**
	b)	Explain the Neuronal Receptors in details.	**8**
3.	a)	What is audiometer? Explain speech audiometer in detail.	**8**
	b)	Explain pulmonary function measurements, give the details of terms ventilation, distribution & diffusion.	**8**
		OR	
4.	a)	Explain the graph for volume and capacities of lungs. Give the terms related with it.	**8**
	b)	Explain Bekesy Audiometer with neat sketch.	**8**
5.	a)	Give the constructional details of an X-ray image intensifier tube.	**8**
	b)	Explain the basic NMR components with the block diagram of Sub-system of typical NMR imaging system.	**8**
		OR	
6.	a)	Explain the generation & detection of ultrasound.	**8**
	b)	Describe in detail the Digital Radiography.	**8**
7.	a)	State the precautions to minimize electric shock hazards.	**8**
	b)	Describe the leakage current in patient leads.	**8**
		OR	
8.	a)	Explain the three testing facilities available in electrical safety analyzer.	**8**
	b)	Explain why safety codes are needed for electro medical equipment's.	**8**
9.	a)	Explain Argon laser with simplified block diagram.	**8**
	b)	Explain the classification of Ventilators.	**8**
		OR	
10.	a)	Explain the evolution of various levels of automation in the control of drugs delivery.	**8**
	b)	List the components of Drugs infusion system. Explain syringe pumps.	**8**

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