

Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination Biomedical Transducers and Measurements

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE FULL QUESTIONS**, choosing at least **ONE QUESTION** from each **MODULE**.

Module -1			
Q.01	a	What is a measurement system? With block diagram explain the characteristics of measurement system.	(10Marks)
	b	Define Noise. Discuss the different types of noise present in a measurement system.	(10Marks)
OR			
Q.02	a	What is transducer? Describe the static and dynamic characteristics of transducers.	(10Marks)
	b	With neat figures give the transduction principle of displacement & position transducers.	(10Marks)
Module-2			
Q. 03	a	Define ECG. Draw a typical ECG waveform & explain the causes for each wave & interval.	(10Marks)
	b	What is resting membrane potential? With a neat figure describe the phenomena of action potential.	(10Marks)
OR			
Q.04	a	Discuss the types of electrodes for EEG & EMG with figures.	(10Marks)
	b	Write short notes on (i) Skin contact impedance (ii) Microelectrodes	(10Marks)
Module-3			
Q. 05	a	Explain the principle of LVDT with neat figure. Give its applications	(10Marks)
	b	Explain diagram displacement transducer with basic principles.	(10Marks)
OR			
Q. 06	a	What is blood pressure? Describe the indirect method of systolic, diastolic & mean blood pressure.	(10Marks)
	b	Discuss the following (i) Pressure telemetering capsule (ii) Implantable pressure transducer	(06Marks)

	c	With a neat figure describe the detection of Kortokoff sounds.	(04 Marks)
Module-4			
Q. 07	a	What is thermocouple? With a neat figure give the construction & principle of thermocouple.	(10Marks)
	b	Explain the following terms with figures (i) Biosensors (ii) Smart sensors.	(10Marks)
OR			
Q. 08	a	What is clinical thermometer? Discuss the different indwelling thermometer probes.	(10Marks)
	b	Write short notes on (i) Photovoltaic cells (ii) Photo emissive cells	(10Marks)
Module-5			
Q. 09	a	Along with a neat figure give the construction & working principle of electromagnetic flow meter.	(10Marks)
	b	With figure explain the ultrasonic Doppler blood flow meter along with the propagation of ultrasound in tissues.	(10Marks)
OR			
Q. 10	a	Discuss with neat figure the principle & working indicator dilution method.	(10Marks)
	b	Describe in detail about impedance cardiography.	(10Marks)