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B.Sc. (Part—III) Semester—V Examination

5S : ELECTRONICS

(Measuring Instruments)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Question No. **1** is compulsory.

(2) Draw diagrams wherever necessary.

1. (A) Fill in the blanks :—

(i) The transducer converts Physical quantity into equivalent _____ .

(ii) LVDT stands for _____ .

(iii) Pyrometer uses thermal radiation for measurement of _____ .

(iv) DCM stands for _____ . 2

(B) Choose the correct alternative :—

(i) Electrical activity of brain is measured by using :

(a) ECG (b) EMG

(c) EEG (d) None

(ii) Free running multivibrator is also known as _____ multivibrator.

(a) Monostable (b) Bistable

(c) Astable (d) None

(iii) RTD stands far :

(a) Resistance temp. detector (b) Resistance thermal detector

(c) Radiant temp. detector (d) Resistance temp. device

(iv) Output voltage at null position of LVDT is known as _____ .

(a) Null Voltage (b) Residual Voltage

(c) Effective Voltage (d) None 2

(C) Answer in one sentence each :

(i) What is the function of reset input in IC555 ?

(ii) What is actuator ?

(iii) What is transducer ?

(iv) What is Pyrometer ? 4

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2.	(a)	Explain construction and working of capacitive transducer.	6
	(b)	State classification of transducers and explain with examples.	6
		OR	
	(p)	Draw block diagram of generalised instrumentation system and explain each block.	6
	(q)	Explain measurement of displacement using potentiometer.	6
3.	(a)	Explain measurement of temperature using thermistor.	6
	(b)	Explain construction and working of total radiation pyrometer.	6
		OR	
	(p)	Explain LM34 and its features.	6
	(q)	Explain temperature measurement using thermocouple.	6
4.	(a)	Explain IC 555 with neat block diagram.	6
	(b)	Explain working of IC 555 as astable multivibrator.	6
		OR	
	(p)	Draw and explain block diagram of PLL.	6
	(q)	Explain working of monostable multivibrator using IC 555.	6
5.	(a)	Explain segmental and dot matrix display.	6
	(b)	Draw block diagram of digital frequency meter and explain function of each block.	6
		OR	
	(p)	Draw functional diagram of magnetic tape recorder and explain its working.	6
	(q)	Explain working of ramp type digital voltmeter.	6
6.	(a)	Explain fiber optic temperature sensor.	6
	(b)	Explain construction and working of strain gauge.	6
		OR	
	(p)	Explain bent beam electro-thermal actuator.	6
	(q)	Explain working of phototransistor as optical sensor.	6
7.	(a)	Explain the working of EEG with neat block diagram.	6
	(b)	Explain working of blood pressure meter.	6
		OR	
	(p)	Draw block diagram of ECG machine and explain each block.	6
	(q)	Explain pulse oximeter.	6

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