

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 neat diagram wherever necessary.

1. (A) Fill in the blanks :

- (i) Pyrometer uses thermal radiation for measurement of _____.
- (ii) IC555 is also known as _____.
- (iii) DC Motor is an example of _____ actuator.
- (iv) ECG stands for Electrocardiogram _____ 2

(B) Choose the correct alternative :

- (i) The LVDT is a _____ transducer.
 - (a) Capacitive
 - (b) Inductive
 - (c) Resistive
 - (d) None of these
- (ii) IC _____ used as PLL.
 - (a) 565
 - (b) LM35
 - (c) 555
 - (d) None of these
- (iii) Bent beam is an _____ actuator.
 - (a) Electro-chemical
 - (b) Electro-optical
 - (c) Electro-mechanical
 - (d) None of these
- (iv) The ear oximeter is used for the measurement of _____ saturation in arterial blood.
 - (a) Oxygen
 - (b) Hydrogen
 - (c) Carbon
 - (d) None of these

2

(C) Answer in **one** sentence each :

- (i) What is Pyrometer ?
- (ii) What is the function of reset input in IC555 ?
- (iii) What is transducer ?
- (iv) What is electromechanical actuator ?

4

EITHER

- 2. (a) Explain the construction and working of capacitive transducer. 6
- (b) Draw block diagram of generalized instrumentation system and explain each block. 6

OR

- (p) Explain the measurement of displacement using potentiometer. 6
- (q) Explain Active and Passive transducer with an example. 6

EITHER

- 3. (a) Explain different types of RTD's. <https://www.sgbauonline.com> 6
- (b) Explain the construction and working of infrared radiation pyrometer. 6

OR

- (p) Explain the measurement of temperature using thermistor. 6
- (q) Explain the measurement of temperature using total radiation pyrometer. 6

EITHER

- 4. (a) Draw and explain block diagram of PLL. 6
- (b) Explain working of Monostable multivibrator using IC555. 6

OR

- (p) Draw and explain the block diagram of IC555. 6
- (q) Write the applications of PLL. 6

EITHER

- 5. (a) Draw block diagram of digital voltmeter and explain its working. 6
- (b) Draw functional diagram of magnetic tape recorder and explain its working. 6

OR

- (p) Explain the construction and working of digital capacitance meter. 6
- (q) Explain the construction and working of 7-segment display. 6

EITHER

6. (a) Explain the construction and working of strain gauge. 6
- (b) Explain photo transistor as optical sensor. 6

OR

- (p) Explain fiber optics as thermal sensor. 6
- (q) Explain the working of carbon mono-oxide sensor. 6

EITHER

7. (a) Explain the construction and working of EEG. 6
- (b) Draw and explain the block diagram of ECG recorder. 6

OR

- (p) Explain the construction and working of pulse oximeter. 6
- (q) Explain working of Laser Doppler blood flow meter with block diagram. 6

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