

B.Sc. (Part-III) Semester-V Examination
5S-ELECTRONICS
(Measuring Instruments)

Time : Three Hours]

[Maximum Marks : 80

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

(ii) Draw neat diagrams wherever necessary.

1. (A) Fill in the blanks : 2
- (i) The IC-555 has _____ terminals.
- (ii) The VCO stands for _____ .
- (iii) The thermocouple is used for the measurement of _____ .
- (iv) The EEG stands for _____ .
- (B) Choose the correct alternative : 2
- (i) The carbon monoxide sensor is a _____ sensor.
- (a) mechanical (b) chemical
- (c) optical (d) none
- (ii) The dc motor is a _____ sensor.
- (a) chemical (b) mechanical
- (c) electromechanical (d) thermal
- (iii) The ear oximeter is used for the measurement of _____ saturation in arterial blood.
- (a) oxygen (b) hydrogen
- (c) carbon (d) nitrogen
- (iv) The DVM stands for _____ .
- (a) Digital voltmeter (b) Digital capacitance meter
- (c) Digital frequency meter (d) Digital resistance meter

- (C) Answer the questions in one sentence each : 4
- (i) What is actuator ?
 - (ii) What is active transducer ?
 - (iii) What is thermocouple ?
 - (iv) What is recorder ?

2. **EITHER**

- (A) Explain the construction and working of LVDT. 6
- (B) What is transducer ? Explain the capacitive transducer used for the measurement of displacement. 6

OR

- (P) Draw the block diagram of Generalized Instrumentation system and explain the function of each block. 6
- (Q) Explain the measurement of displacement with potentiometer. 6

3. **EITHER**

- (A) Explain the measurement of temperature using thermocouple. 6
- (B) Explain IC LM-35 for the measurement of temperature. 6

OR

- (P) Explain the measurement of temperature using thermister. 6
- (Q) Explain construction and working of infrared radiation pyrometer. 6

4. **EITHER**

- (A) Explain the working of IC-555 as astable multi vibrator. 6
- (B) Explain the block diagram of PLL. 6

OR

- (P) Explain the working of IC-555 as monostable multivibrator. 6
- (Q) What is PLL ? Explain working of PLL as frequency synthesizer. 6

5. **EITHER**

- (A) Explain the working of digital frequency meter. 6
- (B) State the necessity of recorder and explain the working of X-Y recorder. 6

OR

(P) Explain the elements of magnetic tape recorder. 6

(Q) Draw a block diagram of digital voltmeter and explain its working. 6

6. **EITHER**

(A) What is sensor ? Explain fiber optics as a thermal sensor. 6

(B) Explain the working of carbon monoxide sensor. 6

OR

(P) Explain dc motor as electromechanical actuator. 6

(Q) Explain photo—transistor as optical sensor. 6

7. **EITHER**

(A) Explain the working of EMG recorder. 6

(B) Explain the working of systolic and distolic blood pressure meter. 6

OR

(P) Explain the working of ear oximeter. 6

(Q) Explain the working of ECG recorder. 6

