AR – 594

Fifth Semester B. Sc. (Part - III) Examination

5 S : ELECTRONICS

(Measuring Instrument)

P. Pages : 7

Time : Three Hours] [Max. Marks : 80

Note : (1) Question **One** is compulsory.
(2) Draw neat diagrams wherever necessary.

1. (A) Fill in the blanks with appropriate word:—

(i) LVDT is the example of ——— transducer. $\frac{1}{2}$

(ii) VCO stands for ——— . $\frac{1}{2}$

(iii) Phototransistor is example of ——— sensor. $\frac{1}{2}$

(iv) Strain gauge is example of ——— sensor. $\frac{1}{2}$

(B) Choose the correct answer :—

(i) Potention eter is the example of ——— — transducer.

(A) Inductive transducer.

(B) Capacitive transducer.

(C) Resistive transducer.

(D) None of these. $\frac{1}{2}$

(ii) IC–555 is used as ——— .

(A) Timer

(B) Voltage divider

(C) Frequency divider

(D) Frequency modulator. $\frac{1}{2}$

(iii) In fourteen segment display the segments are made up of ——— .

(A) Photo diode (B) LED

(C) LDR (D) SCR $\frac{1}{2}$

(B) Explain block diagram of ECG. 8

OR

(P) Explain block diagram of Ear oximeter. 6

(Q) Explain block diagram of EEG. 6

(Q) Draw the block–diagram of magnetic tape recorder and explain. 6

EITHER

6. (A) Draw and explain construction and working of Electromechanical actuators. 6

(B) Explain construction and working of fibre optic temperature sensor. 6

OR

(P) What is mechanical sensor ? Explain strain gauge in detail. 6

(Q) Explain construction and working of carbon monoxide sensor. 6

EITHER

7. (A) What is electrode ? Give the different types of electrodes. 4

(iv) Bent beam is example of ——— actuator.

(A) Electro–optical.

(B) Electro thermal.

(C) Electro mechanical.

(D) Electro chemical $\frac{1}{2}$

(C) Give the answer in **one** sentence :

(i) What is Potentiometor ? 1

(ii) What is PLL ? 1

(iii) What is thermister ? 1

(iv) What is sensor ? 1

EITHER

2. (A) Give the classification of transducer and explain any one. 4

(B) Explain resistive transducer to measure displacement. What is loading effect ? 8

OR

(C) State the advantages and disadvantages of LVDT. 4

(Q) Explain capacitive transducer for measurement of displacement using change in dielectric. 8

EITHER

3. (A) Explain the measurement of temperature using thermocouple. 6

(B) Explain the measurement of temperature using thermistor. 6

OR

(P) Explain the measurement of temperature using RTD. 6

(Q) How temperature measurement can be done by using total radiation pyrometer. 6

EITHER

4. (A) Explain the function of each block of IC–555. 6

(B) Explain the working of Monostable multivibrator using IC–555. 6

OR

(P) Draw the block diagram of PLL and define lock range, capture range. 6

(Q) Explain the working of Am detector using PLL. 6

5. (A) Explain 3x5 and 5x7 dot matrix display. 6

(B) Explain working of Ramp type digital voltmeter with block diagram. 6

OR

(P) Explain x–y recorder with block diagram. 6