AS–1463–Add

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

ELECTRONICS

(Measuring Instruments)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Question **ONE** is compulsory.

(2) Draw neat diagram wherever necessary.

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

(i) The first stage of Instrumentation System (GIS) is _____. ½

(ii) Potentiometer is the example of _____ transducer. ½

(iii) PLL stands for _____. ½

(iv) DC motor is an example of _____ actuator. ½

(B) Choose the correct answer :

(i) LVDT is the example of : ½

(a) Inductive transducer (b) Resistive transducer

(c) Capacitive transducer (d) None of these

(ii) IC-555 is a _____ IC. ½

(a) 3-pins (b) 8-pins

(c) 16-pins (d) 32-pins

(iii) _____ is an example of mechanical sensor. ½

(a) LVDT (b) RVDT

(c) Potentiometer (d) Strain gauge

(iv) In dot matrix display, dots are made up of : ½

(a) LCD (b) LDR

(c) Photodiode (d) SCR

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

(i) Define transducer. 1

(ii) What is pyrometer ? 1

(iii) What is Recorder ? 1

(iv) What is EMG ? 1

EITHER

2. (A) Draw the block diagram of generalized instrumentation system and explain. 8

(B) Explain primary and secondary transducer with example. 4

OR

(P) Explain construction and working of LVDT. State any two advantages. 8

(Q) Explain active and passive transducer. Give example of each. 4

EITHER

3. (A) Explain operation of thermistor for measurement of temperature. 6

(B) Explain the operation of total radiation pyrometer with suitable diagram. 6

OR

(P) Explain the ICLM 34 for the measurement of temperature. 6

(Q) Draw the neat diagram of Infrared pyrometer and explain its working. 6

EITHER

4. (A) Explain the block diagram of IC-555. 6

(B) Explain construction and working of Astable multivibrator using IC-555. 6

OR

(P) Explain PLL with block diagram. 6

(Q) How PLL is used as a frequency synthesizer ? Explain. 6

EITHER

5. (A) Explain seven and fourteen segmental display units. 6

(B) Draw the block diagram of digital frequency meter and explain its operation. 6

OR

(P) Give the classification and explain necessity of recorders. 6

(Q) Explain basic components of magnetic tape recorder. 6

EITHER

6. (A) Explain construction and working of fiber optic temperature sensor. 6

(B) Explain construction and working of Bent Beam electrothermal actuator. 6

OR

(P) Explain construction and working of photo-transistor as an optical sensor. 6

(Q) Explain construction and working of D.C. motor as an electromechanical actuator. 6

EITHER

7. (A) Explain block diagram of ECG. 6

(B) Explain block diagram of EMG. 6

OR

(P) Explain block diagram of Doppler Blood Flow meter. 6

(Q) Explain block diagram of Ear oximeter. 6