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

**ELECTRONICS**

**(Measuring Instruments)**

Time : Three Hours] [Maximum Marks : 80

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

(2) Draw neat diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) The IC-555 is also known as _____.

(ii) The PLL stands for _____.

(iii) The thermocouple is a junction of two _____ metals.

(iv) Transducer converts the physical energy into _____ energy. 2

(B) Choose correct alternative :

(i) The potentiometer is a _____ transducer.

(a) Resistive (b) Capacitive

(c) Inductive (d) Active

(ii) The best example of mechanical sensor is a _____.

(a) LVDT (b) Strain gauge

(c) RVDT (d) Motor

(iii) The LVDT is a _____ transducer.

(a) Capacitive (b) Inductive

(c) Resistive (d) Active

(iv) The ECG recorder records the electrical activity of _____.

(a) Brain (b) Heart

(c) Muscle (d) Bone 2

(C) Answer the questions in **one** sentence :

(i) What is generalized instrumentation system ?

(ii) What is sensor ?

(iii) What is actuator ?

(iv) What is passive transducer ? 4

**EITHER**

2. (A) Draw a block diagram of generalized instrumentation system and explain the working of each block. 6

(B) Explain primary and secondary transducer with example. 6

**OR**

(P) Explain the measurement of displacement using capacitive transducer. 6

(Q) Explain the construction and operation of LVDT. 6

**EITHER**

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

(B) Explain different types of RTDS. 6

**OR**

(P) Explain principle and working of total radiation pyrometer. 6

(Q) Explain construction and working of infrared radiation pyrometer. 6

**EITHER**

4. (A) Draw block diagram of IC-555 and explain the working of each block. 6

(B) Explain the monostable multivibrator using IC-555. 6

**OR**

(P) Explain the block diagram of PLL. 6

(Q) Explain working of PLL as FM-demodulator. 6

**EITHER**

5. (A) Explain different types of displays. 6

(B) Explain the working of digital capacitance meter. 6

**OR**

(P) What is magnetic tape recorder ? Explain the magnetic tape recording with block diagram. 6

(Q) Explain the working of digital volt meter. 6

**EITHER**

6. (A) What is sensor ? Explain strain gauge as mechanical sensor. 6

(B) Explain fiber optics as a thermal sensor. 6

**OR**

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

(Q) Explain the working of bent beam actuator. 6

**EITHER**

7. (A) Explain the working of ECG recorder with block diagram 6

(B) Explain the working of EEG recorder. 6

**OR**

(P) Explain the working of X-ray machine with necessary block diagram. 6

(Q) Explain the working of Laser Doppler blood flow meter with block diagram. 6