

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

EITHER2. (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