17435

16117

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any SIX of the following:** **12**

(i) Define active transducer. Give two examples.

(ii) State the difference between absolute and secondary instrument.

(iii) State the role of delay line in CRO.

(iv) Write the units for temperature.

(v) State any four applications of DSO.

(vi) Compare RF and AF type signal generator (Any two)

(vii) State the need of transducer.

(viii) State the principle of peizoelectric transducer. State its any one application.

Marks

b) **Attempt any TWO of the following:** **8**

(i) Write the classification of transducers. Classify the following transducers

1) Thermistor,

2) LVDT

(ii) Define following:

1) Sensitivity

2) Accuracy

(iii) Draw and explain shunt resistor type DC ammeter.

2. Attempt any FOUR of the following: **16**

a) Describe lissagous figure. How are used to determine phase and frequency.

b) Draw and explain the working of electromagnetic flowmeter.

c) Explain the seebeck and peltier effect. State its application.

d) Draw and explain half wave rectifier type AC voltmeter.

e) Describe the working of function generator with suitable diagram.

f) Compare digital and analog instruments. (Any four)

3. Attempt any FOUR of the following: **16**

a) Describe the working of analog AC ammeter.

b) Draw the block diagram of logic analyzer and explain its working.

c) Draw LCR-Q meter. State its applications.

d) Explain how frequency and voltage measurement is done in CRO with suitable example.

e) List the temperature range and material used for J, K, S, R thermocouple.

f) Draw a neat labelled block diagram of dual trace CRO.

Marks

4. Attempt any FOUR of the following: **16**

a) Describe the working of video pattern generator.

b) Draw block diagram of harmonic distortion analyzer. Explain its working.

c) Explain the role of vertical deflection and horizontal deflection system in CRO.

d) Draw the block diagram of pulse generator. State the difference between square wave generator and pulse generator.

e) Draw neat circuit diagram of LVDT. State its any four application.

f) Draw and explain the working of linear potentiometer.

5. Attempt any FOUR of the following: **16**

a) Describe how flow is measured using doppler type ultrasonic flowmeter.

b) Draw the block diagram of spectrum analyzer. Explain its working.

c) Define signal generator. State the need of signal generator.

d) Compare thermistor and RTD. (Any four)

e) Draw the circuit diagram for 2 wire and 3 wire system of RTD.

f) Describe the working of capacitive transducer. State its two applications.

6. Attempt any FOUR of the following: **16**

a) State any four applications of digital multimeter.

b) Draw the block diagram of digital voltmeter and explain its working.

c) Draw block diagram of DSO and explain its working.

d) Define four dynamic characteristics of Instrument.

e) Explain working of multirange voltmeter with neat diagram using PMMC meter movement.

f) List and explain different types of errors.
