

17435

21819

3 Hours / 100 Marks

Seat No.

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- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any TEN of the following: **20****
- a) Define Transducer.
 - b) Compare accuracy and precision (two points).
 - c) Write any two applications of CRO.
 - d) Define flow and temperature.
 - e) Write any two applications of DSO.
 - f) Write need of signal generator.
 - g) Draw neat labeled diagram of RVDT.
 - h) Give classification of flow transducers.
 - i) Define analog and digital transducer.
 - j) Write need of transducers.

P.T.O.

- k) Compare static and dynamic characteristics of instrument (any two points).
- l) Define lag and fidelity.
- m) Draw circuit diagram of analog AC voltmeter.
- n) Draw diagram of shunt resistor type DC ammeter.

2. Attempt any FOUR of the following: 16

- a) Distinguish between single beam and dual beam dual trace CRO (four points).
- b) Draw and explain working of electromagnetic flowmeter.
- c) Draw circuit diagram of 2 wire and 3 wire system of RTD.
- d) Draw and explain the full wave rectifier type analog AC voltmeter.
- e) Draw labeled block diagram of DSO.
- f) Draw and explain block diagram of digital frequency meter.

3. Attempt any FOUR of the following: 16

- a) Draw the constructional diagram for PMMC instrument neatly and label it. State its working principle.
- b) Draw and explain the working of RF signal generator.
- c) Write advantages of digital instrument over analog instrument (any four).
- d) Explain frequency measurement using Lissagous pattern by CRO.
- e) Compare time difference and doppler type ultrasonic flowmeter (any four points).
- f) Write function of delay line in CRO.

- 4. Attempt any FOUR of the following:** **16**
- a) Write any four applications of video pattern generator.
 - b) Draw labeled diagram of spectrum analyzer.
 - c) Explain waveform generation in CRO.
 - d) Explain Harmonic distortion analyzer.
 - e) Draw block diagram of instrumentation system and write function of each block.
 - f) Draw and explain working of piezoelectric transducer.
- 5. Attempt any FOUR of the following:** **16**
- a) Compare any four types of thermocouple on the basis of material and temperature range.
 - b) Draw block diagram of spectrum analyser.
 - c) Draw block diagram of video pattern generator.
 - d) Compare RTD and Thermistor (any four points).
 - e) Explain seeback effect and peltier effect.
 - f) Draw and explain working of capacitive transducer.
- 6. Attempt any FOUR of the following:** **16**
- a) Explain in brief classification of instrument.
 - b) Explain the concept of ADC and DAC.
 - c) Draw and explain the working of beam function generator.
 - d) Draw LCR-Q meter. State its applications.
 - e) Draw and explain block diagram of digital frequency meter.
 - f) List different types of errors (any four).
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