22333

21222

3 Hours / 70 Marks Seat No. | | | | | | | | |

15 minutes extra for each hour

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 FIVE of the following : **10**

(a) State need of level measurement.

(b) Define :

(i) Sensitivity

(ii) Accuracy

(c) List application of digital multimeter.

(d) State significance of lissajous figure.

(e) Define transducers. Give two examples of transducers.

(f) Write objective of Data Acquisition System.

(g) List different types of errors.

2. Attempt any THREE of the following : **12**

(a) Define Calibration and state its need.

(b) Explain with sketches the working principle of LVDT.

(c) Explain with sketches the working principle of optical pyrometer.

(d) Draw PMMC meter & describe it.

3. Attempt any THREE of the following : **12**

(a) Draw labelled block diagram of CRO.

(b) Compare analog meter and digital meter.

(c) State and explain different types of standards of measurements.

(d) State four selection criteria of transducer.

4. Attempt any THREE of the following : **12**

(a) Explain with sketches the working of analog ohm meter.

(b) Explain Piezoelectric transducer with appropriate diagram.

(c) Draw block diagram of function generator and explain its working.

(d) State and explain seeback and peltier effect.

(e) Explain block diagram of DC signal conditioning system.

5. Attempt any TWO of the following : **12**

(a) Describe function of each block of DAS.

(b) Compare CRO with DSO. (Any six points)

(c) Explain the electro-magnetic flow meter with neat sketch and write its applications.

6. Attempt any TWO of the following : **12**

(a) Draw the block diagram of DSO and explain function of each block.

(b) (i) Describe function of each block of instrumentation system.

(ii) Define sensor and give two examples of sensor.

(c) Design a D'Arsonval movement with internal resistor of 50 Ω and full scale deflection current 2 mA into multirange dc voltmeter with range of 0-10 V, 0-50 V, 0-100 V.

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