

Seat
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मधुर - 004

Component Devices and Instrumentation Technology
(143104/ 183104/ 283104)

P. Pages : 2

Time : Three Hours

Max. Marks : 80

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** questions from each unit.
5. Figures to the right indicate full marks.
6. Assume suitable data if necessary.
7. Use of non-programmable calculator is allowed.

UNIT - I

1. a) i) Explain Basic DC ohmmeter. 4
ii) A 1 mA meter movement with an internal resistance of $100\ \Omega$ is to be converted into a 0-100 mA. Calculate the value of shunt resistance required. 4
- b) Define : 8
 - i) Significant figures.
 - ii) Limiting error.
 - iii) Standard deviation
 - iv) Gross error
- c) Explain shunt type ohmmeter and working with calibration of shunt ohmmeter. 8

UNIT - II

2. a) Explain successive approximation type DVM. 8
- b) Explain function generator. 8
- c) Explain working of magnetic recorder. 8

UNIT - III

3. a) Draw and explain balance condition of wein bridge. 8

- b) Draw and explain Kelvin double bridge. 8
- c) Draw and explain Hay Bridge balance condition. 8

UNIT - IV

4. a) Define : 8
- i) Infrared pyrometer.
- ii) Total radiation pyrometer
- b) Explain the working of photo transistor. 8
- c) Explain thermocouple and its graph of temperature vs output voltage. 8

UNIT - V

5. a) Explain types of laminates for PCB. 8
- b) Explain : 8
- i) Immersion etching.
- ii) Bubble etching.
- iii) Splash etching.
- iv) Spray etching.
- c) Explain types of PCB. 8
