

2023

B.E. (Electrical and Electronics Engineering),
First Semester
EEEC-101: Electrical Measurement and Instrumentation

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- a) Describe international standard for Mass and Length?
- b) What are the sources of errors in energy meter?
- c) How is "true zero" obtained in Crompton's potentiometer?
- d) What are the differences between AC and DC bridges?
- e) What are current transformers?

(5x2)

UNIT - I

- II. Distinguish between International standard, Primary standard, Secondary standard and working standard in detail with examples? (10)
- III. a) Draw the circuit of a thermocouple and explain it.
b) Explain the attraction and repulsion type of moving iron instruments. (10)
- IV. Describe the basic principle of operation of a DC potentiometer. Explain why a potentiometer does not load the voltage source whose voltage is being determined? (10)

UNIT - II

- V. What are the various sources of errors in AC bridges? Explain the precautions taken and techniques used for minimization of these errors. (10)
- VI. A transformer is operated on 1000V, 50 Hz and give a total loss of 1000W of which 700W is due to hysteresis. If transformer were to operate at 2000V at 100Hz, what would be the losses due to hysteresis and eddy currents? Steinmetz constant=1.6. (10)

P.T.O.

(2)

VII. Define the following for instrument transformer:-

- a) Nominal ratio
- b) Transformation ratio
- c) Turns ratio

(10)

x-x-x