

Third Semester B.E. Degree Examination, Dec.2024/Jan.2025 Electrical and Electronic Measurements

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Draw Wheatstone's bridge and derive balance equation. (10 Marks)
- b. Draw a neat circuit diagram and explain Kelvin's double bridge and derive relevant equation. (10 Marks)

OR

- 2 a. Explain fall of potential method of measuring earth resistance. (10 Marks)
- b. With neat diagram, explain Anderson's bridge. Write advantage and disadvantages. (10 Marks)

Module-2

- 3 a. Explain the construction and working of a single phase dynamometer type power factor meter. (10 Marks)
- b. Explain :
 - i) Weston frequency meter
 - ii) Phase sequence indicator. (10 Marks)

OR

- 4 a. Derive the torque equation of a dynamometer type of wattmeter. (07 Marks)
- b. Explain the errors in wattmeter. (07 Marks)
- c. A 3 phase, 400 volts load has power factor of 0.6 lagging. The two wattmeters read a total input power of 20 kW. Find the reading of each wattmeter. (06 Marks)

Module-3

- 5 a. Explain in detail the construction of current transformer and potential transformer. (12 Marks)
- b. What are the characteristic of current transformer? (08 Marks)

OR

- 6 a. Explain the Silsbee's method of testing current transformer. (10 Marks)
- b. In detail explain measurement of flux density and magnetizing force. (10 Marks)

Module-4

- 7 a. Draw the block diagram of a electronic energy meter and explain its working. (10 Marks)
- b. What are ramp type digital voltmeter? (10 Marks)

OR

- 8 a. Explain the working principle of Q meter. (08 Marks)
- b. Write a brief note:
 - i) Advantage of electronic voltmeter
 - ii) Integrating type digital voltmeter. (12 Marks)

Module-5

- 9 a. Write a short note on:
i) Light Emitting Diode (LED)
ii) Liquid Crystal Diode (LCD)
b. Explain the segmental display and dot matrix.

(12 Marks)

(08 Marks)

OR

- 10 Explain in detail the following devices:
a. Strip chart recorder
b. Galvanometer type recorder
c. X-Y recorder.

(20 Marks)
