

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

**III - B.Tech II-Semester Regular Examinations (BR23), MAY - 2026
ELECTRICAL MEASUREMENTS & INSTRUMENTATION (EEE)**

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) List out the advantages and disadvantages of Moving-Iron instruments.	(2M)	CO1	L1
b) What are the uses of instrument Transformers?	(2M)	CO1	L2
c) Write the advantages and disadvantages of Power Factor meters.	(2M)	CO2	L2
d) Write the applications of AC Potentiometers.	(2M)	CO2	L2
e) What are the methods of measuring earth resistance.	(2M)	CO3	L1
f) List out the advantages and disadvantages of Anderson's bridge.	(2M)	CO3	L1
g) List out the advantages and disadvantages of LVDTs.	(2M)	CO4	L1
h) List out the applications of Thermistors.	(2M)	CO4	L1
i) Differentiate digital frequency meter, digital energy meter, digital tacho meter.	(2M)	CO5	L2
j) What is the purpose of Lissajous pattern measurement?	(2M)	CO5	L2

PART-B (5X10 = 50M)

UNIT-I

- 2a. Derive the torque equations of a moving iron instrument and further comment up on the nature of scale. 10(M) CO1 L2

(OR)

- 3a. A ring core type CT has a ratio of 2000/10. When operating at rated primary current with a secondary burden of non inductive resistance value of $2\ \Omega$, takes a no-load current of 2A at power factor of 0.3. Calculate (i) the phase angle difference between primary and secondary currents, and (ii) the ratio error at full load. 10(M) CO1 L3

UNIT-II

- 4a. Illustrate in detail working of the three-phase electrodynamicometer type power factor meter method with neat sketch. 10(M) CO2 L2

(OR)

- 5a. Demonstrate the term standardization and explain the procedure of standardization for a DC potentiometer with a neat sketch. 10(M) CO2 L2

UNIT-III

- 6a. Explain in detail about the Wheatstone bridge with its principle of operation and also derive its necessary equations. 10(M) CO3 L2

(OR)

- 7a. Describe the working of Hay's bridge for measurement of inductance. Derive the equations for balance condition. 10(M) CO3 L2

UNIT-IV

- 8a. What is an LVDT? Explain its working principle with necessary diagrams and characteristics. What are its advantages and disadvantages? 10(M) CO4 L2

(OR)

- 9a. Explain about the working and operation of Strain Gauge? What are its advantages. 10(M) CO4 L2

UNIT-V

- 10a. Explain the principle of operation of Ramp type Digital Voltmeter With the help of block diagram. 10(M) CO5 L2

(OR)

- 11a. What are Lissajous patterns? From the Lissajous patterns, how can the frequency and the phase difference be measured? 10(M) CO5 L3
