Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026

Fourth Semester

Electrical and Electronics Engineering

UEETL24401 - Measurements and Instrumentation

Regulations – 2024

Duration : 3 Hrs *Maximum: 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BTL*	*CO*	*Marks*
1.	Write the classifications of instruments.	L1	1	2
2.	Define Sensitivity and Resolution.	L1	1	2
3.	Differentiate between Moving coil and moving iron instruments.	L2	2	2
4.	Recall the meaning of Creeping in energy meter.	L1	2	2
5.	State the conditions for an AC bridge to be balanced.	L1	3	2
6.	Give the expression for unknown inductance and resistance in a Maxwell's bridge.	L2	3	2
7.	Comment on Piezoelectric effect.	L2	4	2
8.	What is the primary function of Transducers?	L1	4	2
9.	Compare A/D and D/A converter.	L2	5	2
10.	Define Virtual Instrumentation.	L1	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Describe the static and dynamic characteristics of an Instrument.	L2	1	16
		Or			
	b	Classify and explain the various types of errors. Also specify the precautionary measures to be taken to reduce these errors.	L2	1	16
12.	a	Apply the principle of operation of Moving Iron instruments to derive the torque equation, and demonstrate how the deflection of the pointer varies with current in both AC and DC circuits.	L3	2	16
		Or			
	b	Implement the principle of operation of a single-phase induction type energy meter, to develop the torque equation and illustrate the energy recording.	L3	2	16
13.	a	Draw the circuit diagram of Kelvin Double Bridge, Obtain expressions for Bridge balance equations and Derive the equation for unknown resistance.	L2	3	16
		Or			
	b	Outline he circuit of an Instrumentation amplifier and describe its operation with the Voltage expression.	L2	3	16

14.	a		Demonstrate the construction and working of an LVDT and show its operation in measuring displacement.	L4	4	16
			Or			
	b		Construct the block diagram of Smart sensors and illustrate the functions of each blocks. Also mention its salient features.	L4	4	16
15.	a		Explain the mode of operation of the Digital storage oscilloscope (DSO) with a block diagram showing the main components of the instrument.	L2	5	16
			Or			
	b	i	Explain the functions of data logger and illustrate how it records and stores data over time.	L2	5	8
		ii	State the significance of Instrument Standards in maintaining accuracy of measurement.	L2	5	8