Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Make Up Examinations – December 2025

Date: 26 – 12- 2025 **Time:** 1.00pm to 04.00pm

School: SOE	**Program:** B.Tech	
Course Code : EEE2012	**Course Name :** Electrical & Electronic measurements and Instrumentation	
Semester: MK	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**
Marks	**08**	**22**	**44**	**26**

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1	Define the concept of dead zone in meters.	2 Marks	L1	CO1
2	What is the purpose of using springs in electromechanical meters.	2 Marks	L1	CO1
3	Recall the concept of Guaranteed Accuracy error.	2 Marks	L1	CO1
4	What is the pupose of damping in instruments?	2 Marks	L1	CO2
5	What do you understand by the term dead time in meters?	2 Marks	L1	CO1
6	What is the basic difference between a sensor and a transducer?	2 Marks	L1	CO4
7	List any 2 parts of a DSO.	2 Marks	L1	CO4
8	Recall the concept of telemetry.	2 Marks	L1	CO3
9	Find the resolution of a 3 digit multimeter on a 10 volt range	2 Marks	L1	CO3
10	What is the basic difference between a C.T and P.T	2 Marks	L1	CO4

Part B

Answer the Questions **Total 80 Marks.**

11.	a.	Summarize the working of a IoT based smart meter and how AI/ML integration aids in load forecasting.	10 Marks	L2	CO 3
	b.	Explain the working of an electromechanical Energy meter	10 Marks	L2	CO 3

or

12.	a.	Explain the operation and count sequence of $4\frac{3}{4}$ digit Digital Voltmeter.	10 Marks	L2	CO 3
	b.	Explain the methodology behind getting a greenish light waveform on the CRO screen.	10 Marks	L2	CO 3

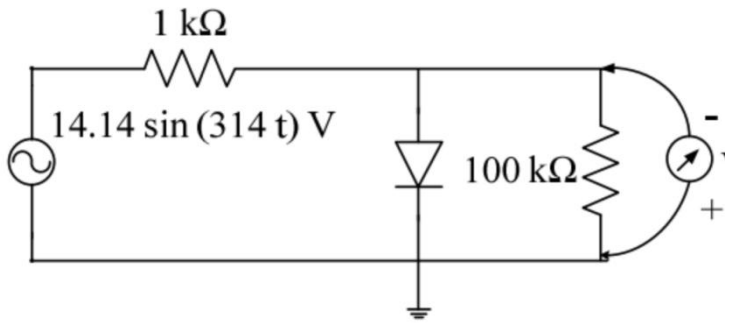
13.	a.	Explain the application and working principle of thermocouple with the help of an example.	10 Marks	L2	CO 4
	b.	Explain the working principle and applications of inductive transducer with the help of an example.	10 Marks	L2	CO 4

or

14.	a.	Explain the classification of transducers based on the nature of the input and output signals and provide examples for each of them.	10 Marks	L1	CO 4
	b.	Explain the working principle of current transformer and Potential transformer and also explain the concept of nominal ratio, actual ratio and ratio error	10 Marks	L1	CO 4

15.	a.	A 230 V single phase domestic energy meter has a constant load of 4 A passing through it for 6 hours at unity power factor. The meter disc makes 2208 revolutions during this period. Solve for the energy consumed by the load if the meter disc completes 1240 revolutions.	10 Marks	L2	CO 2
	b.	Explain the working principle of EMMC instrument by drawing a rough diagram.	10 Marks	L2	CO 2

Or

16.	a.	A PMMC voltmeter is connected across the 100 kohm resistance as shown in the figure below. Analyze the voltage waveform and magnitude of voltage displayed by the meter at the output by drawing the waveform.  	10 Marks	L2	CO 2
	b.	Explain the working of PMMC instrument and also discuss about the cases when one and both the springs gets damaged.	10 Marks	L2	CO 2

17.	a.	The x deflecting plates of a CRT are 20 mm long and 5 mm apart. The centre of the plate is 25 cm away from the screen. The accelerating voltage is 3000 V. If the length of the trace obtained on the screen is 10 cm, then solve for the rms value of the input voltage	10 Marks	L3	CO 3
	b.	The x deflecting plates of a CRT are 20 mm long and 5 mm apart. The centre of the plate is 25 cm away from the screen. The accelerating voltage is 3000 V. Solve for the deflection sensitivity	10 Marks	L3	CO 3

Or

18.	a.	A $3\frac{1}{2}$ digit Digital multimeter has the error specification as 0.3% of reading plus 2 counts. . A DC voltage of 10 V is read on its 20 V range. Solve for the % error that can be expressed as a % of the reading	10 Marks	L3	CO 3
	b.	A CRO screen has 20 divisions on the horizontal scale. If a voltage signal 10 $\sin(314t+45^0)$ is examined with a line base setting of 10 m sec/div, then solve for the number of cycles displayed on the screen.	10 Marks	L2	CO 3

******* BEST WISHES *******