Reg. No.												

Question Paper Code	12375

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Fourth Semester

Electrical and Electronics Engineering

20EEPC403 - Measurements and Instrumentation

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Define Gross and Random Errors.	*2,K1,CO1*
2.	Name the dynamic characteristics of the measurement system.	*2,K1,CO1*
3.	Illustrate the term creeping.	*2,K2,CO2*
4.	Outline the circuit of the electrodynamometer wattmeter.	*2,K2,CO2*
5.	Define the term Standardization of potentiometer.	*2,K1,CO3*
6.	Infer the conditions for AC Bridge to be balanced.	*2,K2,CO3*
7.	What is meant by grounding?	*2,K1,CO4*
8.	What is electrostatic interference?	*2,K1,CO4*
9.	List the main parts of CRO.	*2,K1,CO5*
10.	Compare LED and LCD.	*2,K2,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the functional elements of an instrument with a neat block diagram and example.	*13,K2,CO1*
		OR	
	b)	Explain the static characteristics of an instrument.	*13,K2,CO1*
12.	a)	Explain the construction and working of PMMC instruments. Derive the equation for deflection if the instrument is spring controlled. Give the advantages and limitations of such instruments.	*13,K2,CO2*
		OR	
	b)	With a neat diagram explain the construction and its working principle of single phase electrodynamometer type wattmeter. Also derive its torque equation.	*13,K2,CO2*
13.	a)	Explain how the inductance is measured in terms of known inductance	*13,K2,CO3*

using maxwell's bridge. Derive the condition for balance and draw the phasor diagram.

OR

b) Sketch the circuit of Wheatstone bridge, explain its operation and derive the equation for the unknown resistance. *13,K2,CO3*

14. a) Explain the different types of interferences and their screening methods to reduce them. *13,K2,CO4*

OR

b) Explain the various grounding techniques. *13,K2,CO4*

15. a) Explain the LED and LCD display devices. *13,K2,CO5*

OR

b) Draw and explain the block diagram of Digital storage Oscilloscope. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain in detail the elements of the data acquisition system. *15,K5,CO6*

OR

b) Explain the working of hall effect and piezoelectric transducer *15,K5,CO6*