Reg. No.															

Question Paper Code	12872

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Third Semester

Electronics and Instrumentation Engineering

20EIPC301 - ELECTRICAL AND ELECTRONIC MEASUREMENTS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	State the principle of loss of charge method for resistance measurement.	2	K1	CO1
2.	Recall how to convert basic instruments in PMMC into higher range ammeter.	2	K2	CO1
3.	Define creeping.	2	K1	CO2
4.	List out the various types of errors present in a dynamometer type wattmeter.	2	K1	CO2
5.	Define ratio correction factor in instrument transformer.	2	K1	CO3
6.	Define the term Standardization.	2	K1	CO3
7.	Define Q meters.	2	K1	CO4
8.	State the basic working principle of LCR meters.	2	K1	CO4
9.	Mention the different materials used in LED.	2	K1	CO5
10.	Define the deflection sensitivity of CRT.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Describe with neat diagram the construction and working principle of attraction and repulsion type MI instruments.	13	K2	CO1
		OR			
	b) i)	Describe the working of Schering bridge for the measurement of capacitance with neat diagram.	8	K2	CO1
	ii)	Derive the equations for capacitance and dissipation factor.	5	K2	CO1
12.	a)	Explain the construction and working of induction type single phase energy meter.	13	K2	CO2
		OR			
	b) i)	Define phantom loading testing of energy meters. Explain how it is more advantageous than testing with direct loading.	7	K2	CO2
	ii)	Explain the construction and working of LPF wattmeter.	6	K2	CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

13.	a)	Describe with neat sketch the working of Drysdale polar type AC potentiometer.	*13*	*K2*	*CO3*
		OR			
	b)	State the working principle of Potential Transformer in detail and derive the equation of transformation ratio and phase angle.	*13*	*K2*	*CO3*
14.	a)	With neat diagram explain the working of Wave analyzers.	*13*	*K2*	*CO4*
		OR			
	b)	With neat diagram explain about Digital Time measurement.	*13*	*K2*	*CO4*
15.	a)	Describe the construction and working of LCD's, mention the difference between light scattering and field effect types of LCD's and also compare the advantages of LCDs with other display devices.	*xx*	*K2*	*CO5*
		OR			
	b)	Explain about IOT Enable based Recorders in detail.	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Sketch the circuit diagram of Anderson's bridge. Derive the equations for resistive and inductive components of the inductor to be measured. State the advantages of Anderson bridge.	*15*	*K2*	*CO1*
		OR			
	b)	Explain with neat diagram about Microprocessor based Digital Multimeter with auto ranging and self diagnostic features.	*15*	*K2*	*CO4*