O.P.Code: 20EE0216	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Regular & Supplementary Examinations February-2024
ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1	a	Illustrate the construction and working of permanent magnet moving coil instruments.	CO1	L3	8M
	b	List the advantages and disadvantages of PMMC type instruments.	CO1	L1	4M
		OR			
2	a	Choose a design for Aryton shunt to provide an ammeter with the current ranges 1 A, 5 A and 10 A. The basic meter resistance is 50 ohm and full scale deflection current is 1 mA.	CO1	L5	6M
	b	A moving coil instrument has a resistance of 10 ohm and gives a full scale deflection When carrying 50mA. Show how it can be adopted to measure voltage upto 750 V and current of 100 A.	CO1	L3	6M

UNIT-II

3	a	Explain classification of resistances. What are the different types of methods used for measurement of low, medium and high resistance?	CO2	L2	6M
	b	Draw the circuit diagram of a Wheatstone bridge and derive the condition for balance.	CO2	L3	6M
		OR			
4	a	What is the sensitivity of the Wheatstone bridge?	CO2	L1	4M
	b	The four arms of Wheatstone bridge as follows: AB = 5Kohm ; BC =? ; CD = 10ohm ;DA = 2Kohm .What should be the resistance in the arm for no current through the Galvanometer.	CO2	L3	8M

UNIT-III

5	a	Correlate how the measurements are made using LPF and UPF wattmeters.	CO3	L5	6M
	b	Explain errors caused by vibration of moving system electro dynamometer type wattmeter.	CO3	L2	6M
		OR			
6	a	Explain how power can be measured in a 3 – phase circuit with help of two element method with neat sketch.	CO3	L2	6M

	b	Explain how power can be measured in a 3 – phase circuit with help of three element method with neat sketch.	**CO3**	**L2**	**6M**

UNIT-IV

7	**a**	What is a transducer? Explain classification of transducers.	**CO5**	**L1**	**6M**
	b	Explain the advantages of electrical transducer.	**CO5**	**L2**	**6M**

OR

8	**a**	What are the parameters to be considered in selecting a transducer for a particular application?	**CO5**	**L1**	**6M**
	b	Illustrate the method for measurement of temperature with use of i) RTD ii) IC Sensor.	**CO5**	**L2**	**6M**

UNIT-V

9	**a**	Describe the construction and working of Flux meter.	**CO6**	**L2**	**6M**
	b	Determine leakage factor with flux meter.	**CO6**	**L3**	**6M**

OR

10	**a**	List the advantages & applications of C R O.	**CO6**	**L1**	**6M**
	b	Draw a neat figure and explain the working of a C R O.	**CO6**	**L2**	**6M**

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