Code No: R2032022 **R20** SET -1

III B. Tech I Semester Supplementary Examinations, December -2023
ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Explain the construction and working principle of PMMC Instrument.	[8M]
	b)	What are the advantages and disadvantages of M.I instruments?	[6M]
		(OR)	
2.	a)	Draw the equivalent circuit and phasor diagram of a current transformer. Derive an expression for ratio error.	[9M]
	b)	Compare C.T with P.T in any four aspects.	[5M]

UNIT-II

3.	a)	Explain the construction and working principle of single phase Electrodynamometer type Wattmeter with a neat diagram	[9M]
	b)	State the differences between LPF and UPF wattcmeters.	[5M]
		(OR)	
4.	a)	Draw the circuit diagram of a basic slide wire D.C. potentiometer. Explain its working?	[8M]
	b)	Explain with the help of suitable diagram, how a D.C. potentiometer can be used for determination of an unknown resistance	[6M]

UNIT-III

5.	a)	Draw the circuit diagram of a Wheatstone bridge and derive the conditions of balance.	[7M]
	b)	Draw the circuit diagram of Wien's bridge. Explain its working.	[7M]
		(OR)	
6.	a)	Draw the circuit diagram of Maxwell's bridge and phasor diagram under balance conditions. Derive the equations under balance conditions.	[7M]
	b)	How can unknown capacitance be measured using Desauty Bridge?	[7M]

UNIT-IV

7.	a)	Give the classification transducers.	[6M]
	b)	Explain the working of Thermistors. State their applications.	[8M]
		(OR)	
8.	a)	Explain the working of photo diodes.	[7M]
	b)	Explain the principle of operation of Piezo electric transducers.	[7M]

UNIT-V

9.	a)	Explain the working of digital energy meter with a diagram.	[7M]
	b)	How do you use digital multimeter to measure resistance?	[7M]
		(OR)	
10.		Explain the working of CRO with neat block diagram. Explain the function of each block. Also, state its applications.	[14M]

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