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WADHWAN CITY

Branch: Electrical Engineering/ Electrical & Electronics Engineering
Semester: IV
Subject Name: Electrical & Electronics Measurement
Subject Code: 4TE04EEM1

SECTION-I

Q-1	**(A)**	Define: 1). Transformation ratio 2). Energy 3). Accuracy 4). Precision 5) Burden	**5**
	(B)	A wattmeter having a range 1000 W has an error of $\pm$ 1% of full scale deflection. If the true power is 100 W, what would be the range of readings?	**2**
Q-2	**(A)**	How maxwell's bridge can be used to measure self inductance? Explain with circuit diagram.	**4**
	(B)	What are incremental inductance and permeability? Describe how they are measured with Owen's bridge.	**5**
	(C)	A resistance of approximate value of 80Ω is to be measured by voltmeter-ammeter method using a 1 A ammeter having a resistance of 2Ω and a 50 V voltmeter having a resistance of 5000Ω, (a) Suggest which one of the two methods should be used? (b) Supposing in the suggested method the following measurements are made: I = 0.42 A and V = 3.5 V. What is the resulting error if the accuracy of the instruments is $\pm$ 0.5% at full scale and the errors are standard deviations?	**5**

OR

Q-2	**(A)**	Explain Kelvin's double bridge method to find out low resistance.	**4**
	(B)	Explain the absolute Null method for testing of a potential transformer.	**5**
	(C)	Write short note on AC magnetic testing.	**5**
Q-3	**(A)**	What are the different sources of errors in a.c. bridges? Explain the precautions taken and the techniques used to eliminate these errors.	**7**
	(B)	Explain construction of current transformer. List out causes of errors in current transformers.	**7**

OR

Q-3	**(A)**	Explain the construction and working of magnetic potentiometer in detail.	**7**
	(B)	Explain Hay's bridge with advantages and disadvantages.	**7**

SECTION-II

Q-4	1).	How to extend the range of given ammeter?	**7**

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2). What is the unit of energy measured by energy meter?
3). Transformer rating can be given in which unit?
4). Define power factor.
5). Explain the difference between capacitor and capacitance.
6). What is the use of De Sauty's Bridge?
7). What is the color code of 1 KΩ resistor?

Q-5 **(A)** Explain frequency selective wave analyzer with block diagram. Also draw characteristics of active filter.　**7**

(B) Draw and explain basic instrumentation amplifier with applications.　**7**

OR

Q-5 **(A)** Explain the term "total Harmonic Distortion". Describe the functioning of a total harmonic distortion meter.　**7**

(B) Draw and explain block diagram of Cathode ray oscilloscope (CRO) in brief.　**7**

Q-6 **(A)** Explain Lissjous patterns for Phase and frequency measurement.　**7**

(B) For Power measurement explain Dynamometer type instrument with neat diagram.　**7**

OR

Q-6 **(A)** Describe the Murray Loop test for localization of ground and short circuit faults in cables.　**7**

(B) Classify systematic errors. Discuss each in detail.　**7**