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New Delhi-110062
Even Semester Examination 2023

Paper Name: Electronics Instrumentation and Measurement
Time: 3 Hours

Paper Code: BTECE 404
Maximum Marks: 75

Section A

Note: Attempt ALL the questions

7x5=35

Q. No.	Question	Marks	CO	BL
1.	Differentiate between static and dynamic characteristics of instruments.	5	CO1	3
2.	Briefly explain about the different types of errors in measurement systems.	5	CO1	1
3.	Differentiate between DC bridges and AC bridges. List out their advantages and disadvantages.	5	CO2	5
4.	Explain the basic construction of a CRO.	5	CO4	5
5.	Explain the working of different digital data recording systems	5	CO1	6
6.	Explain the working of DVM.	5	CO3	6
7.	A PMMC instrument with 100 μ A FSD and 1 k Ω coil resistance is to be used in an ammeter. Calculate the required shunt resistance for (a) FSD = 100 mA, and (b) FSD = 1 A	5	CO5	4

Section B

Note: Attempt any FOUR (4) Questions

4x10=40

Q. No.	Question	Marks	CO	BL
1.	Write a short note on the following: a) Resolution b) Threshold c) Hysteresis	10	CO1	3
2.	Explain working and construction of PMMC Galvanometer.	10	CO4	4
3.	Derive the expression for the unknown arm of the Maxwells bridge. Also give the expression for the calculation of its Q factor.	10	CO2	3
4.	What is a function generator? What are its different applications?	10	CO5	2
5.	What are the required parameters for the measurement of resistances? Explain the working of Kelvin Double Bridge circuit.	10	CO3	6
6.	A Hay bridge operating at a supply frequency of 100 Hz is balanced when the components are $C_3 = 0.1 \mu$ F, $R_1 = 1.26 \text{ k}\Omega$, $R_3 = 75 \Omega$ and $R_4 = 500 \Omega$. Calculate the inductance and resistance of the measured inductor as a parallel RL circuit. Also determine the Q factor of the coil.	10	CO5	4

BL : Bloom's Taxonomy Level (1-Remembering, 2-Understanding, 3-Applying, 4- Analysing, 5-Evaluating, 6- Creating)