Code No: **R31022**





III B.Tech I Semester Supplementary Examinations, October/November - 2016 **ELECTRICAL MEASUREMENTS**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions All Questions carry equal marks

1	a) b)	Discuss how deflecting torque in analog instruments is produced. State the examples. Explain the constructional details of PMMC instrument with neat sketch.	[7M] [8M]
2	a) b)	Explain the constructional details of current transformers. A potential transformer, ratio of 1000/100V, has the following values: primary resistance = 94.5 Ω , secondary resistance = 0.86 Ω , primary reactance = 66.2 Ω , total equivalent reactance referred to primary = 110 Ω , magnetizing current = 0.02A at 0.4 power factor. Calculate: (i) Phase angle error at no load (ii) Load in VA at unity power factor at which the phase angle will be zero	[7M] [8M]
3		Explain the construction and working of a single phase induction type energy meter. Show that the total number of revolutions made by its disc during a particular time is proportional to the energy consumed.	[15]
4	a) b)	What is standardization? Explain how this potentiometer is standardized. Explain with the help of neat diagram the principle and working of A.C potentiometer.	[7M] [8M]
5	a)	Explain how insulation resistance of a cable can be measured with a help of loss of abarga method.	[7M]
	b)	The four arms of a Wheat shone bridge are as follows: $AB = 100\Omega$; $BC = 10\Omega$; $CD = 4\Omega$; $DA = 50\Omega$. The galvanometer has a resistance of 20 ohms and is connected across BD. A source of 10V d.c. is connected across AC. Find the current through the galvanometer. What should be the resistance in the arm DA for no current through the galvanometer?	[8M]
6	a) b)	Explain the functioning and merits of DeSauty's bridge. A Maxwell's inductance capacitance bridge is used to measure unknown inductance in comparison with capacitance. The various values at balance are R2 of arm $AD = 400\Omega$; R3 of arm $BC = 600\Omega$; R4 and C4 of arm $CD = 1000\Omega$, 0.5μ F; Calculate the values of R1 and L1 of arm AB. Also calculate the value of storage factor of coil if the frequency is 1000Hz.	[7M] [8M]
7	a)	Explain the operation of any one method of determining B-H loop of a magnetic	[7M]
	b)	Explain the "Lloyd Fisher square "method of measuring iron losses in ferromagnetic material.	[8M]
8	a) b)	Explain the operating principle of ramp type digital voltmeter. Explain the functioning of a digital frequency meter.	[7M] [8M]

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