A+B

BEE-C202
SEMESTER EXAMINATION- MAY 2024
CLASS:B.TECH SEMESTER: II
BASIC ELECTRICAL ENGINEERING

Time: 3 hours **Max. Marks: 70**

Note: Question Paper is divided into two sections: **A and B**. Attempt both the sections as per given instructions.

SECTION-A (SHORT ANSWER TYPE QUESTIONS)

Instructions: Answer any ***five*** questions in about 150 words each. Each question carries six marks. **(5 X 6 = 30 Marks)**

		CO	BL
Q-1	Determine the current in 5 Ω resistor (Fig.1) using mesh analysis (Matrix method)	4	Evaluation L1 & Analysis L3

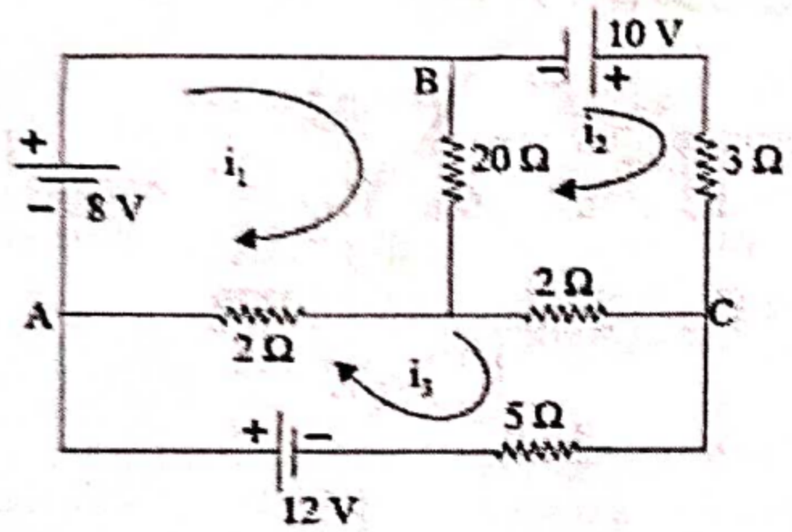

Fig.1

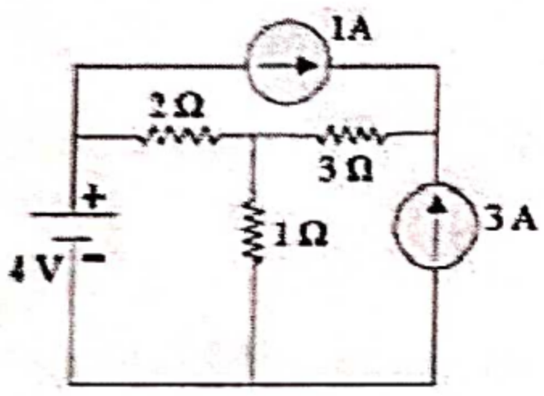

Fig.2

Q-2	Find the current in 1-Ω resistor using Thevenin,s Theorem (Fig.2)	4	Evaluation L1 & Analysis L3
Q-3	Derive the expression for resonance frequency in R-L-C series circuit.	2	Analysis L3
Q-4	Derive the expression for relation between Line voltage- Phase voltage Line current and Phase current in star connection	2	Analysis L3
Q-5	Give the comparison between magnetic circuit and electrical circuit	3	Comparison L5
Q-6	Explain the working principle of transformer	2	Knowledge L6
Q-7	Explain Open Circuit (O.C) test of the transformer	1 &3	Application L4 & Knowledge L6

Q-8	Derive the E.M.F. equation of DC generator		2	Evaluation L1
Q-9	Describe the magnetization characteristics of D.C generator		1& 2	Knowledge L6
Q-10	Describe the working principle of PMMC		1& 2	Knowledge L6
	SECTION-B (LONG ANSWER TYPE QUESTIONS)		**CO**	**BL**
Instructions: Answer any ***four*** questions in detail. Each question carries 10 marks.		(4 X 10 = Marks)		
Q-1	State and prove the Maximum Power Transfer theorem		1 & 2	Application L4 & Knowledge L6
Q-2	A series resistance of 20 Ω, an inductance of 0.2 H and a capacitance of 100 μF are connected in series across 220 V, 50 Hz mains. Determine the following (i) Impedance (ii) Current voltage across R. L and C (iii) Power factor		4	Analysis L3
Q-3	Derive the expression for line voltage and phase volte in star connection		2	Evaluation L1 & Knowledge L6
Q-4	Explain the construction of transformer and derive the E.M.F equation of transformer.		1 &2	
Q-5	A 4-pole, wave wound armature has 720 conductors and is rotated at 1000 rev/min. If the useful flux is 20mwb, calculate the generated voltage.		4	Analysis L3
Q-6	Explain the working principle and slip torque characteristics of three-phase induction motor.		1 & 2	Knowledge L6 & Application L4
Q-7	Explain double revolving field theory to explain the working of induction motor		1& 2	Knowledge L6
Q-8	Explain the measurement of three-phase power by two wattmeter methods.		1& 2	Knowledge L6

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