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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

II Sem B.E. (Credit System) Mid Semester Examinations - I, February 2016

15EE105 – BASIC ELECTRICAL ENGINEERING

on: 1 Hour

Max. Marks: 20

*Note: Answer any **One** full question from **each Unit.***

		Marks	BT*
	Unit – I		L*1
a)	State and explain i) Faraday's Laws of Electromagnetic Induction ii) Fleming's Right Hand Rule	04	L2
b)	State Kirchoff's Laws. Determine the currents in various branches of the circuit shown in fig1.a using KVL.		

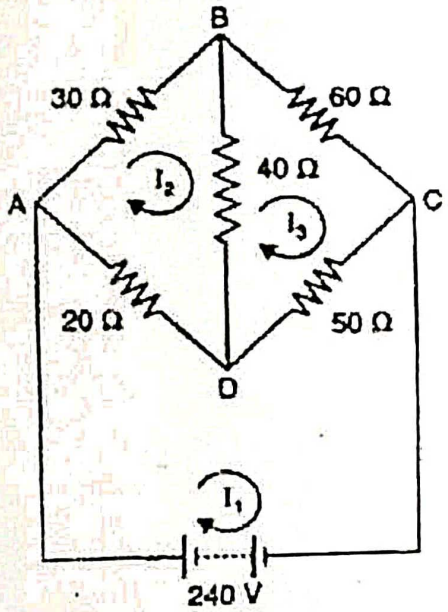

Fig.1a

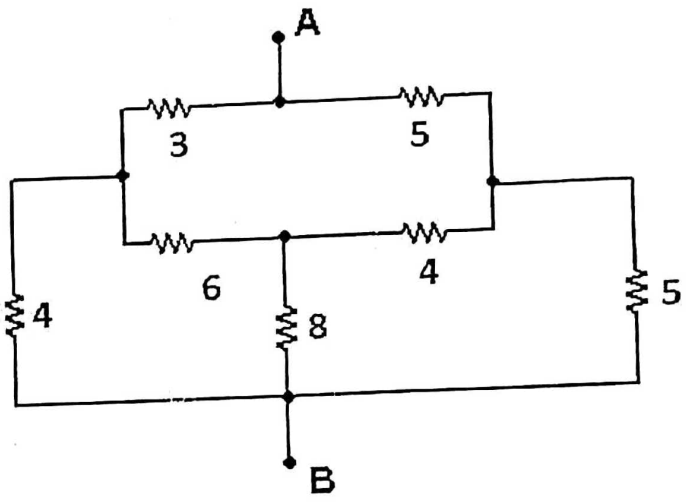

Fig.2a

			L1
		06	L3
a)	Determine the equivalent resistance between A and B for the network shown in fig.2a. All resistances are in Ohms.	04	L3
b)	Define the following: i) Self inductance ii) Mutual inductance iii) Coefficient of coupling.	03	L1
c)	Derive an expression for the energy stored in a magnetic field.	03	L4
	Unit – II		
a)	Given v=141 sin (100πt-45°).Find the maximum value, rms value, frequency and phase angle.	04	L2,L1
b)	Illustrate expression for instantaneous current and power in a pure inductive circuit. Show the necessary waveforms and phasor diagram.	06	L2
a)	Prove that average power in a single – phase AC circuit (RL Load) is VIcosφ.	05	L2
b)	A capacitor of 100μF is connected across a 200V, 50Hz single phase supply. Calculate a) the reactance of the capacitor, b) RMS value of the current and c) the maximum current.	05	L3

Bloom's Taxonomy, L* Level

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