Code: R5 100506

R5

B.Tech I Year (R05) Supplementary Examinations, May 2012

BASIC ELECTRICAL ENGINEERING

(Common to CSE, IT and CSS)

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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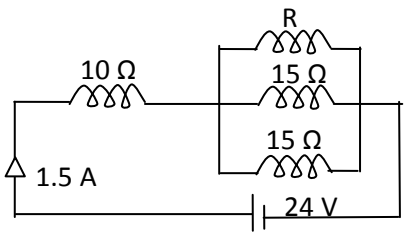
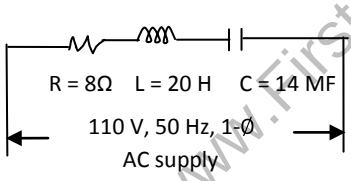
1 (a) State and explain Faradays laws of electromagnetic induction.
(b) For the circuit shown, calculate the value of resentence R, when the total current taken by the network in 1.5 A.



2 (a) Explain the types of active elements in detail.
(b) State and explain super position theorem.

3 (a) Define and explain self inductance and mutual inductance.
(b) Derive the expression the energy in linear magnetic systems.

4 (a) Derive the expression the rms value of a network excited by a alternating voltage source $V = V_m$ Sin ωt.
(b) Calculate the current, power and power factor of the given circuit.



5 (a) Explain the principle of operation of single phase transformer.
(b) A single phase transformer working at unity power factor has an efficiency of 80% at both half load and at full load of 500 watts. Determine the efficiency at 75% of full load.

6 (a) Determine the emf equation of DC generator.
(b) An 8 pole wave wound armature has 1120 conductors and flux per pole of 0.023 wb. Calculate the emf generated when the machine is running at 800 rpm.

7 (a) Explain the principle of operation of three phase induction motor.
(b) A 12-pole, 3-phase induction motor runs at 485 rpm on a 50 Hz supply Calculate slip.

8 Explain the principle and operation of moving iron instruments with neat diagrams.

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