Code: R7 100406

R7

B.Tech I Year (R07) Supplementary Examinations, May 2012

NETWORK ANALYSIS

(Common to ECE, EIE, E.Con.E and ECC)

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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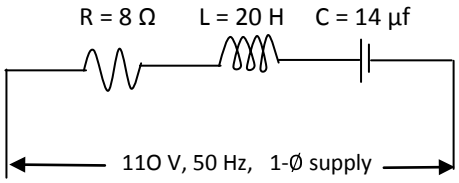
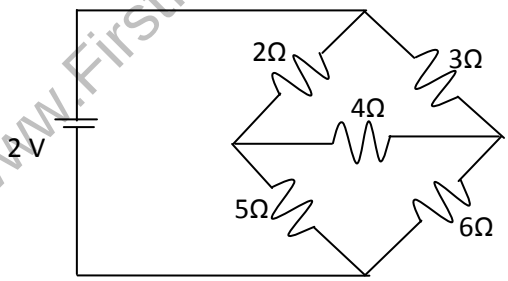
1 (a) Derive the expression for average value of sinusoidal wave form.
(b) Calculate the current power and power factor of the given circuit.

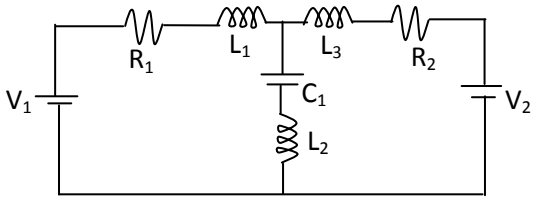


2 (a) Derive the relation between phase and line values of a 3 phase balanced delta connected system.
(b) Three impedances each of (5+ j 12) ohms are connected in star to a 220 V, 3-phase, 50 Hz supply. Calculate the line currents.

3 (a) State and explain Kirchhoff's laws.
(b) Find the power supplied by the battery by using star-delta transformation.



4 (a) Define and explain (i) Graph (ii) Tree (iii) Basic cut set matrix (iv) Basic tie set matrix.
(b) Draw the dual network for the given circuit. Also write down the procedure to obtain dual network.



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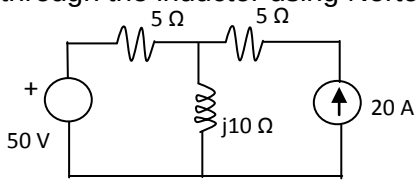
5 (a) State and explain reciprocity theorem.

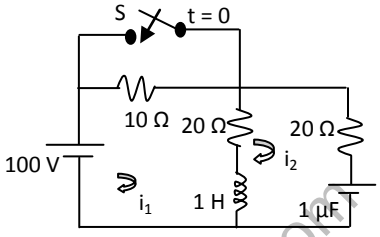
(b) Find current through the inductor using Norton's theorem.



6 (a) Define and explain hybrid parameters.

(b) A two port network has the following parameters Z_{11} = 20 Ω, Z_{12} = 5 Ω, Z_{21} = 20 and Z_{22} = 15 Ω. Calculate the short circuit parameters.

7 Find the initial conditions for voltage across capacitor, the currents i_1, i_2 and the derivative for the circuit shown when the switch is closed at t = 0.



8 (a) Write short notes band pass fitters.

(b) Design a T pad attenuator to give an attenuation of 60 dB and to work is a line of 800 Ω.

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