

Code: R7 100406

R7

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

NETWORK ANALYSIS

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

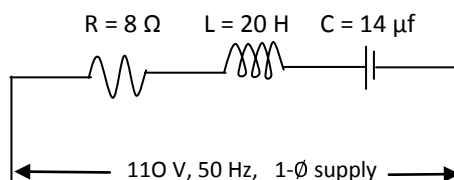
Time: 3 hours

Max Marks: 80

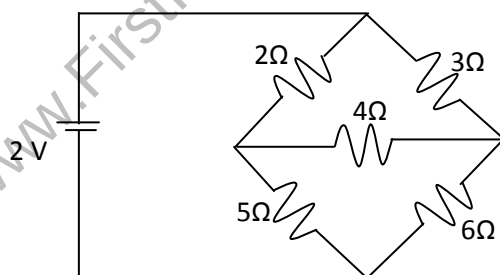
Answer any FIVE questions

All questions carry equal marks

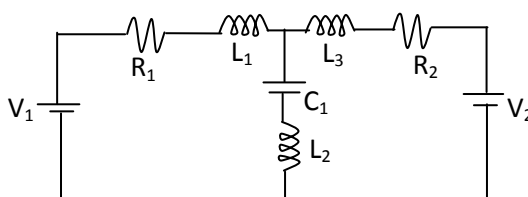
- 1 (a) Derive the expression for average value of sinusoidal wave form.
- (b) Calculate the current power and power factor of the given circuit.



- 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.



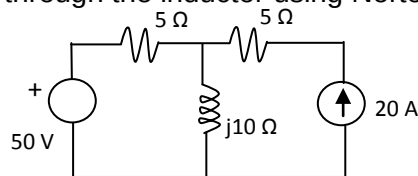
- 4 (a) Define and explain (i) Graph (ii) Tree (iii) Basic cut set matrix (iv) Basic tie set matrix.
- (b) Draw the dual network for the given circuit. Also write down the procedure to obtain dual network.



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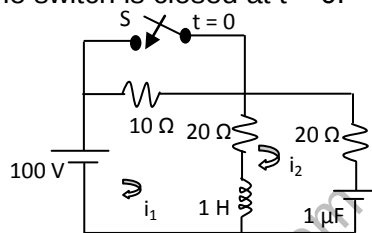
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- 5 (a) State and explain reciprocity theorem.
(b) Find current through the inductor using Norton's theorem.



- 6 (a) Define and explain hybrid parameters.
(b) A two port network has the following parameters $Z_{11} = 20\ \Omega$, $Z_{12} = 5\ \Omega$, $Z_{21} = 20$ and $Z_{22} = 15\ \Omega$. 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 filters.
(b) Design a T pad attenuator to give an attenuation of 60 dB and to work is a line of $800\ \Omega$.
