Code: R7100406

**R7**

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

**NETWORK ANALYSIS**

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

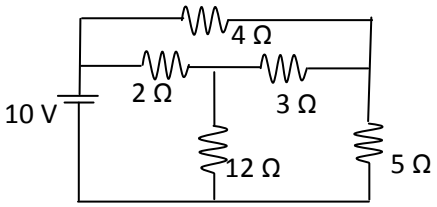
Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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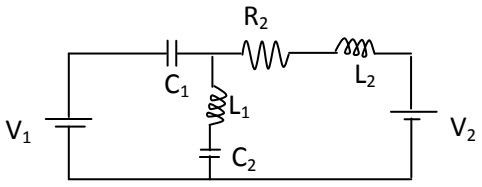
1 (a) Derive the expression for RMS value of a sinusoidal wave form.
(b) Coil 1 of a pair of coupled coils has a continuous currents of 5 A and the corresponding fluxes $\emptyset_{11}$ and $\emptyset_{12}$ one 0.2 and 0.4 m.wb respectively. If the turns are $M_1$= 500 and $M_2$= 1500. Find $L_1$, $L_2$, M and coefficient of coupling.

2 (a) Derive the relation between phase and line values of a 3-phase balanced star connected system.
(b) Three impedances each of (3 - j 4) ohm are connected in delta to a 230 V, 3-phase, 50 Hz balanced supply calculate the line and phase currents in delta connected load and the power delivered to the load.

3 (a) Briefly explain the voltage and current sources.
(b) Find the current supplied by 10 V battery by using star delta transformation.




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



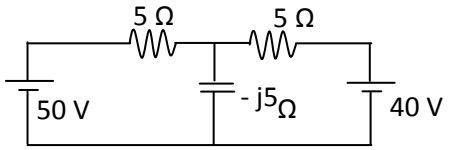

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5 (a) State and explain mill main theorem.

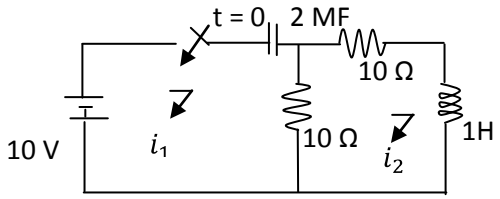
(b) Obtain current flowing through the capacitor using super position theorem.




6 (a) Derive and explain admittance parameter.

(b) A two port network has the following parameter.
$Z_{11}$= 20 Ω, $Z_{12}$ = 5 Ω, $Z_{21}$ = 20 Ω and $Z_{22}$ = 15 Ω calculate ABCD parameter.

7 For the circuit shown the switch in closed at t = 0. Find the values of $i_1$, $i_2$, $\frac{di_1}{dt}$, $\frac{di_2}{dt}$, $\frac{d^2i_1}{dt^2}$ and $\frac{d^2i_2}{dt^2}$ at t = $0^+$.




8 (a) What is an attenuator? Derive the design equations for T-type atteenuator.

(b) Design a contant K – low pass fitter having $f_c$ = 2 KHz and design impedance $R_0$ = 600 Ω. Obtain the value of attenuation at 4 KHz.

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