EN : III SEM EE [OLD]

11/06/15

QP Code : **4563**

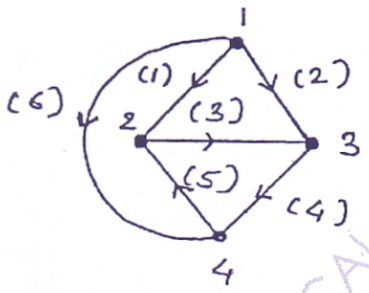
(OLD COURSE)

(3 Hours) [Total Marks : 100

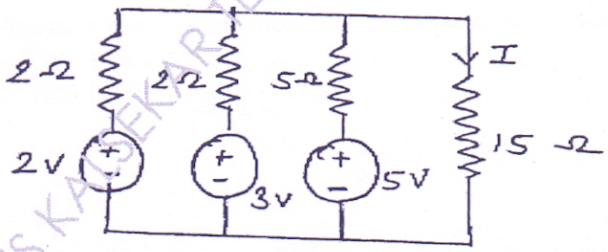
N.B. : (1) Question no. **1** is **compulsory.**
(2) Solve any **four** questions out of the remaining **six** questions
(3) **Figures** to the **right** indicate **full** marks.
(4) **Assume** suitable **data** if **necessary.**

1. Solve any **four**:- 20

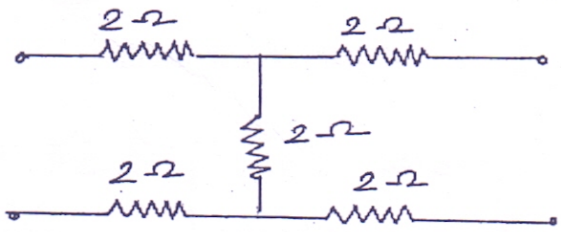
(a) For the graph shown in figure find the number of possible tress



(b) Calculate the load current I in the circuit in figure by millman's therorem



(c) Find te Z parameters for the network shown in figure and state whether the network is receprocal and symmetrical.



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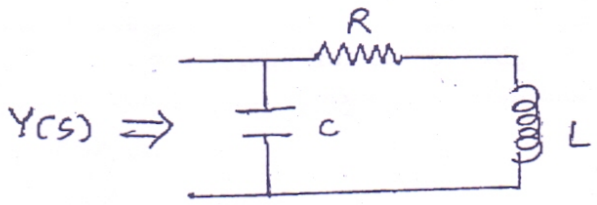
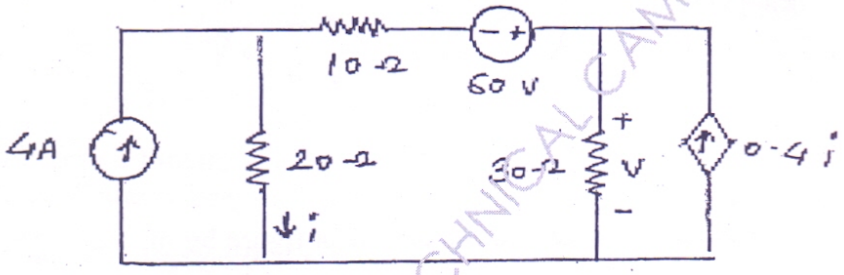
(d) Determine the driving point admittance function for the network shown in figure and plot the pole-zero pattern in the s-plane

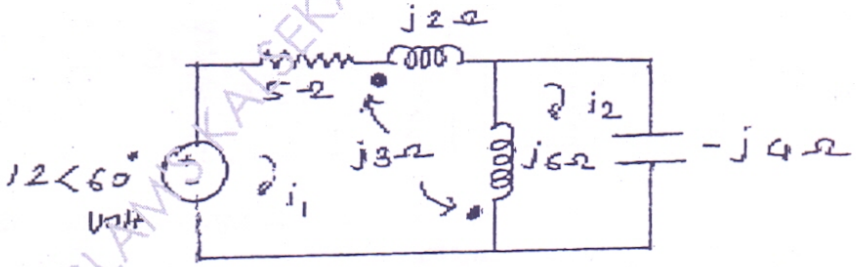


(e) Define properties of Hurwitz polynamial

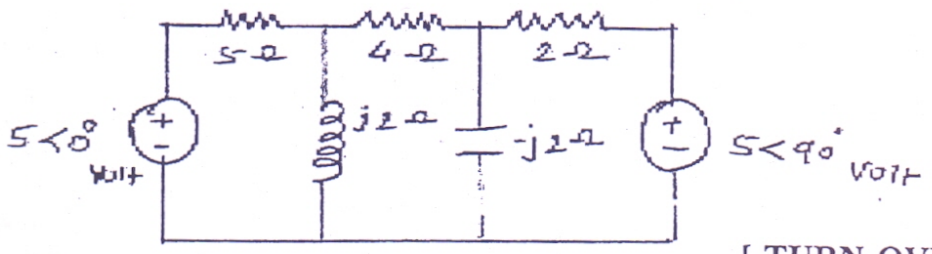
2. (a) Use superposition on the circuit shown in figure to find the voltage V. 10



(b) For the circuit shown in figure determine loop current i_1 and i_2 10



3. (a) For the network shown in figure, determine the node voltages 10



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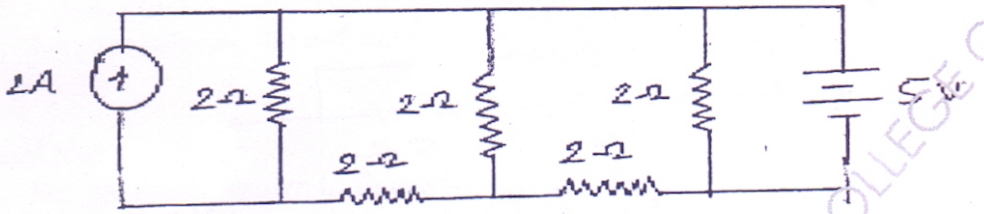
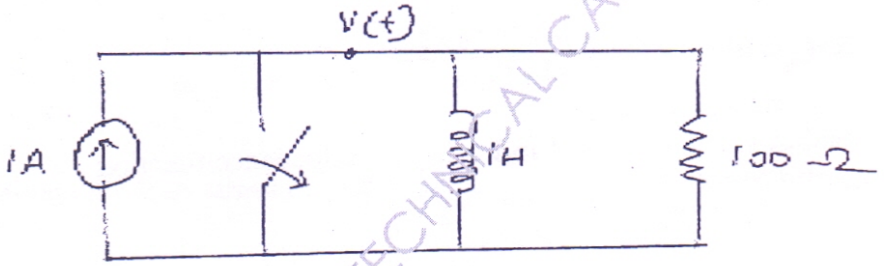
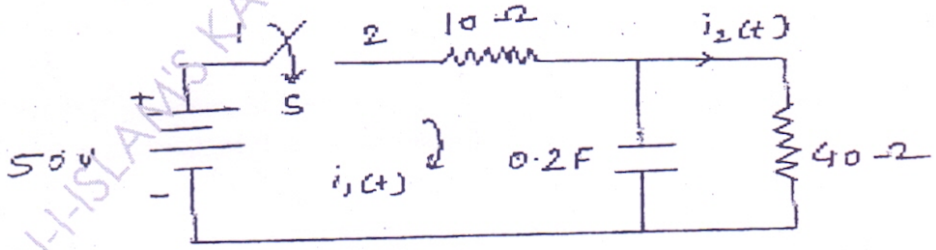
(b) For shown figure draw a graph of the network, write tie-set matrix and use it to obtain loop equations and find branch currents. 10



4. (a) In the network shown in figure at t=0, switch is opened. Calculate v, dv/dt, d^2v/dt^2 at $t = O^+$ 10



(b) In the two mesh network shown in figure there is no initial charge on the capacitor. Find the loop currents i_1 (t) and i_2 (t) which result when the switch is closed at t = 0 10



5. (a) Draw poles and zero for $v(s) = \frac{5s}{s^2+7s+12}$ and evaluate v(t) by making use of a pole zero diagram. 10

(b) check weter the follwing polynomials are Hurwitz or not 10

(i) $F(s) = s^4 + s^3 + 5s^2 + 3s + 4$

(ii) $F(s) = s^7 + 2s^6 + 2s^5 + s^4 + 4s^3 + 8s^2 + 8s + 4$

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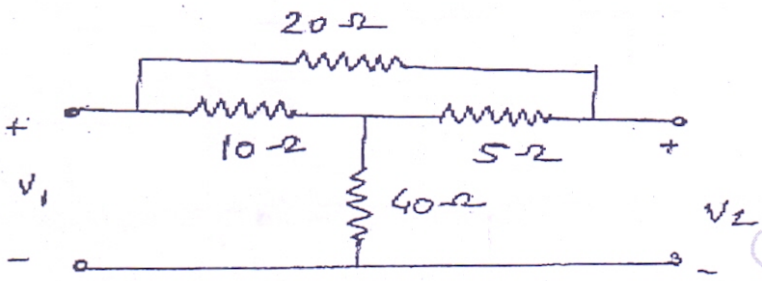
6. (a) Find the y parameters the network shown in figure. 10



(b) Derive condition for reciprocity and symmetry for ABCD parameters. 10

7. (a) Test whether $F(s)=\frac{s^3+6s^2+7s+3}{s^2+2s+1}$ 10

Positive real function

(b) Realize Cauer-I form of following LC impedance function 10

$$F(s)=\frac{10s^4+12s^2+1}{2s^3+2s}$$
