

Con. 2725-08.

CO-9562

(REVISED COURSE)

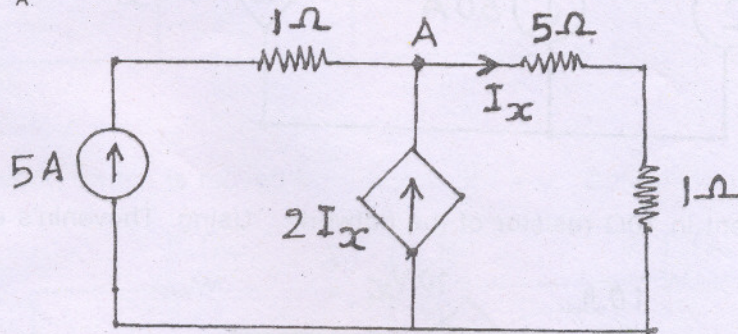
(3 Hours)

[Total Marks : 100

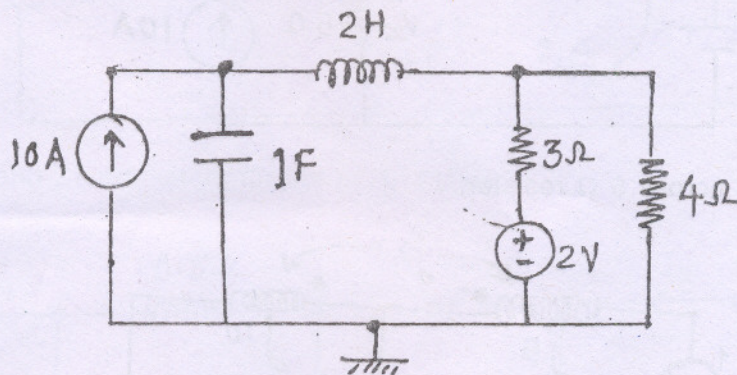
- N.B. (1) Question No. 1 is compulsory.
 (2) Attempt any four questions out of remaining six questions.
 (3) In all solve five questions.

1. Solve all :

(a) Find I_x and V_A



(b) How many trees are possible for the graph of the network given below :



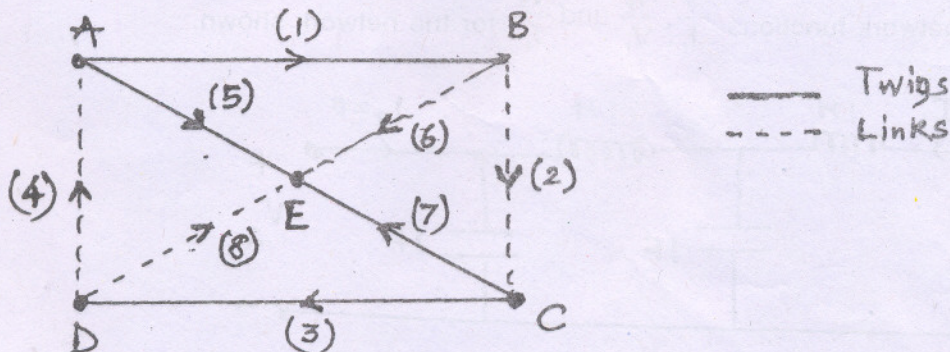
(c) Test whether the polynomial $P(s)$ is Hurwitz or not.

$$P(s) = s^5 + 3s^3 + 2s$$

(d) Find the condition of Reciprocity for transmission Parameters.

2. (a) For a given tree, obtain

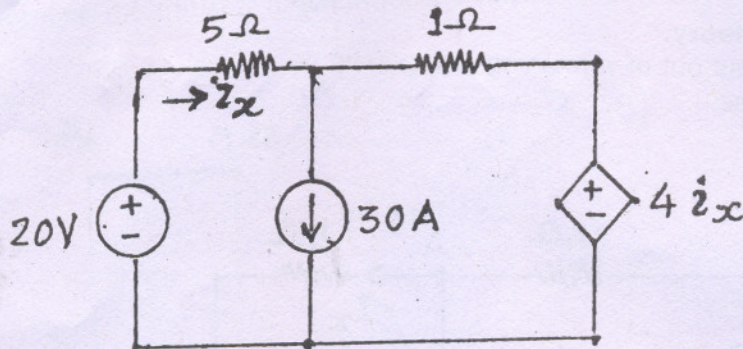
- (i) Incidence matrix
- (ii) Fundamental Cutset matrix
- (iii) Fundamental tieset matrix



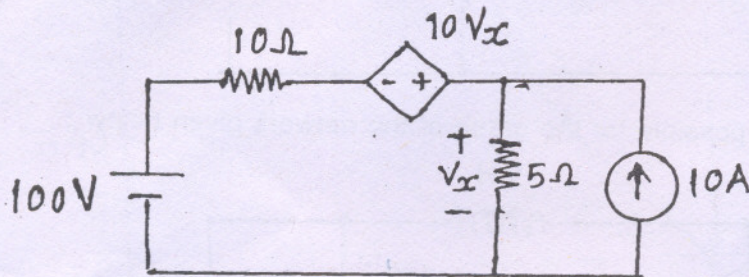
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(b) Find the current i_x by superposition principle.

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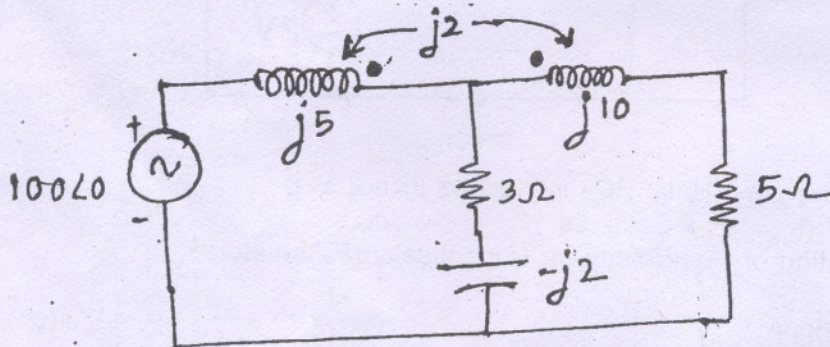


3. (a) Find the current in 10Ω resistor of the network. Using Thevenin's equivalent network. 10

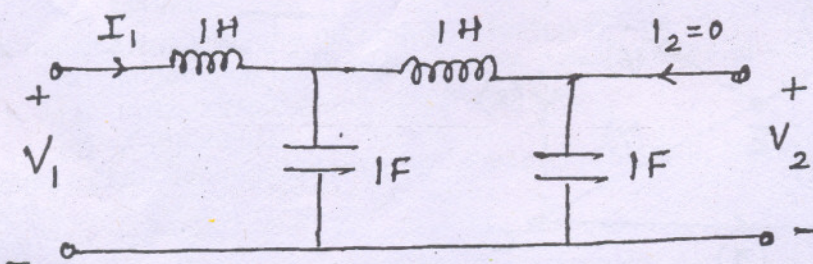


(b) Find Voltage across 5Ω resistor.

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4. (a) Find the network functions $\frac{V_2}{I_1}$, $\frac{V_2}{V_1}$ and $\frac{V_2}{I_1}$ for the network shown. 10

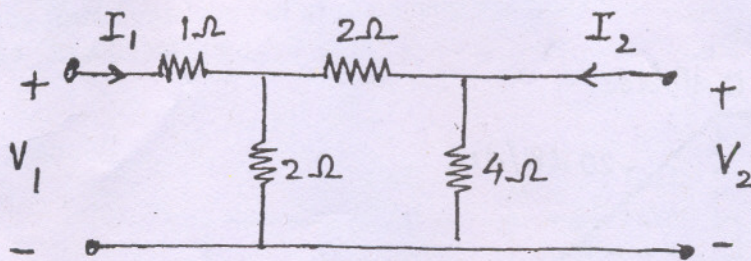


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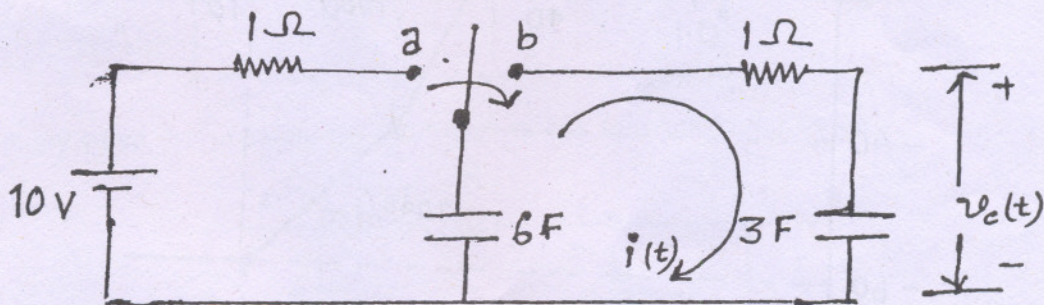
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(b) Determine the hybrid parameter of the network.

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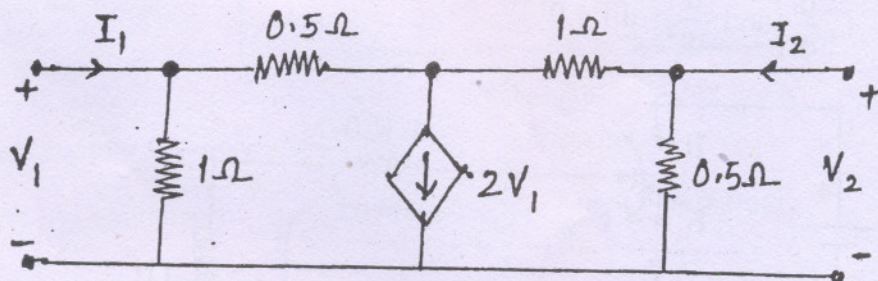
5. (a) In the given network, switch is moved from a to b at $t = 0$. Determine $i(t)$ and $v_c(t)$.

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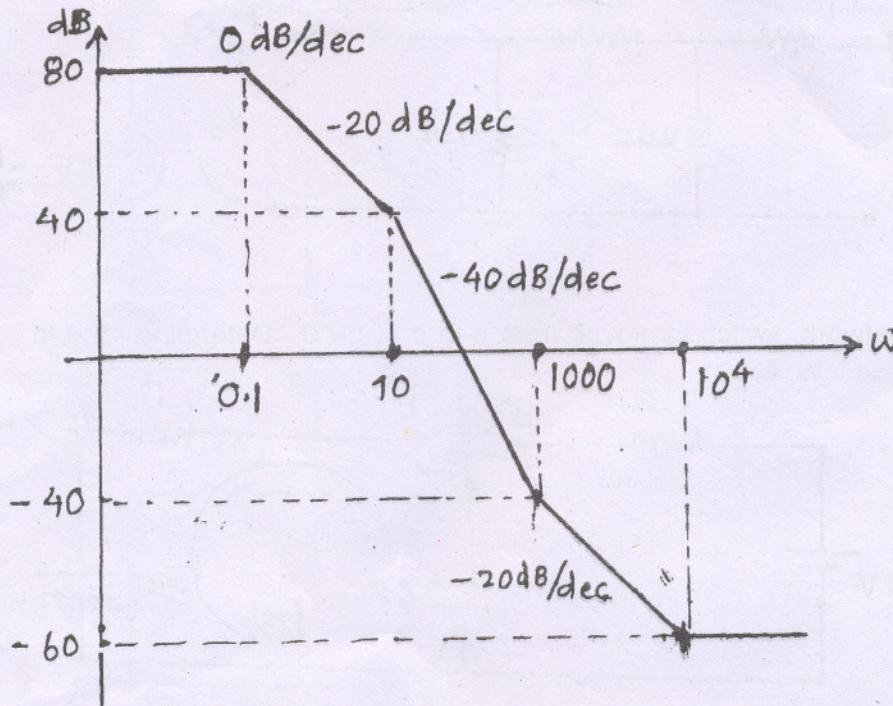


(b) Determine the Y and Z-parameters for the given network.

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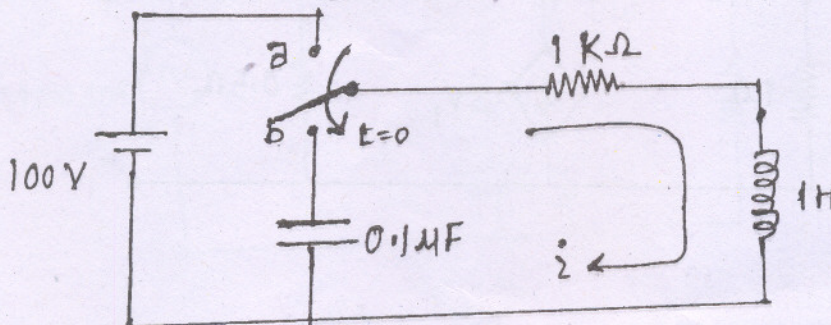


6. (a) Determine the transfer function for the asymptotic bode plot shown in figure. 10



- (b) In the network, switch K is changed from position 'a' to 'b' at $t = 0$. Solve for 10

i , $\frac{di}{dt}$ and $\frac{d^2i}{dt^2}$ at $t = 0^+$



7. A designer requires the network with following data : 20
- (a) Impedance function has simple poles at -2 and -6 .
 - (b) It has simple zeros at -3 and -7 .
 - (c) $Z(0) = 20\Omega$

Find all four canonical forms i.e. Foster-1, Foster-II, Cauer-I and Cauer-II forms.