

Con, 3976-10.

AN-2522

(3 Hours)

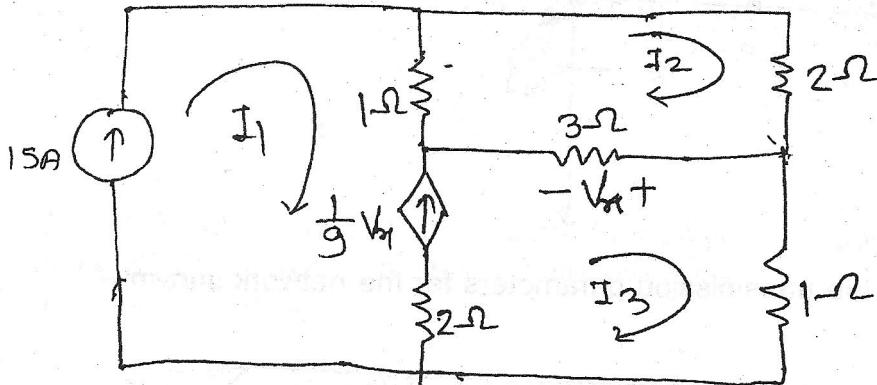
[Total Marks : 100

- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any four questions out of six questions.
 (3) Figures to the right indicate full marks.
 (4) Assume suitable data if required.

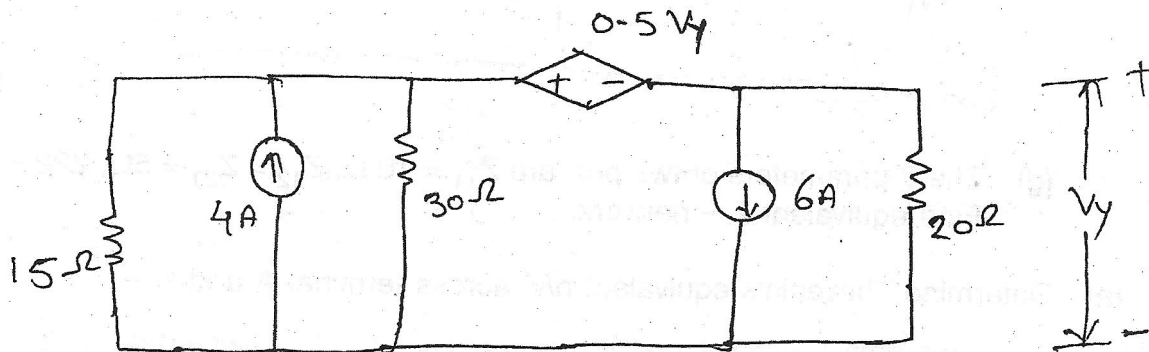
1. Attempt any five of the following :-

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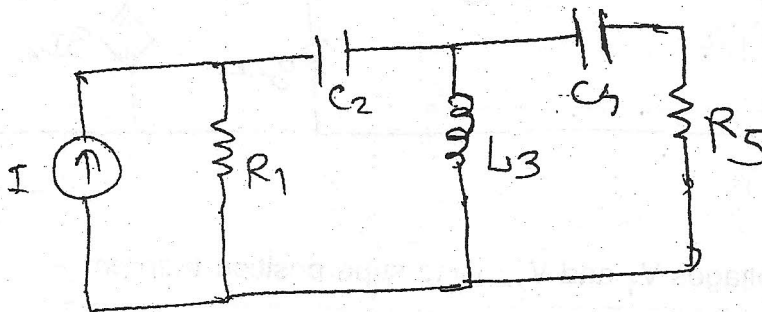
(a) Find currents I_1 , I_2 and I_3 -



(b) Find voltage V_y by using nodal Analysis -

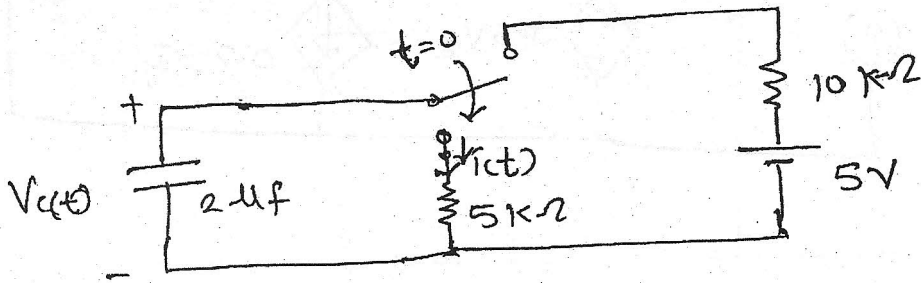


(c) Draw the dual of the network -



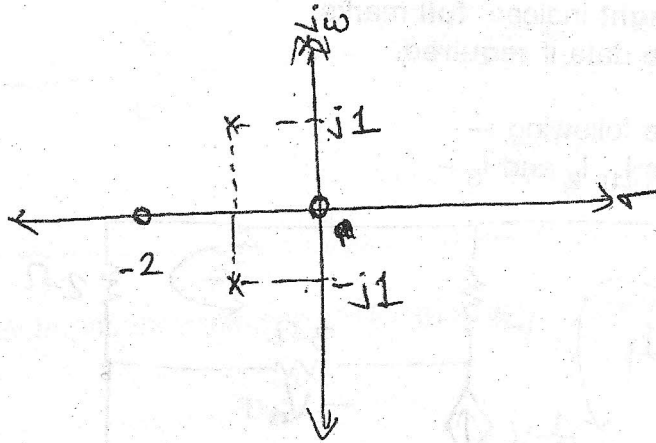
(d) In Circuit shown acquired steady state before switching at $t = 0$ obtain

- (i) $V_c(0^+)$ and $i(0^+)$
- (ii) time constant for $t > 0$

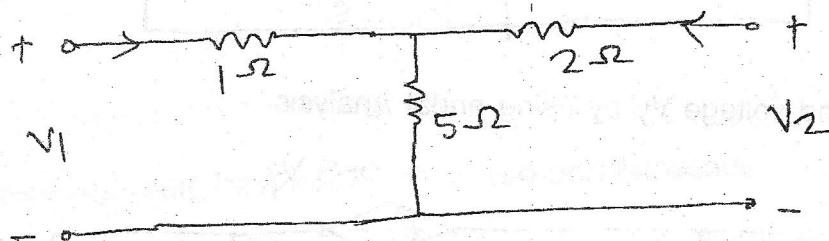


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(e) Obtain the admittance function $Y(s)$ for which Pole-zero diagram is shown below :-



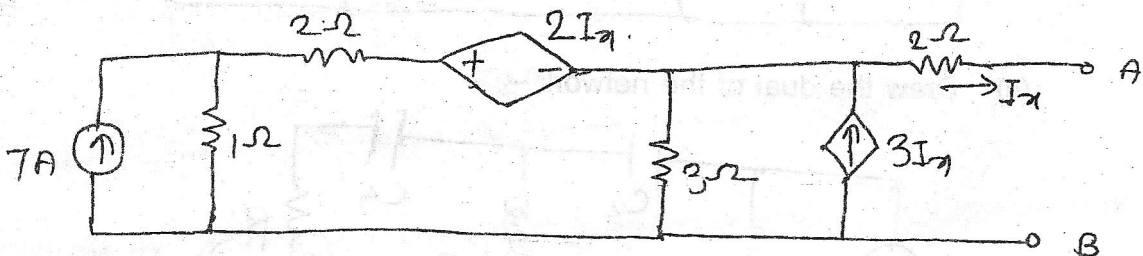
(f) Find the transmission parameters for the network shown -



(g) The Z parameters of two port are $Z_{11} = 10 \Omega$, $Z_{12} = Z_{21} = 5 \Omega$, $Z_{22} = 20 \Omega$. Find equivalent T - network.

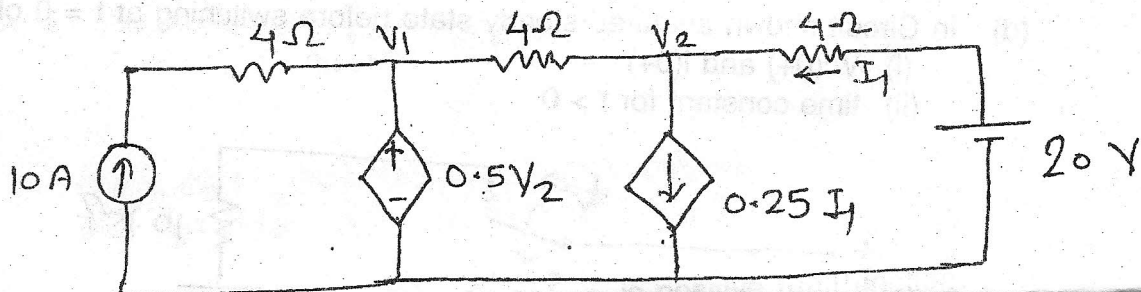
2. (a) Determine Thevenin's equivalent n/w across terminal A and B -

10



(b) Determine voltages V_1 and V_2 , using superposition theorem -

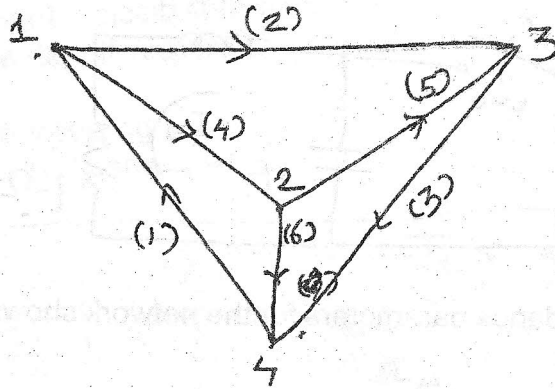
10



Con. 3976-AN-2522-10.

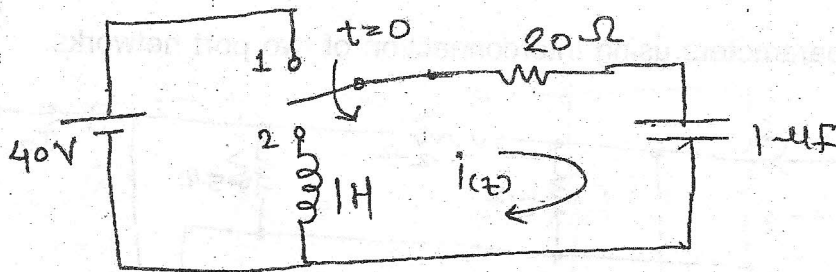
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3. (a) Graph of a network is shown and write (i) incidence matrix (ii) F-tieset matrix 10
 (iii) F-Cutset matrix.



- (b) In the network shown switch is changed from position 1 to position 2 at $t = 0$. Steady state condition having reached before switching. Find the values of -

$$i, \frac{di}{dt}, 8 \frac{d^2i}{dt^2} \text{ at } t = 0^+$$



4. (a) In the network shown switch is in position 1 for long time and at $t = 0$ switch is moved to position 2. Find $V(t)$ for $t > 0$

