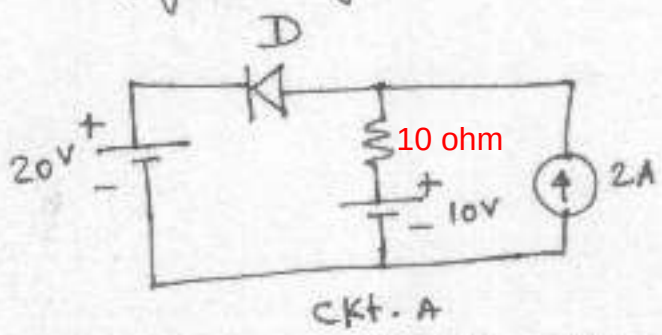
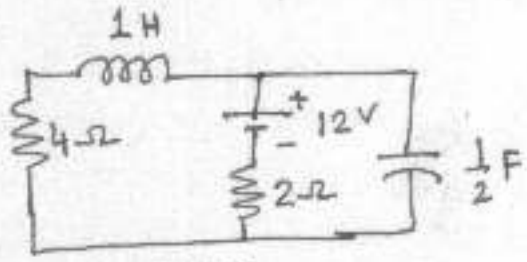
Tutorial-6

(1) Verify Tellegen's Theorem for the following networks.



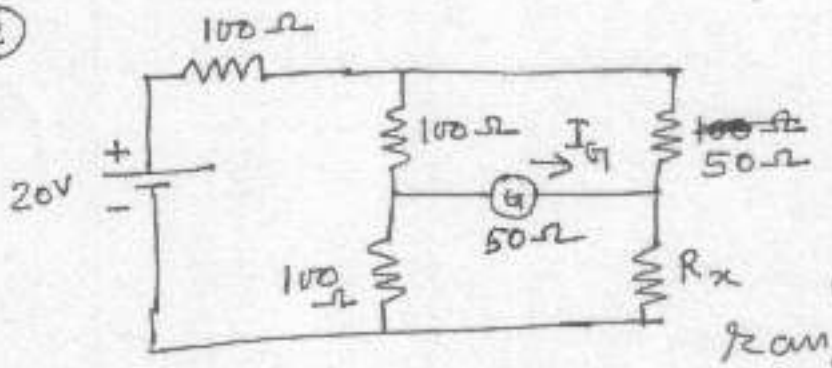
ckt. A



ckt. B

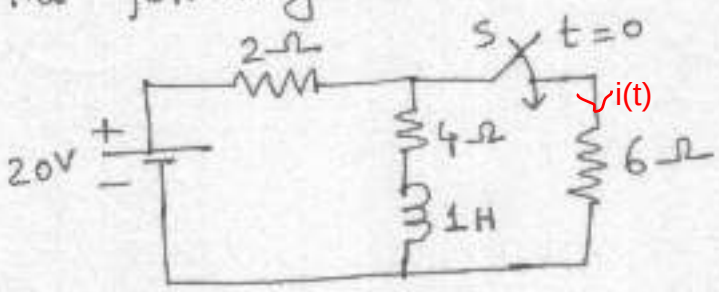
Assume both the ckts to be in steady state and diode D to be ideal.

(2)



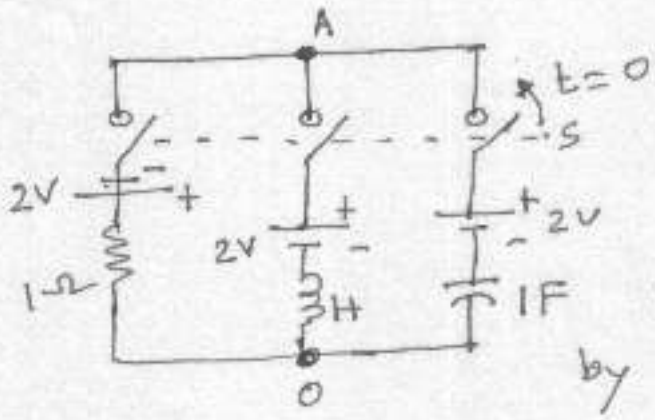
R_x has nominal value of 50Ω with ± 10% tolerence. Calculate variation range of I_G using compensation theorem.

(3) Use compensation theorem to calculate i(t) in the following network.



ckt. was in steady state before switching. Verify your result by solving it using Thevenin Theorem.

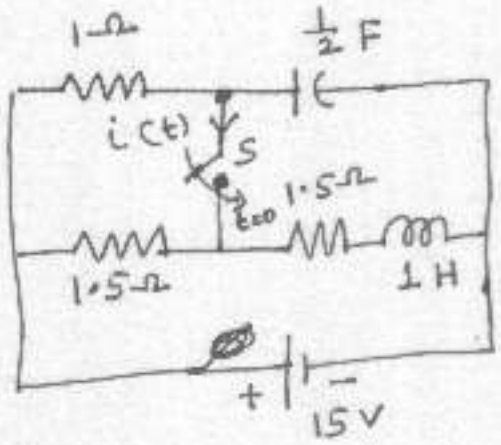
(4)



Assume zero initial conditions. Tripple pole switch S is closed at t=0.

Get $v_{Ao}(t)$ for t>0 by using Millman's theorem.

(5)

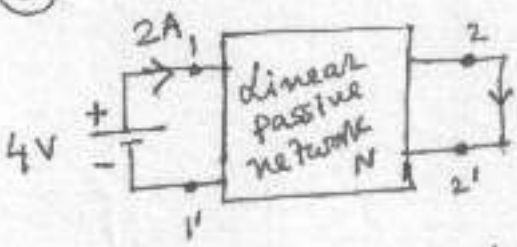


After S.S has been reached, S is closed at $t=0$. Calculate $i(t)$ for $t>0$ by using

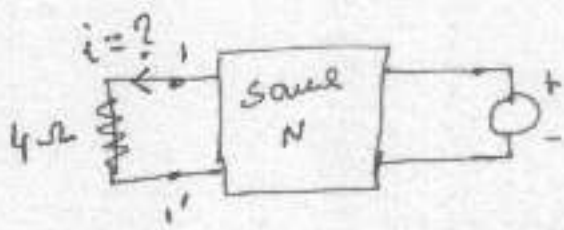
(a) Thevenin Theorem.

(b) Mesh Analysis.

(6)



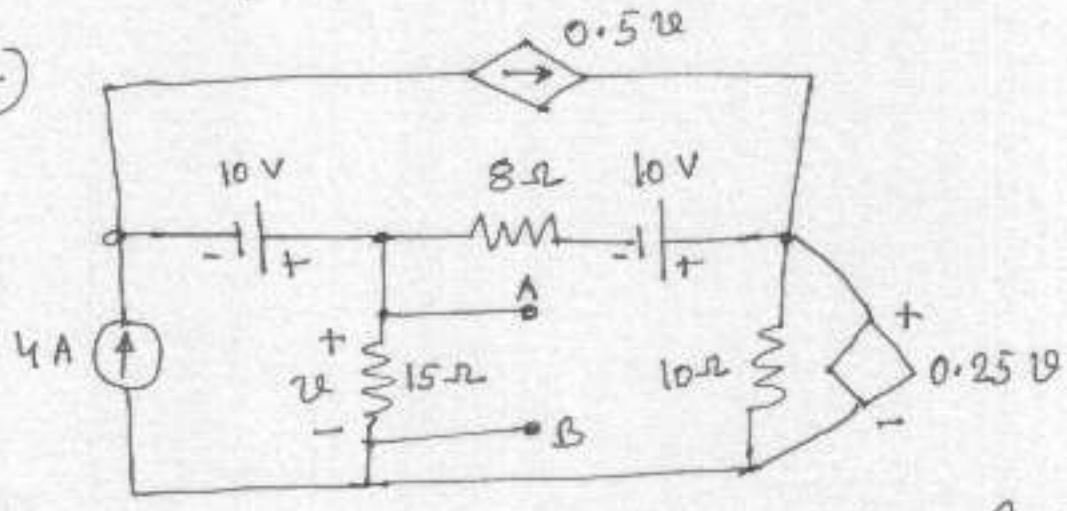
When 4V is applied at 1-1', current in 2-2' is 1A & 2A in 1-1' as shown. To the same network if $3e^{-2t}$ V is applied what will be i in 1-1'?



Apply suitable network theorems to get the result.

Make necessary assumptions

(7)



(a) use superposition Theorem to get v.

(b) Get Thevenin Equivalent ckt across AB.