

Paper / Subject Code: 49605 / CIRCUITS AND TRANSMISSION LINES

Time: 3 Hours

Total Marks: 80

B.

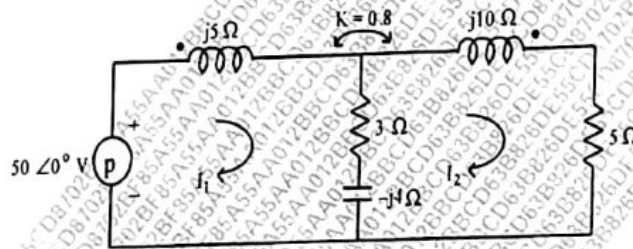
Question No. 1 is Compulsory

Out of remaining questions, attempt any three

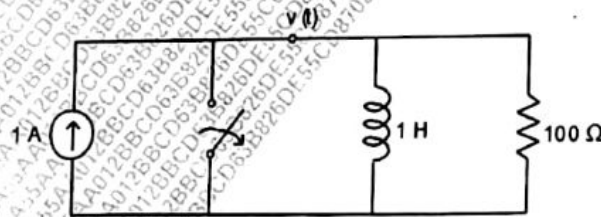
Assume suitable data if required

Figures to the right indicate full marks

- (A) Draw equivalent circuit for given magnetically coupled circuit. 05

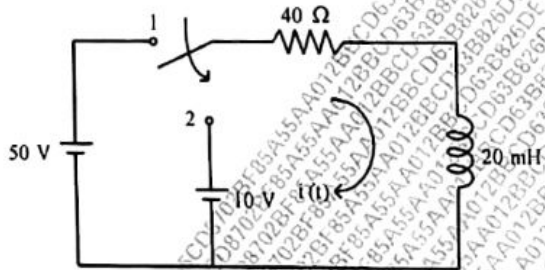


- (B) In the network shown in Fig., at $t = 0$, switch is opened. Calculate $v, \frac{dv}{dt}$ at $t = 0^+$. 05

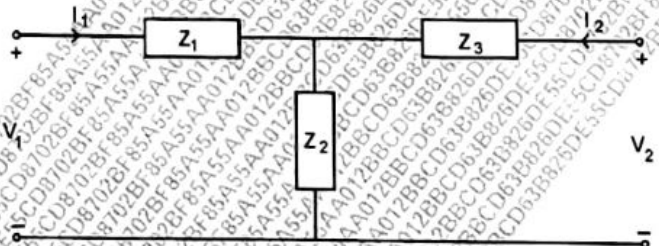


- (C) The Z parameters of a 2 port network are, $Z_{11} = 20 \Omega, Z_{22} = 30 \Omega, Z_{12} = Z_{21} = 10 \Omega$. Find Y parameters. 05
- (D) Two two port networks are connected in parallel. Prove that the sum of the corresponding individual parameters is equal to the overall y parameters. 05

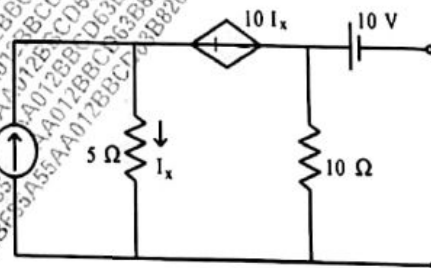
- 2 (A) The network of Fig. is under steady state with switch at position 1. At $t = 0$, switch is moved to position 2. Find $i(t)$.



- (B) The Z-parameters of a two port are : $Z_{11} = 20 \Omega$, $Z_{12} = Z_{21} = 10 \Omega$, $Z_{22} = 30 \Omega$. Find equivalent T-network.



- 3 (A) Determine Thevenin's equivalent network for the Fig. shown.



- (B) The parameters of a transmission lines are $R = 65 \Omega/\text{km}$, $L = 1.6 \text{ mH}/\text{km}$, $G = 2.25 \text{ mmho}/\text{km}$, $C = 0.1 \mu\text{F}/\text{km}$. Find
i) Characteristic Impedance

- 6 (A) A transmission line has a characteristics impedance of 50 ohm and terminate in a load $Z_L = 25 + j50$ ohm. Use smith chart and Find VSWR and Reflection coefficient at the load. II
- (B) The switch in Fig. is open for a long time and closes at $t = 0$. Determine $i(t)$ for $t > 0$. II

