

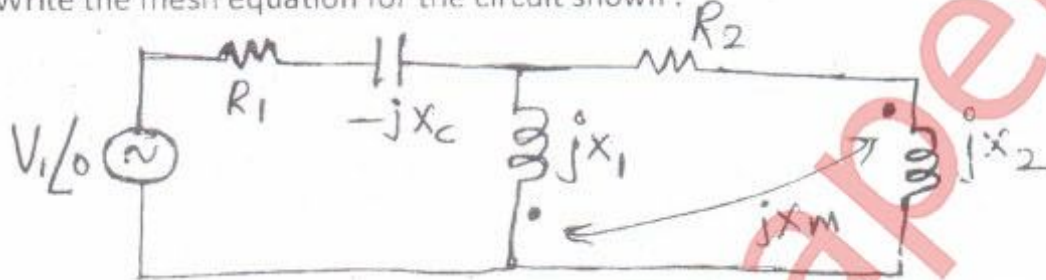
- Q. No. 1 is compulsory
- Solve any three from remaining Q. No. 2 to Q. No. 6
- Assume any suitable data if necessary

Q. No. 1

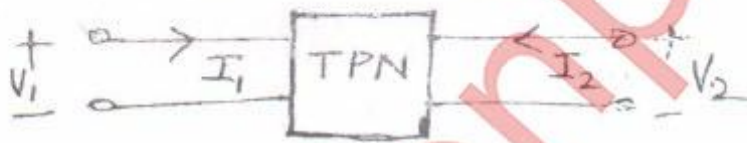
a) What is network synthesis? Construct the circuit for $Z(s) = 4s + \frac{9}{s} + \frac{15s}{s^2 + 4}$ [04]

b) Derive the frequency domain equivalents for inductor with initial current I_0 and capacitor with initial voltage V_0 . [04]

c) Write the mesh equation for the circuit shown. [04]



d) How network functions are classified? State them for the n/w shown. [04]

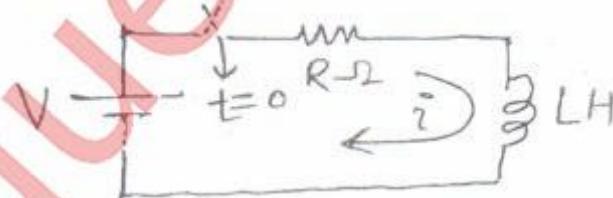


e) Write a note on time constant of the circuit. [04]

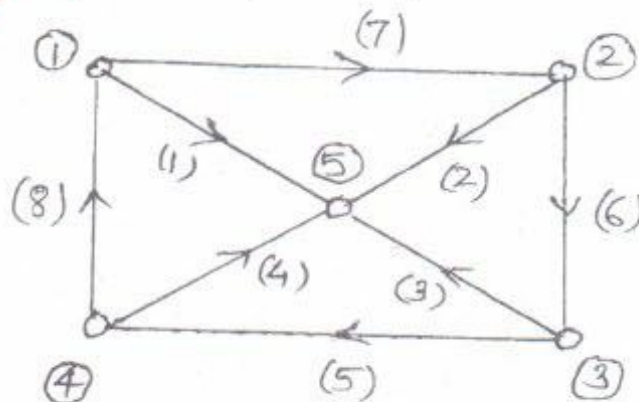
Q. No. 2

a) Discuss the order of the circuit. [04]

b) For the circuit shown, determine $i(t)$ for $t \geq 0$ using classical method and also find $i(\infty)$. [06]



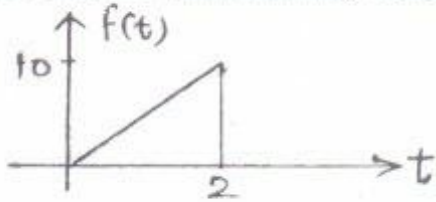
c) Write incidence, f-tieset and f-cutset matrices for the graph shown. [10]



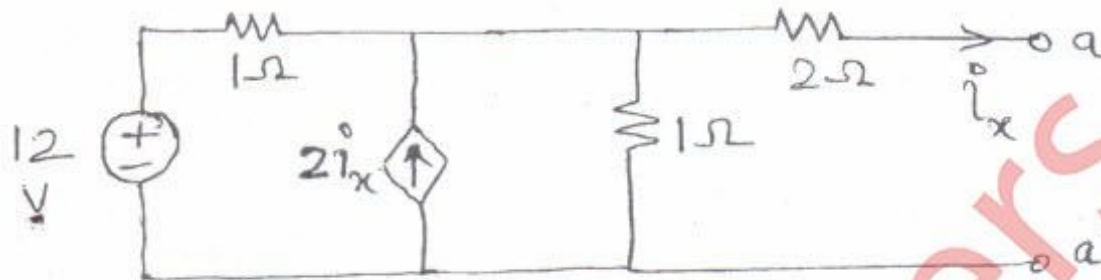
[TURN OVER

Q. No. 3

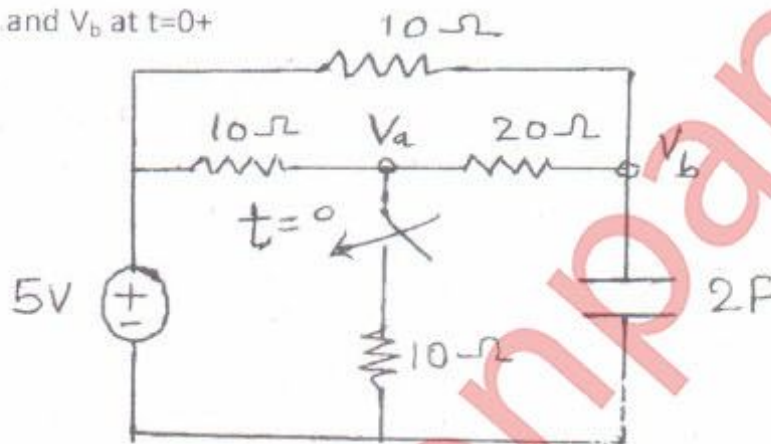
a) Determine the L.T. of the following wave shape. [05]



b) Calculate the Thevenin's voltage and Norton's current for the circuit shown [07]



c) Find V_a and V_b at $t=0+$ [08]

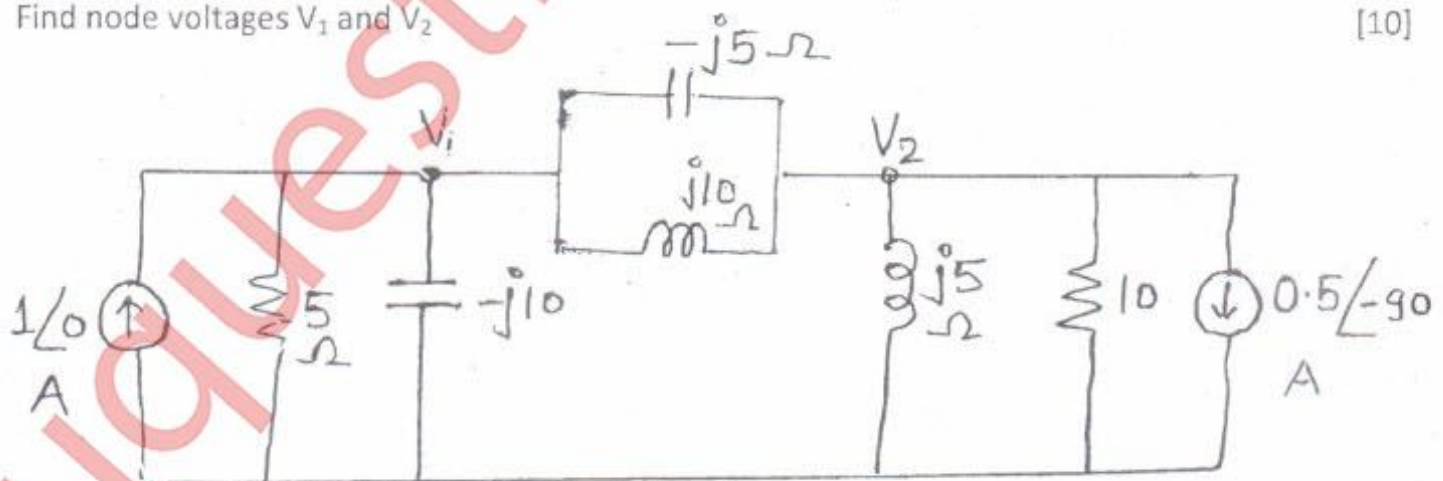


Q. No. 4

a) Check the polynomial $P(s) = s^4 + 3s^2 + 2$ for Hurwitz. [06]

b) State network equilibrium equation on the basis of KVL and KCL. [04]

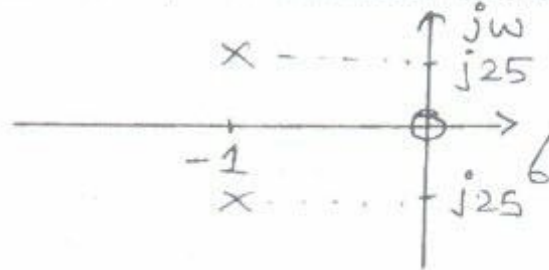
c) Find node voltages V_1 and V_2 [10]



[TURN OVER

Q. No. 5

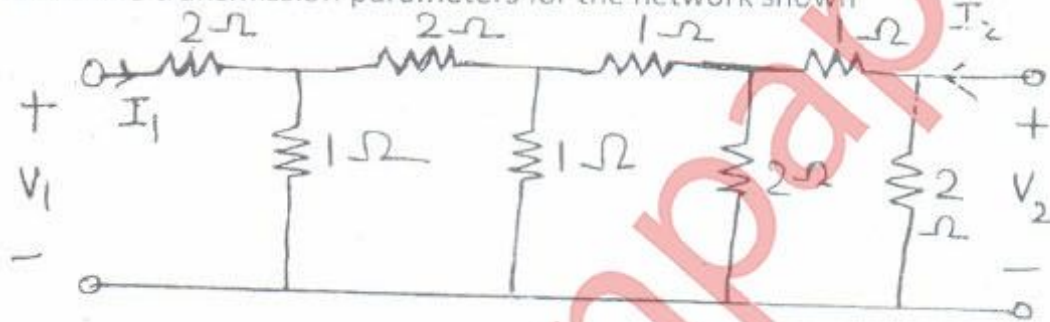
- a) A series R-L-C circuit has a scale factor 5 for its driving point admittance and the p-z plot of the same is shown below, find the values of R, L and C. [10]



- b) Obtain cauer II form for $Z(s) = \frac{s(s+4)(s+8)}{(s+1)(s+6)}$ [08]
 c) Define Hybrid parameters [02]

Q. No. 6

- a) Determine transmission parameters for the network shown [12]



- b) Find power associated VCVS. [08]

