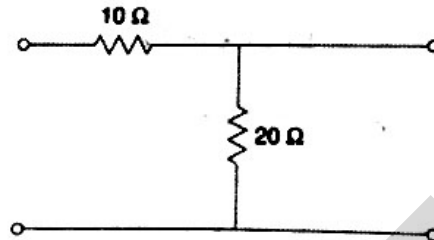


d) In parallel resonant circuit for frequencies greater than the resonant frequency, the circuit will be.....

- a) inductive
- b) capacitive
- c) resistive
- d) none of these

e) The impedance parameters Z_{11} and Z_{12} of a two-port network in the given fig.....



- a) $2.75\Omega, 0.25\Omega$
- b) $3\Omega, 0.5\Omega$
- c) $3\Omega, 0.25\Omega$
- d) $2.25\Omega, 0.35\Omega$

f) In series RLC circuit on resonance following will occur-

- a) $Z = R$
- b) $X_L = X_C$
- c) $V_L = V_C$
- d) All of these

g) In series RLC circuit $R = 1000\Omega, L = 100\text{mH}, C = 10\mu\text{F}$. The Q factor of circuit is

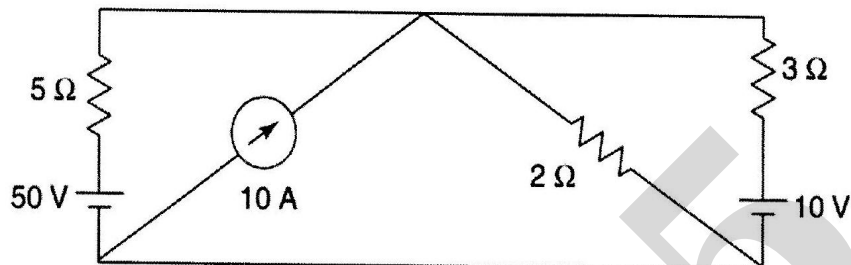
- a) 20
- b) 0.1
- c) 0.01
- d) 10

Q.2) Attempt any Two.

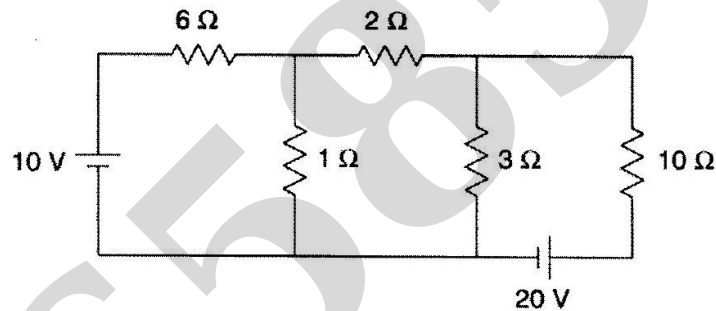
(14)

- a) Define following terms.
 - i) Planar and Non-Planar Graph
 - ii) Tree and Co-Tree
 - iii) Twigs and Links
 - iv) Incidence Matrix

- b) Find the power delivered by the 50 V source in the network using source transformation.



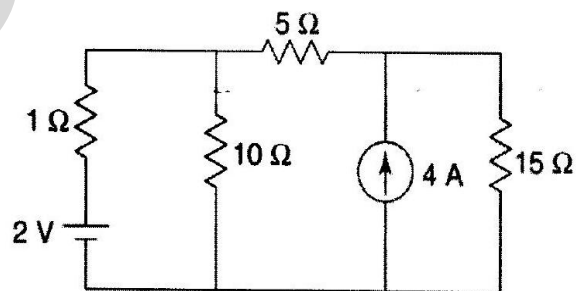
- c) Find current through 10Ω using Thevenin's theorem.



Q.3) Attempt any Two.

(14)

- a) Write short note on variation of resistance, inductive and capacitive reactance with frequency in series RLC circuit.
- b) Find the current through the 10Ω resistor.



- c) What is Q factor of a coil? Show that Q factor of series resonance circuit is

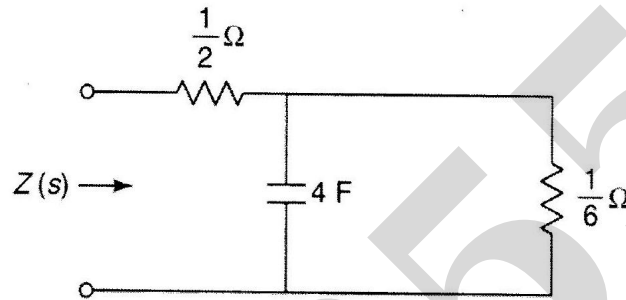
$$Q = \frac{fr}{f_2 - f_1}$$

where f_1 and f_2 are half power frequencies.

Q.4) Attempt any Two.

(14)

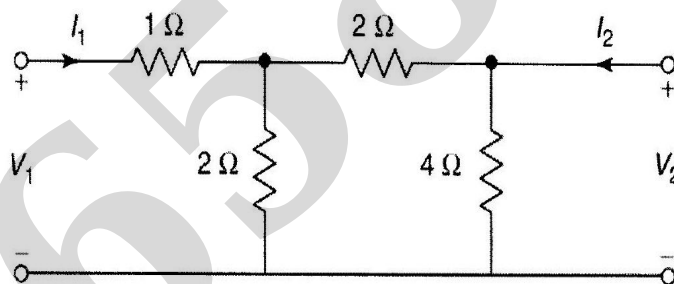
- a) Explain Series Interconnection of two port networks.
- b) Design k-type Band pass filter having a design impedance of 500Ω and cutoff frequencies 1 kHz and 10 kHz
- c) Find impedance function $Z(s)$ for the network function and plot pole zero plot.



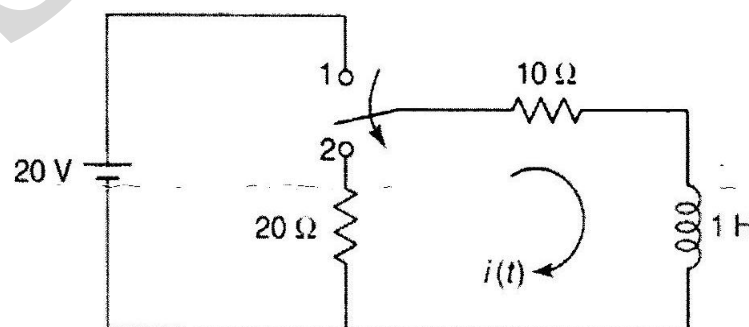
Q.5. Attempt any Two.

(14)

- a) Find h-Parameters for given network.



- b) In the network shown in Fig., the switch is initially at the position 1 for a long time. At $t = 0$, the switch is changed to the position 2 . Find current $i(t)$ for $t > 0$.



- c) Obtain expression for Characteristic impedance Z_0 propagation constant for T-network.