Seat No.

Total No. of Pages : 4

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Network Analysis

Sub. Code: 73248/77810

Day and Date: Monday ,08-12-2025 **Total Marks: 70**

Time: 02:30 PM To 05:00 PM

Instructions: **1. All questions are compulsory**
2. Assume suitable data wherever necessary and mention it boldly
3. Figures to the right indicate full marks

Q1) Attempt all MCQs. **[14]**

i. If a graph consists of 5 nodes, then the number of twigs in the tree is?

A. 1
B. 2
C. 3
D. 4

ii. In case of ideal current sources, they have_____

A. Low value of voltage
B. Zero internal resistance
C. Large value of current
D. Infinite internal resistance

iii. In series RLC circuit bandwidth is increased by_____

A. Decreasing L
B. Decreasing C
C. Increasing R
D. Decreasing R

iv. Reciprocity Theorem is applied for _____ networks.

A. Linear
B. Bilateral
C. Linear bilateral
D. Lumped

v. The poles of driving point impedance are those frequencies corresponding to _____Conditions.

A. Short circuit
B. Open circuit
C. Voltage source
D. Resistance

vi. The relation between transmission parameter C in terms of Z parameters is _____

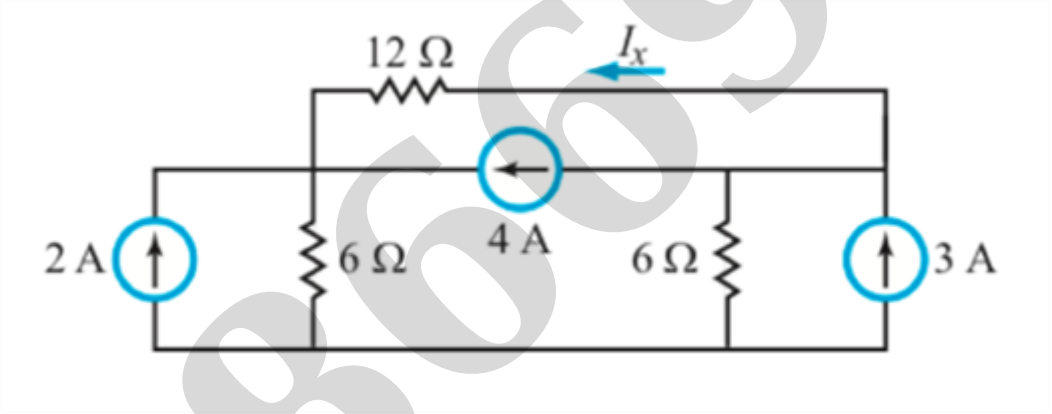
A. 1/Z11
B. Z11/Z22
C. Z11/Z21
D. 1+Z11/ Z22

vii. A Low Pass filter _____

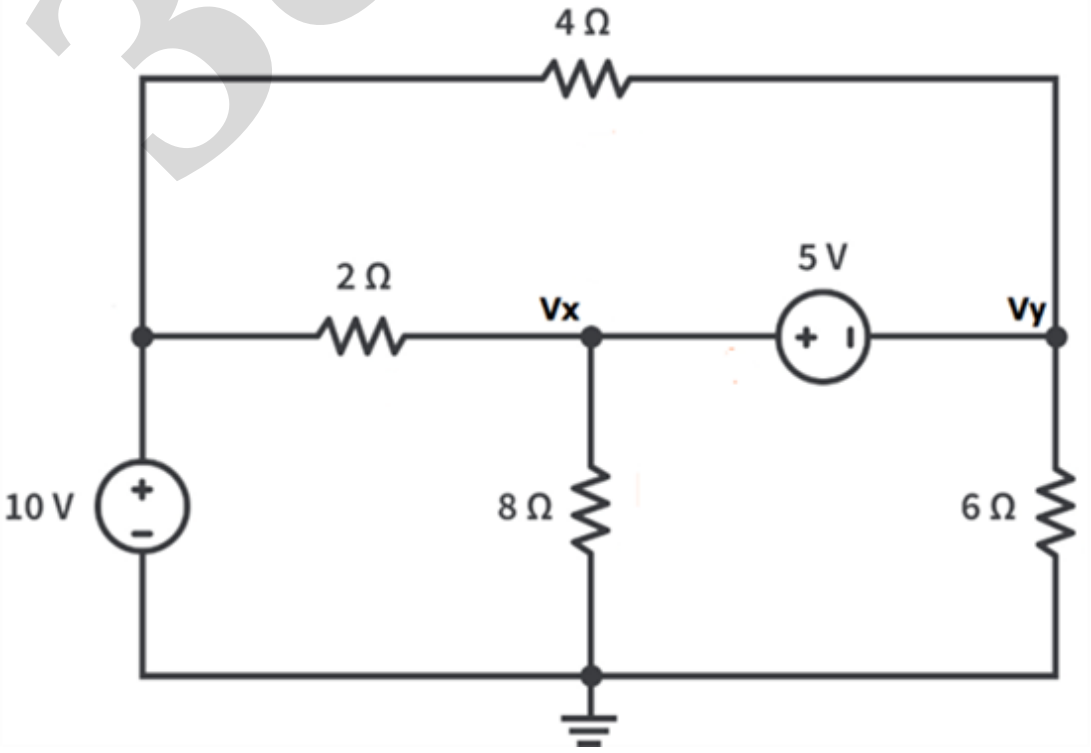
A. Passes high frequency to output load
B. Passes low frequency to output load
C. Passes only steady DC
D. A and C Correct

Q2) Attempt any Two

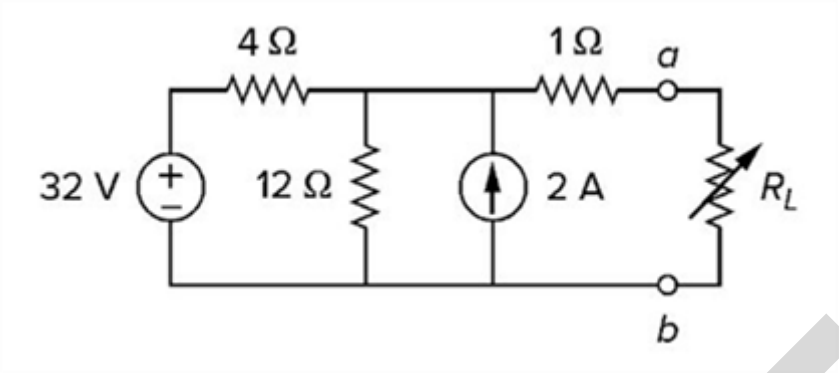
a. Find the current Ix using mesh analysis. **[7]**



b. Find the node voltages Vx and Vy. **[7]**

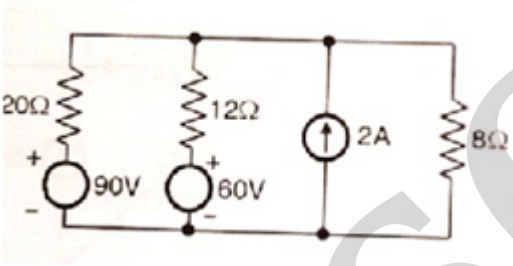


c. Find the Thevenin's equivalent of the circuit shown below across terminals a-b. Then find the current through RL = 6Ω. **[7]**



Q3) Attempt any Two.

a. Using Superposition Theorem find the current flowing through 20Ω resistance. **[7]**

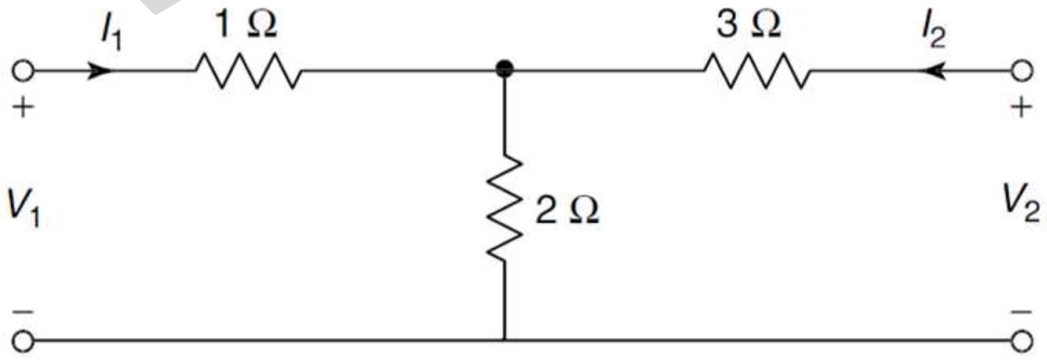


b. For the RLC series circuit, C=5uF, L=2mH, R=2Ω. **[7]**
Find, i) Resonant frequency ii) Quality factor iii)Bandwidth.

c. Discuss the relationship between Z, XC, and XL with frequency for series RLC circuit. **[7]**

Q4) Attempt any Two.

a. Find Y-Parameters of the given network. **[7]**



b. Obtain Z-Parameters in terms of Y-Parameter and vice-versa. **[7]**

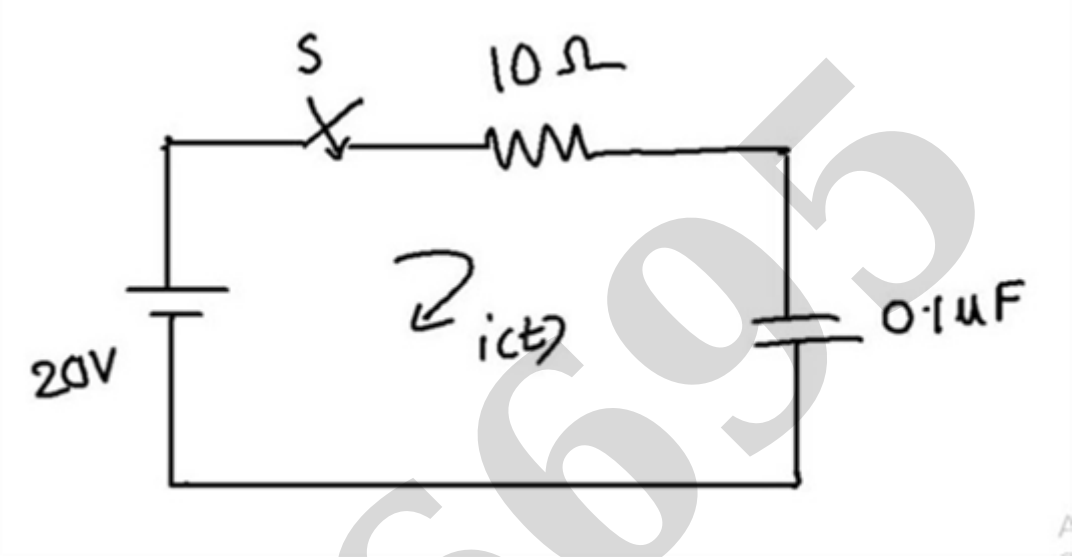
c. Obtain DC response of series RC circuit. **[7]**

Q5) Attempt any Two

a. Design constant K- Low pass filter (both T and π section) having cut off frequency of 2 KHz to operate with terminal load resistance of 500 Ω. **[7]**

b. Obtain expression for characteristic impedance Z0 for T-Network. **[7]**

c. The switch in figure is open for long time and closes at t = 0, determine i(t) at t > 0. **[7]**



End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (77810) Network Analysis Part 2 SEM 3
2] (1154) B.Tech. CBCS (73248) Network Analysis Part 2 SEM 3