

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to JNTUA, Ananthapuramu)

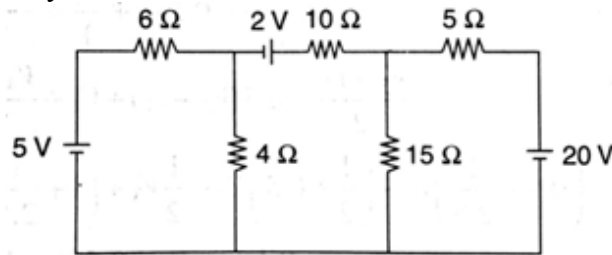
I B.Tech II Semester (SVEC-19) Regular Examinations, December - 2020**NETWORK ANALYSIS****[Electronics and Communication Engineering,
Electronics and Instrumentation Engineering]**

Time: 3 hours

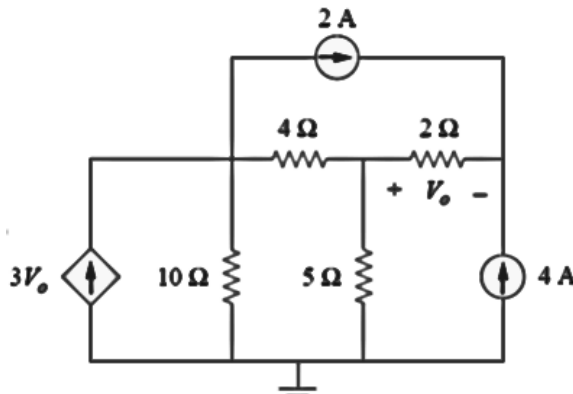
Max. Marks: 60

Answer One Question from each Unit**All questions carry equal marks****UNIT-I**

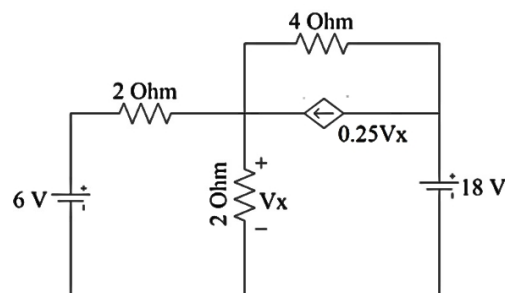
1. a) State and explain KVL and KCL with examples. 6 Marks L2 CO1 PO2
 b) Determine the current through 10Ω resistor in the fig below using mesh analysis. 6 Marks L4 CO1 PO2

**(OR)**

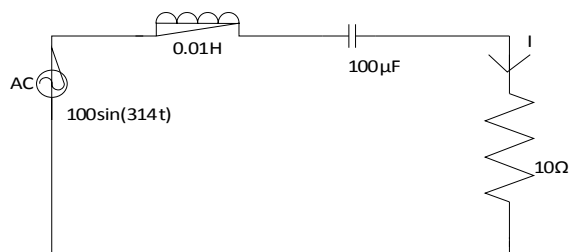
2. a) Obtain the Node equation for the circuit shown below and compute the V_0 . 6 Marks L3 CO1 PO2



- b) Find V_x for the circuit shown below. 6 Marks L4 CO1 PO2

**UNIT-II**

3. a) Find current I for the circuit shown below 6 Marks L4 CO1 PO2



- b) A series connected load draws a current $I(t) = 4\sin(100\pi t)$ A 6 Marks L4 CO1 PO2

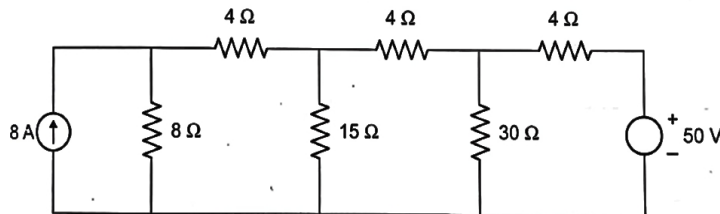
when the applied voltage is $V(t) = 120 \sin(100\pi t)$ V. Find the power factor.

(OR)

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|----|----|---|---------|----|-----|-----|
| 4. | a) | Derive expression for bandwidth of series resonance circuit. | 6 Marks | L2 | CO1 | PO2 |
| | b) | In a series RLC circuit with $R = 10 \Omega$, $L = 0.1$ H and $C = 50 \mu\text{F}$, find resonant frequency, quality factor and band width. | 6 Marks | L3 | CO2 | PO3 |

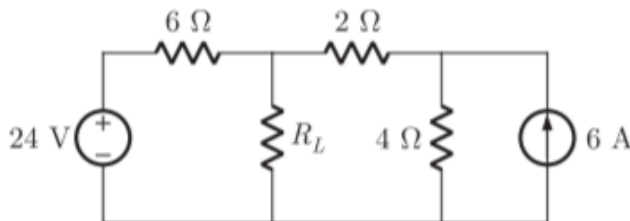
UNIT-III

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|----|----|---|---------|----|-----|-----|
| 5. | a) | State and explain Thevenin's theorem. | 6 Marks | L2 | CO1 | PO2 |
| | b) | For the circuit shown in figure find the current through the 15Ω resistor using Superposition theorem. | 6 Marks | L4 | CO1 | PO2 |



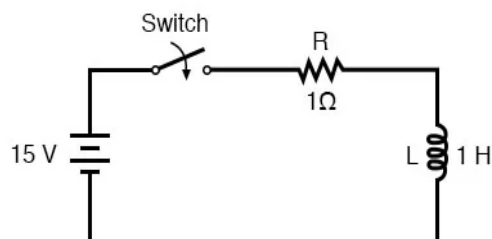
(OR)

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|----|----|---|---------|----|-----|-----|
| 6. | a) | State and explain reciprocity theorem. | 6 Marks | L2 | CO1 | PO2 |
| | b) | Determine the value of R_L and also calculate P_{\max} by using maximum power transfer theorem. | 6 Marks | L4 | CO1 | PO5 |



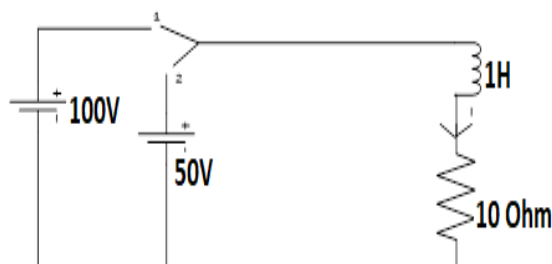
UNIT-IV

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|----|----|---|---------|----|-----|-----|
| 7. | a) | Find the transient response of RL series circuit for dc excitation. | 6 Marks | L3 | CO1 | PO2 |
| | b) | For the circuit shown below find the current in the circuit after closing the switch at $t=0$. | 6 Marks | L4 | CO1 | PO2 |



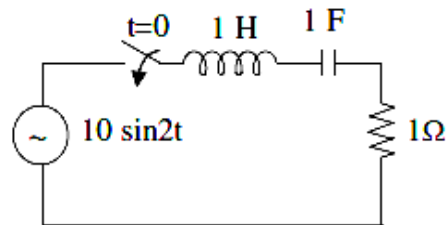
(OR)

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|----|----|---|---------|----|-----|-----|
| 8. | a) | The switch is in position 1 for long time and moved to position 2 at $t = 0$, find current i . | 6 Marks | L4 | CO1 | PO2 |
|----|----|---|---------|----|-----|-----|



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|----|---|---------|----|-----|-----|
| b) | Find the current in the circuit shown for $t > 0$. At $t = 0$ sec. the | 6 Marks | L3 | CO2 | PO6 |
|----|---|---------|----|-----|-----|

network was unenergized.



UNIT-V

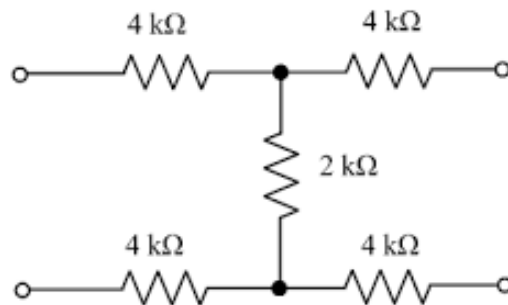
9. a) Determine the Z parameters of the network shown below.

6 Marks

L3

CO1

PO1



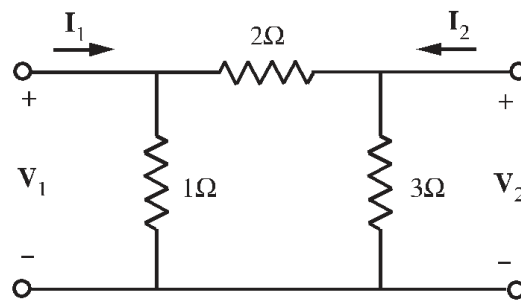
- b) Find the y-parameters of the two-port network shown below.

6 Marks

L4

CO2

PO3



(OR)

- 10 a) Prove that reciprocity and symmetry condition for Z-parameters.
b) Find the ABCD parameters of the two-port network shown below.

6 Marks

L2

CO1

PO2

6 Marks

L4

CO1

PO2

