Code No: R07A1EC05 **R07** **Set No. 2**

I B.Tech Examinations,June 2011
NETWORK ANALYSIS
Common to BME, E.COMP.E, ETM, E.CONT.E, EIE, ECE
Time: 3 hours **Max Marks: 80**
Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. A network has two branches in parallel. The branch 'a' has a 5 Ω resistance and 15Ω capacitive reactance in series. The branch 'b' has 10 Ω resistance and 12 Ω inductive reactance in series. It is fed from 100V, 50 Hz supply. Find
   (a) Branch currents.
   (b) Circuit current
   (c) Power factor of the circuit
   (d) Total active power. [16]
2. Design a T-type and π-type attenuator if the characteristic resistance is 200Ω and the attenuation is 200dB. [16]
3. For the figure 1 shown, calculate the equivalent resistance of the following combination of resistors and also calculate the source current, total power dissipated. [16]

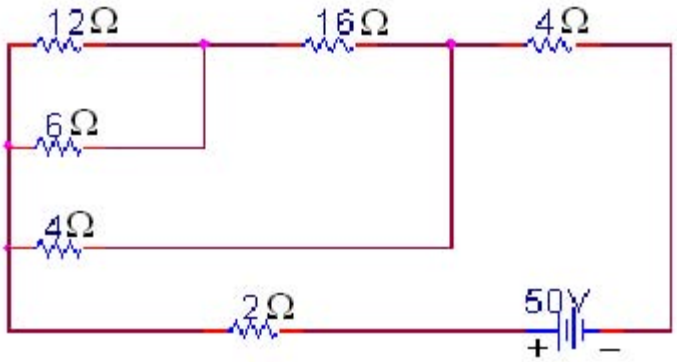

Figure 1:

4. A series RLC circuit with R = 50Ω, L = 0.1 H and C = 50μF has a constant voltage, V = 100 volts applied at t = 0. Find the current transient assuming zero initial charge on the capacitor. [16]
5. State, explain and prove Reciprocity Theorem. [16]
6. A symmetrical 3 phase, 400 V system supplies a balanced mesh connected load. The current in each branch circuit is 20A and the phase angle is 40 deg lag. Find

(a) the line current

(b) the total power. [16]

7. Calculate the Y - parameters of the circuit as shown in fig. 3 and draw the corresponding equivalent circuit. [16]

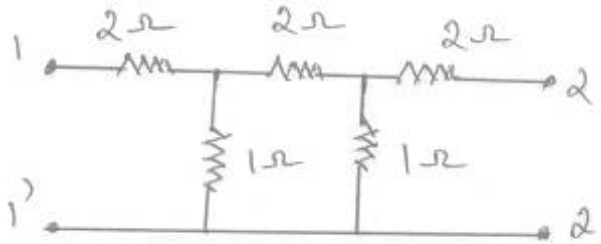

Figure 3

8. For the network shown in figure 2, draw the oriented graph, select a tree and obtain a tie-set matrix. Write down the KVL equations from the tie-set matrix. [16]

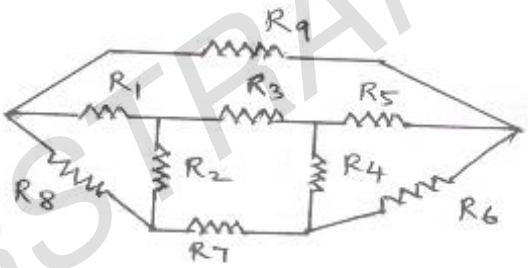

Figure 2

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Code No: R07A1EC05 **R07** **Set No. 4**

I B.Tech Examinations,June 2011
NETWORK ANALYSIS
Common to BME, E.COMP.E, ETM, E.CONT.E, EIE, ECE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. A network has two branches in parallel. The branch 'a' has a 5 Ω resistance and 15Ω capacitive reactance in series. The branch 'b' has 10 Ω resistance and 12 Ω inductive reactance in series. It is fed from 100V, 50 Hz supply. Find
   (a) Branch currents.
   (b) Circuit current
   (c) Power factor of the circuit
   (d) Total active power. [16]

2. For the figure 2 shown, calculate the equivalent resistance of the following combination of resistors and also calculate the source current, total power dissipated. [16]

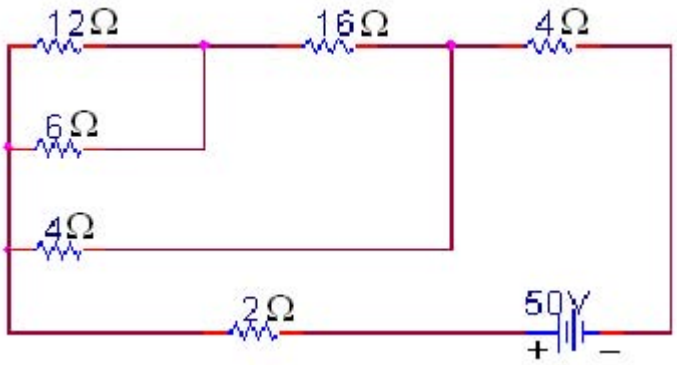

Figure 2:

3. For the network shown in figure 3, draw the oriented graph, select a tree and obtain a tie-set matrix. Write down the KVL equations from the tie-set matrix. [16]

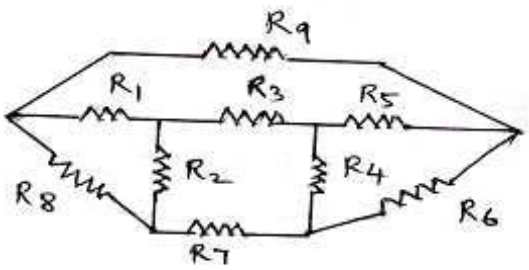

Figure 3

4. Calculate the Y - parameters of the circuit as shown in fig. 4 and draw the corresponding equivalent circuit. [16]

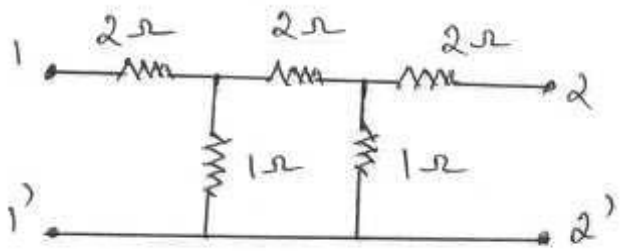

Figure 4

5. State, explain and prove Reciprocity Theorem. [16]

6. A symmetrical 3 phase, 400 V system supplies a balanced mesh connected load. The current in each branch circuit is 20A and the phase angle is 40 deg lag. Find
   (a) the line current
   (b) the total power. [16]

7. Design a T-type and π-type attenuator if the characteristic resistance is 200Ω and the attenuation is 200dB. [16]

8. A series RLC circuit with R = 50Ω, L = 0.1 H and C = 50μF has a constant voltage, V = 100 volts applied at t = 0. Find the current transient assuming zero initial charge on the capacitor. [16]

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Code No: R07A1EC05 **R07** **Set No. 1**

I B.Tech Examinations,June 2011
NETWORK ANALYSIS
Common to BME, E.COMP.E, ETM, E.CONT.E, EIE, ECE
Time: 3 hours **Max Marks: 80**
Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. Calculate the Y - parameters of the circuit as shown in fig. 1 and draw the corresponding equivalent circuit. [16]

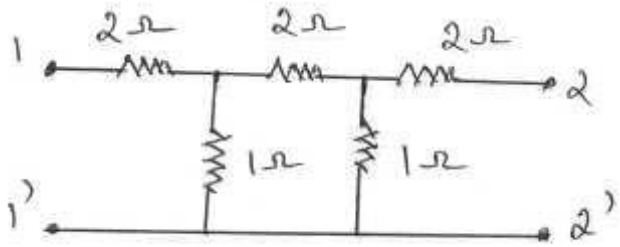

Figure 1

2. For the network shown in figure 2, draw the oriented graph, select a tree and obtain a tie-set matrix. Write down the KVL equations from the tie-set matrix. [16]

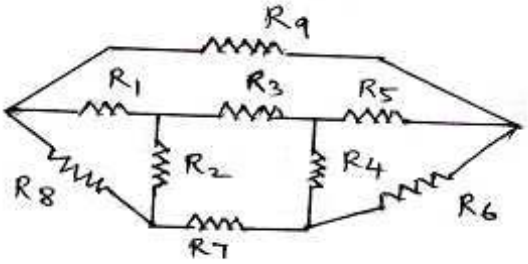

Figure 2

3. A series RLC circuit with R = 50Ω, L = 0.1 H and C = 50μF has a constant voltage, V = 100 volts applied at t = 0. Find the current transient assuming zero initial charge on the capacitor. [16]

4. A symmetrical 3 phase, 400 V system supplies a balanced mesh connected load. The current in each branch circuit is 20A and the phase angle is 40 deg lag. Find
   (a) the line current
   (b) the total power. [16]

5. State, explain and prove Reciprocity Theorem. [16]

6. For the figure 3 shown, calculate the equivalent resistance of the following combination of resistors and also calculate the source current, total power dissipated. [16]

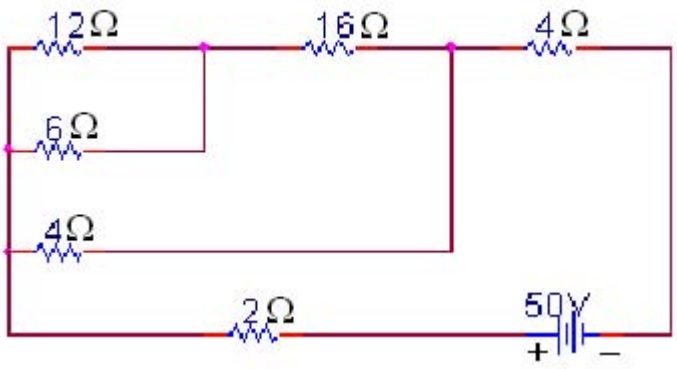

Figure 3:

7. Design a T-type and π-type attenuator if the characteristic resistance is 200Ω and the attenuation is 200dB. [16]

8. A network has two branches in parallel. The branch 'a' has a 5 Ω resistance and 15Ω capacitive reactance in series. The branch 'b' has 10 Ω resistance and 12 Ω inductive reactance in series. It is fed from 100V, 50 Hz supply. Find

   (a) Branch currents.

   (b) Circuit current

   (c) Power factor of the circuit

   (d) Total active power. [16]

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Code No: R07A1EC05 **R07** **Set No. 3**

I B.Tech Examinations,June 2011
NETWORK ANALYSIS
Common to BME, E.COMP.E, ETM, E.CONT.E, EIE, ECE
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Design a T-type and π-type attenuator if the characteristic resistance is 200Ω and the attenuation is 200dB. [16]

2. For the network shown in figure 2, draw the oriented graph, select a tree and obtain a tie-set matrix. Write down the KVL equations from the tie-set matrix. [16]

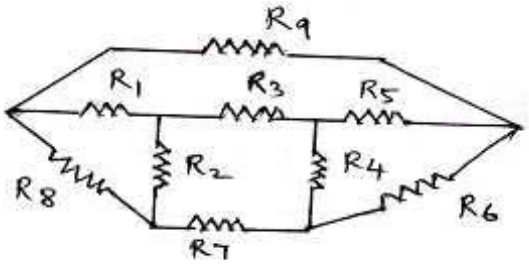

Figure 2

3. Calculate the Y - parameters of the circuit as shown in fig. 3 and draw the corresponding equivalent circuit. [16]

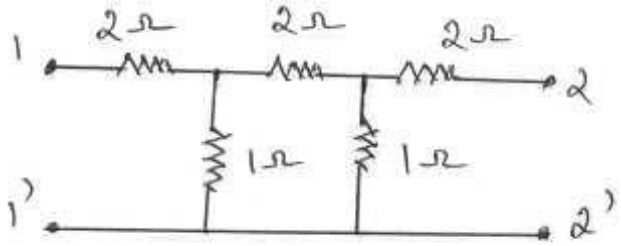

Figure 3

4. For the figure 4 shown, calculate the equivalent resistance of the following combination of resistors and also calculate the source current, total power dissipated. [16]

5. A series RLC circuit with R = 50Ω, L = 0.1 H and C = 50μF has a constant voltage, V = 100 volts applied at t = 0. Find the current transient assuming zero initial charge on the capacitor. [16]

6. A network has two branches in parallel. The branch 'a' has a 5 Ω resistance and 15Ω capacitive reactance in series. The branch 'b' has 10 Ω resistance and 12 Ω inductive reactance in series. It is fed from 100V, 50 Hz supply. Find

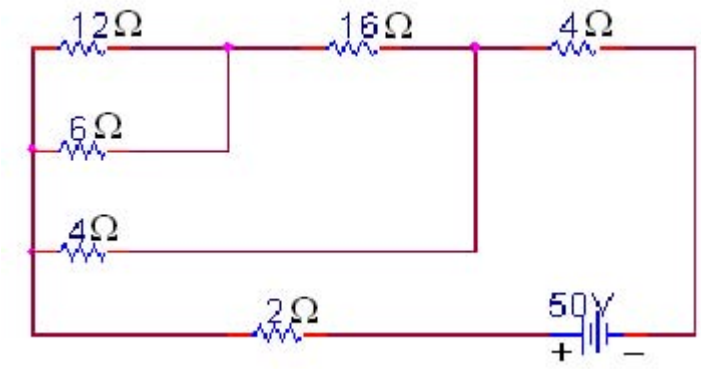

Figure 4:

(a) Branch currents.

(b) Circuit current

(c) Power factor of the circuit

(d) Total active power. [16]

7. State, explain and prove Reciprocity Theorem. [16]

8. A symmetrical 3 phase, 400 V system supplies a balanced mesh connected load. The current in each branch circuit is 20A and the phase angle is 40 deg lag. Find

(a) the line current

(b) the total power. [16]

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