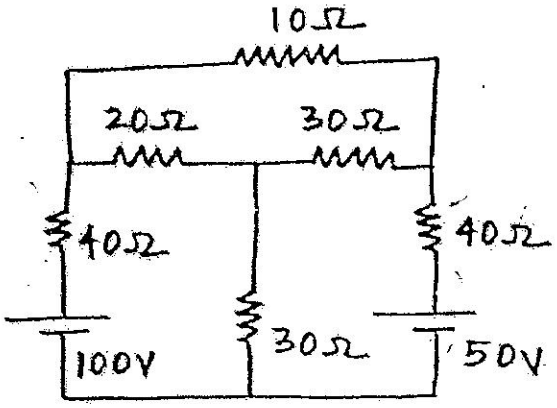
ST. FRANCIS INSTITUTE OF TECHNOLOGY
Mount Poinsur, SVP Road, Borivali (W), Mumbai – 400103

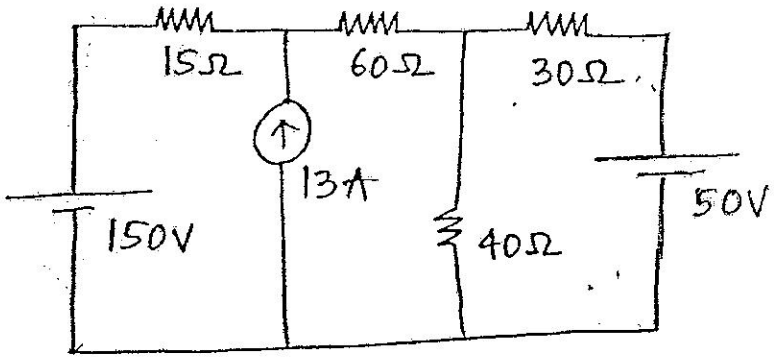
TUTORIAL NO. 4 SUBJECT: B.E.E TOPIC: THEVENIN'S, NORTON & MPT THEOREM

1. Find the current through 10Ω resistor by using Thevenin's Theorem.(May 18)(8 m).



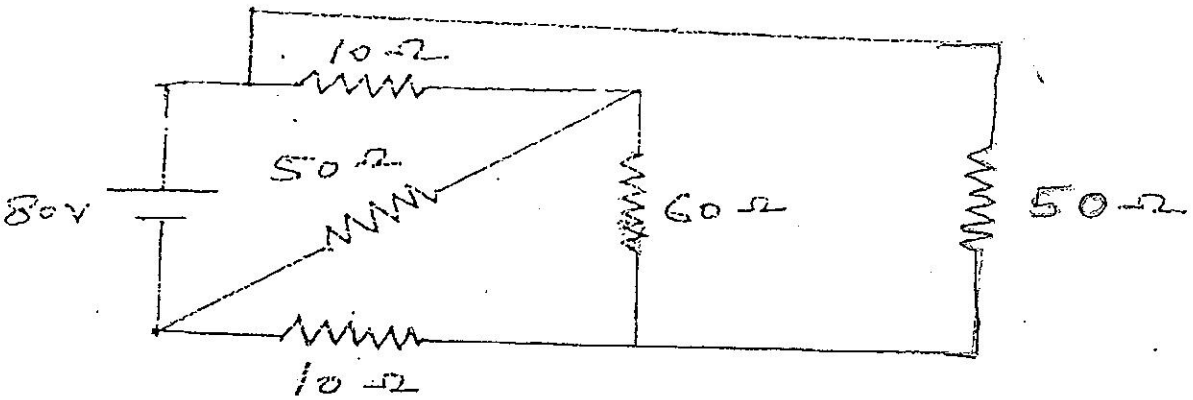
Ans. $I_{10\Omega} = 0.3798A(\rightarrow)$.

2. Find the current through 30Ω resistor by using Thevenin's Theorem.(May 16)(8 m)



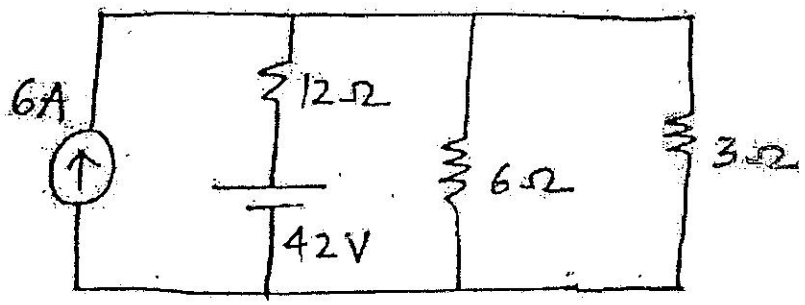
Ans. $I_{30\Omega} = 1.248A(\rightarrow)$.

3. Find the current through 60Ω resistor by using Thevenin's Theorem.(May 14)(8 m)



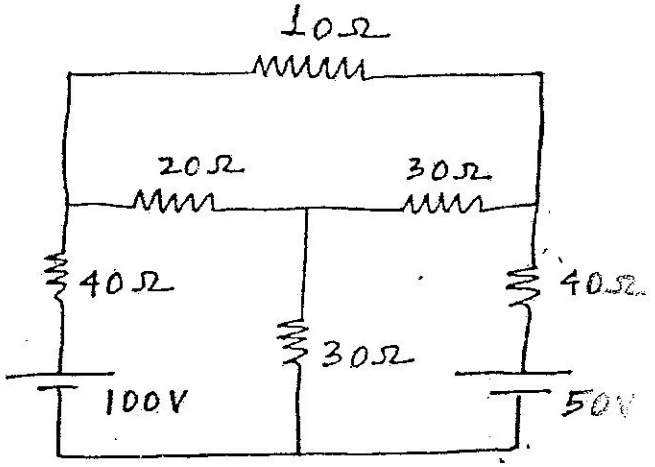
Ans. $I_{60\Omega} = 0.7A(\downarrow)$.

4. Find the current through 3Ω resistor by using Thevenin's Theorem.(May 19)(8 m).



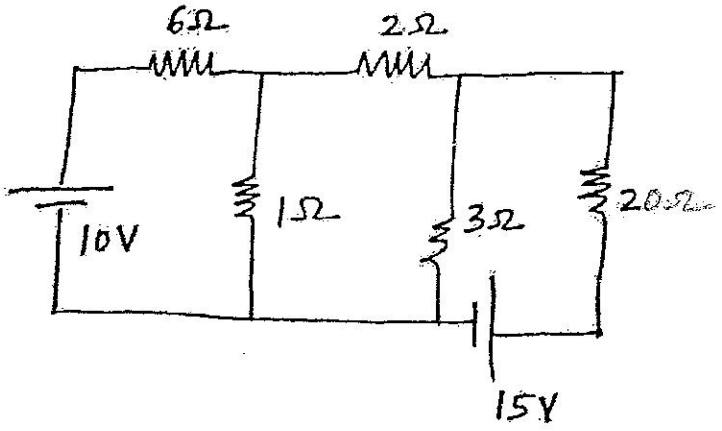
Ans. $I_{3\Omega} = 5.43A(\downarrow)$.

5. Find the current through 10Ω resistor by using Thevenin's Theorem.(May 18)(8 m).



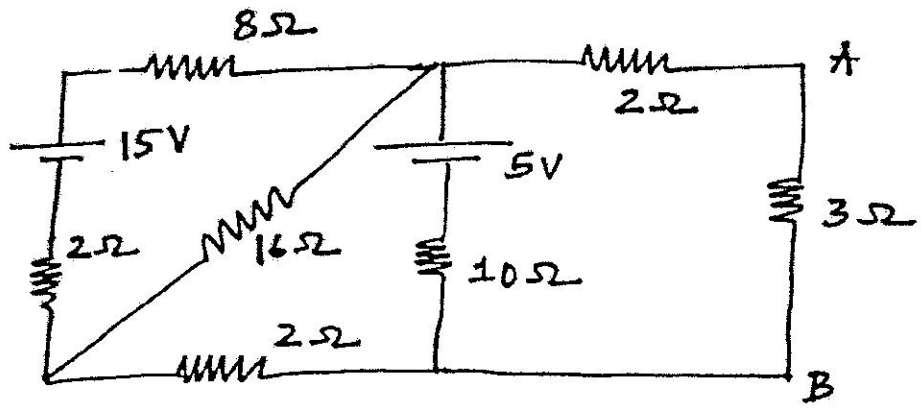
Ans. $I_{10\Omega} = 0.38A$.

6. Find the current through 20Ω resistor by using Thevenin's Theorem.(May [illegible])



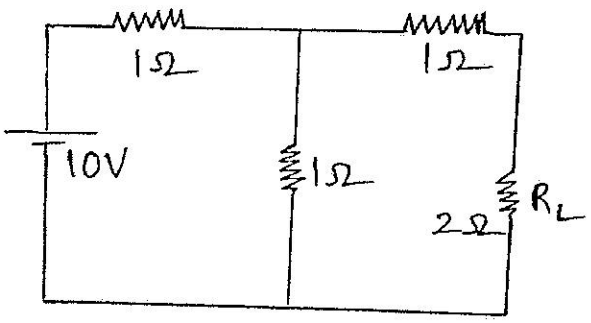
Ans. $I_{20\Omega} = 0.665A$.

7. Obtain Norton equivalent circuit of the network across A and B. **(Dec 16)(10 m)**.



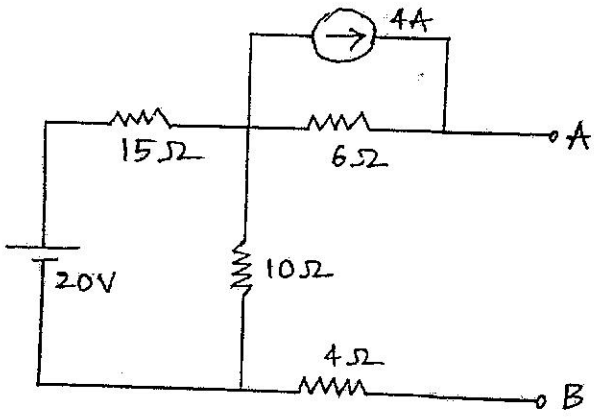
Ans. $I_N = 1.129A$, $R_N = 6.49\Omega$

8. For the given circuit, find the Norton equivalent between points A and B.**(May 15)(3 m)**.



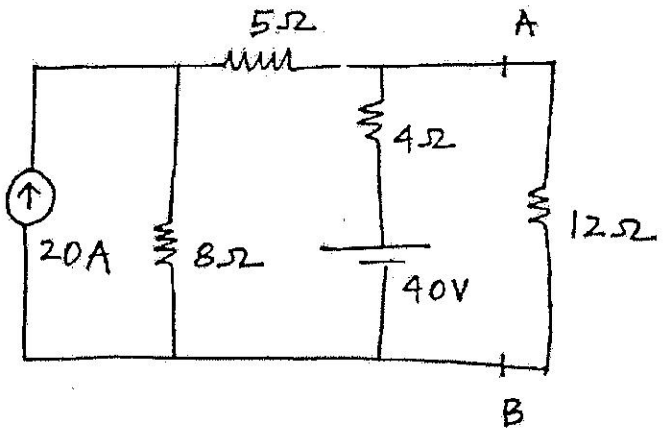
Ans. $R_N = 1.5\Omega, I_N = 3.333A$

9. Find the Norton's equivalent for the linear Network shown:



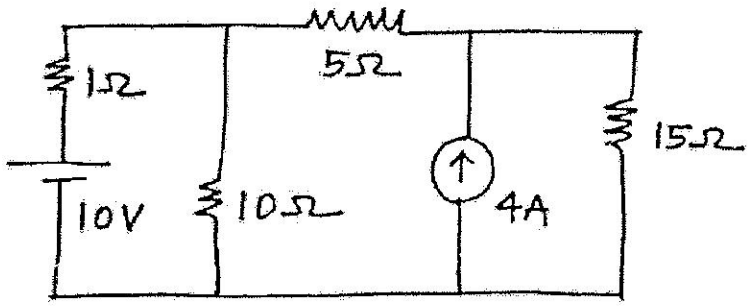
Ans. $I = 2A, R_N = 16\Omega$.

10. Find the current through 12Ω resistor by using Norton's Theorem.(May 17)(8 m).



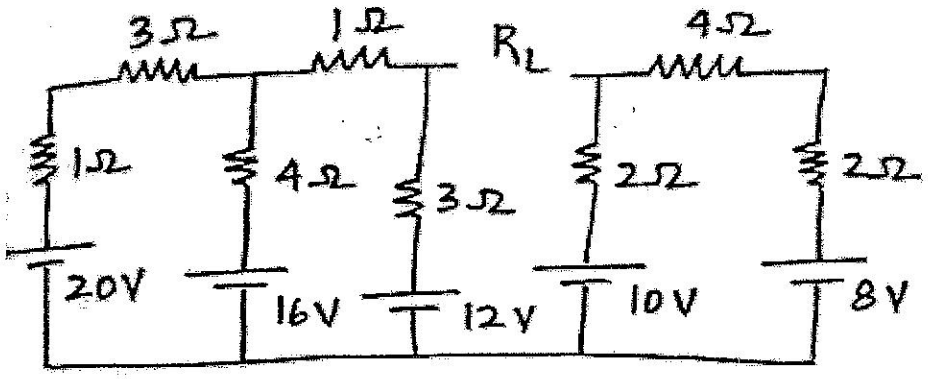
Ans. $I_{12\Omega} = 4.53A$.

11. Find the current through 10Ω resistor by using Norton's Theorem.(May 17)(8 m).



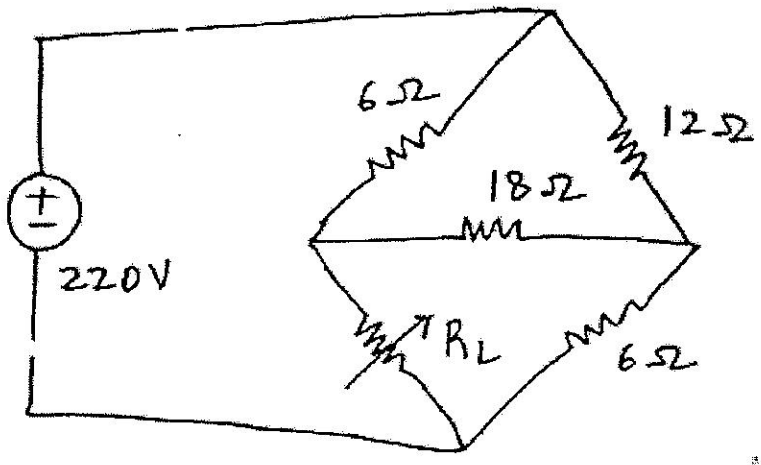
Ans. $I_{10\Omega} = 1.130A$.

12. Find the Magnitude of R_L which absorbs Maximum Power. Also find magnitude of Maximum Power.(May 18)(8 m).



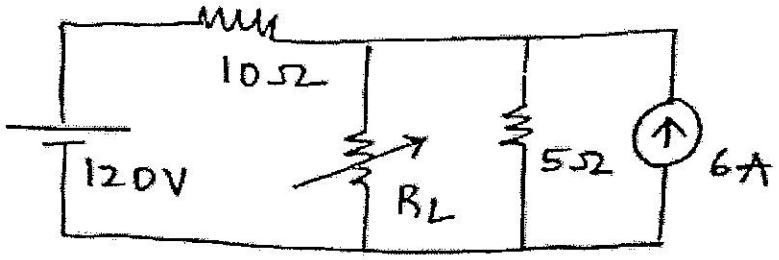
Ans. $R_L = 3\Omega, P_{L_{max}} = 5.042W$.

13. Find the Magnitude of R_L which absorbs Maximum Power. Also find magnitude of Maximum Power.(Dec 17)(10 m).



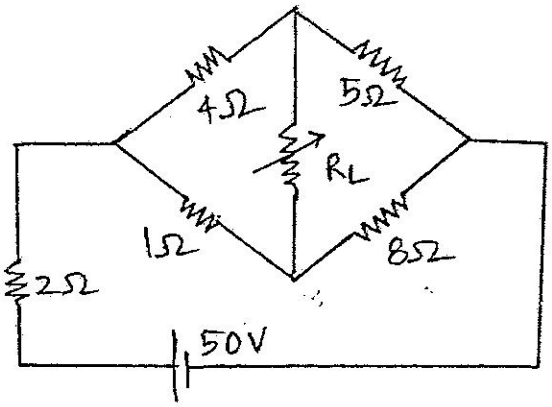
Ans. $R_L = 4.71\Omega, P_{L_{max}} = 1884W.$

14. Find the Magnitude of R_L which absorbs Maximum Power. Also find magnitude of Maximum Power.(Dec 17)(8 m).



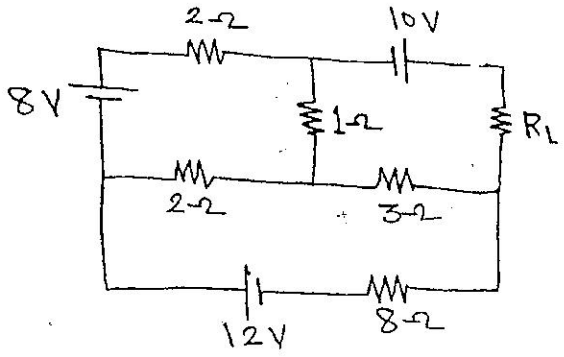
Ans. $R_L = 3.333\Omega, P_{L_{max}} = 270W.$

15. Find R_L and $P_{L_{max}}$.(Dec 14, May 17)(8 m).



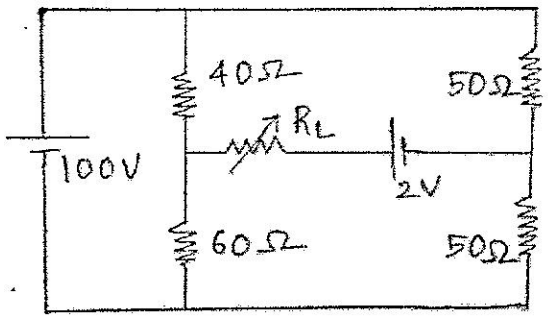
Ans. $R_L = 3.258\Omega, P_{L_{max}} = 10.18W.$

16. For the given circuit, find the value of R_L so the maximum power dissipates in it. Find $P_{L_{max}}$.(Dec 13)(8 m).



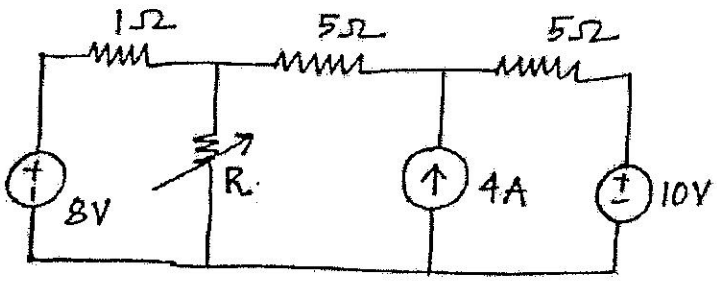
Ans. $R_L = 7.6\Omega, P_{L_{max}} = 21.974W$.

17. Find the Magnitude of R_L which absorbs Maximum Power. Also find magnitude of Maximum Power.(Dec 12)(8 m).



Ans. $R_L = 24\Omega, P_{L_{max}} = 0.326W$.

18. Find the Magnitude of R_L which absorbs Maximum Power. Also find magnitude of Maximum Power.(Dec 17)(10 m).



Ans. $R_L = 0.91\Omega, P_{L_{max}} = 27.47W$.