

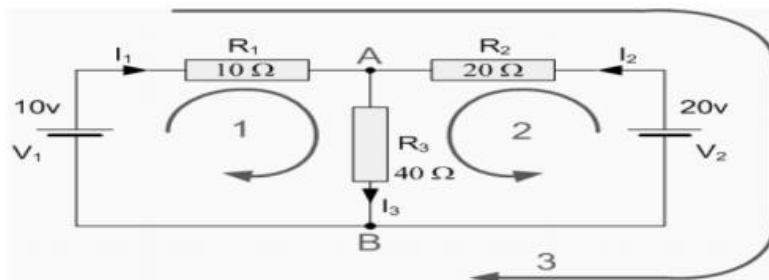
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Anna University Exams April / May 2019 – Regulation 2017
 Rejinpaul.com Unique Important Questions – 2nd Semester BE/BTECH
 BE8255 BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT
 ENGINEERING

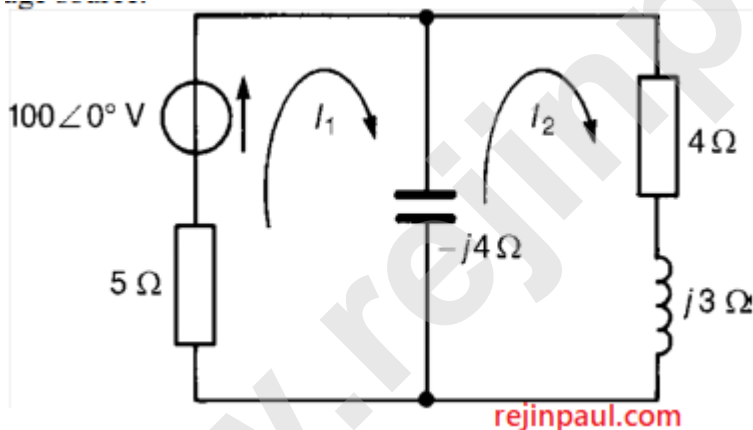
PART B & PART C QUESTIONS – UNIT WISE

Unit I

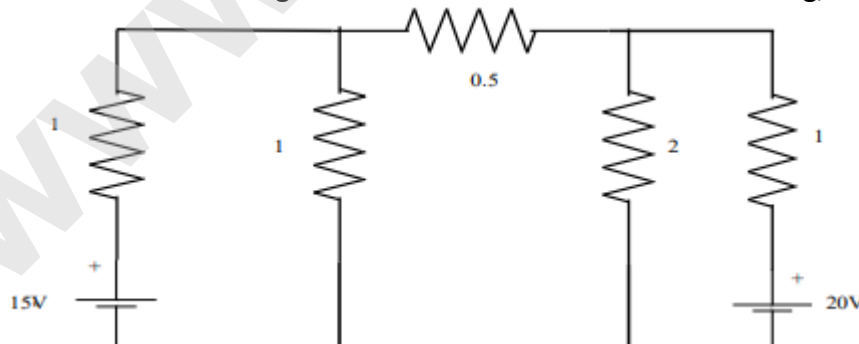
- Find the current flowing in the 40Ω Resistor, R_3



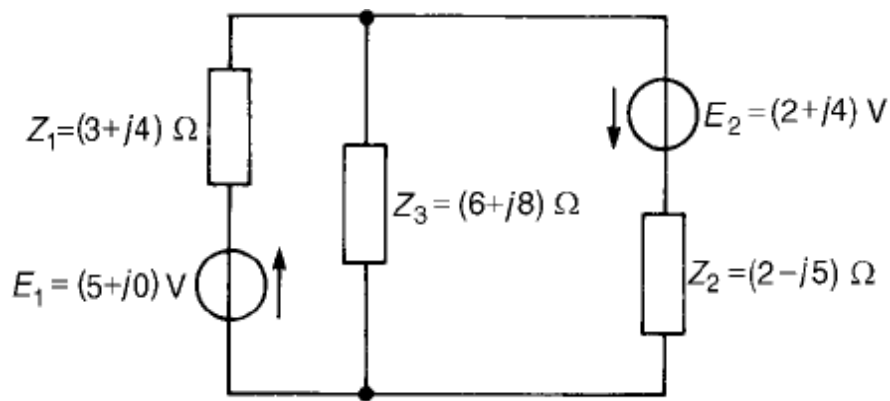
- For the a.c. network shown in Figure determine, using mesh-current analysis, (a) the mesh currents I_1 and I_2 (b) the current flowing in the capacitor, and (c) the active power delivered by the $100\angle 0^\circ\text{V}$ voltage source



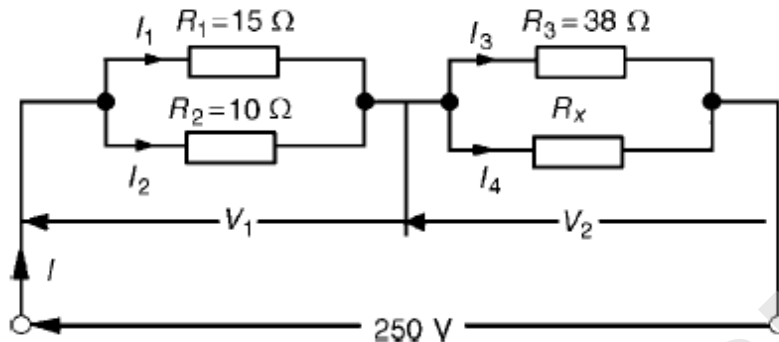
- Find the current through each resistor of the circuit shown in fig, using nodal analysis



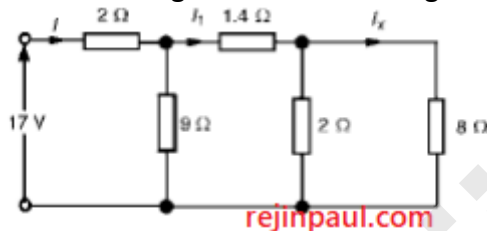
- For the a.c. network shown in Figure, determine the current flowing in each branch using Kirchhoff's laws.



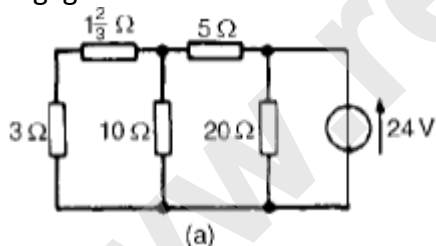
5. For the circuit shown in Figure 5.23 calculate (a) the value of resistor R_x such that the total power dissipated in the circuit is 2.5 kW , and (b) the current flowing in each of the four resistors.



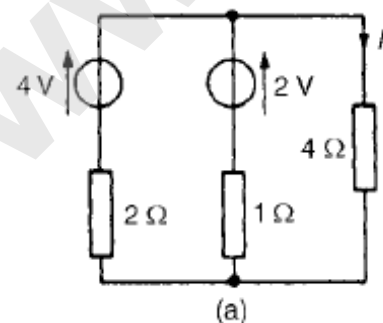
6. For the arrangement shown in Figure find the current I_x .



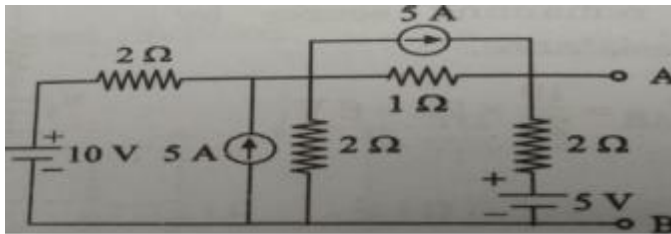
7. Power dissipated in 4Ω resistor, $P = I^2 R = (0.571)^2 (4) = 1.304 \text{ W}$ Use Thévenin's theorem to determine the current flowing in the 3Ω resistance of the network shown in Figure (a). The voltage source has negligible internal resistance.



8. Use Norton's theorem to determine the current I flowing in the 4Ω resistance shown in Figure (a).



9. Explain the thevenin's equivalent circuit for the network shown below



Unit II

1. Describe with a neat diagram the principle of operation and constructional features of DC machines.
2. Derive a) EMF equation of DC generator. b) Torque equation of a DC motor.
3. Discuss the various methods of speed control of DC motors (or) AC motors.
4. With neat diagram explain in detail. (i) Armature Reaction (ii) Commutation in DC machines.
5. Explain the principle of operation of stepper motors with their merits and demerits.
6. Calculate the EMF generated by a 6 pole DC generator having 480 conductor and driven at a speed of 1200rpm. The flux per pole is 0.012wb. Ans: E_g (lab wdg) = 115.2V, E_g (wave wdg) = 345.6V.
7. A 4 pole generator with wave wound armature has 51 slots each having 24 conductors. The flux/pole is 0.01weber. at what speed must the armature rotate to give an induced emf of 250V. What will be voltage developed if the winding is lap connected and the armature rotates at the same speed.

Unit III

1. Describe the working and operation of mercury vapour lamp with neat sketch. What is the role of capacitor?
2. Describe the construction and working of a) lead acid battery b) Li ion battery.
3. What is meant by protective devices? Explain any one of protective device in detail.
4. Describe the construction and working of a NiCd battery.
5. Describe the working and operation of sodium vapour lamp with relevant sketch.
6. Draw the electric circuit of a domestic refrigerator and explain the role of each components and its working.

Unit IV

1. Explain the operation of a Voltage regulator using LM 317 with neat sketches.
2. Illustrate in detail about different types of Multivibrator using 555 timers.
3. i) Why the Zener diode is called as regulator. ii) Explain V-I characteristics of Zener diode and Compare Zener Diode with ordinary diode.
4. With a neat diagram explain the working of a PN junction diode in forward bias and reverse bias and show the effect of temperature on its V-I characteristics.
5. Explain the operation of switching regulators. Give its advantages.
6. Explain the operation of a Voltage regulator using LM 723.

Unit V

1. Derive the torque equation for energy meter and explain the principle operation.
2. Describe briefly the working of moving iron instrument with a neat diagram
3. List and discuss the various types of error in measurement.
4. Explain with the neat diagram the working principle and operation of different types of strain gauge.
5. (i) With suitable circuit diagram, explain how the strain gauge is used to measure pressure? (ii) Explain the working of Linear Variable Differentiator Transformer (LVDT) with relevant circuit diagram.
6. With the neat block diagram explain the working and operation principle of CRO.

Questions Are Expected for University Exams This May or may Not Be Asked for Exams

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