

Department of Electrical Engineering

Assignment

Date: 13/04/2020

Course Details

Course Title: _____ Linear Circuit Analysis _____

Module: _____ 2 _____

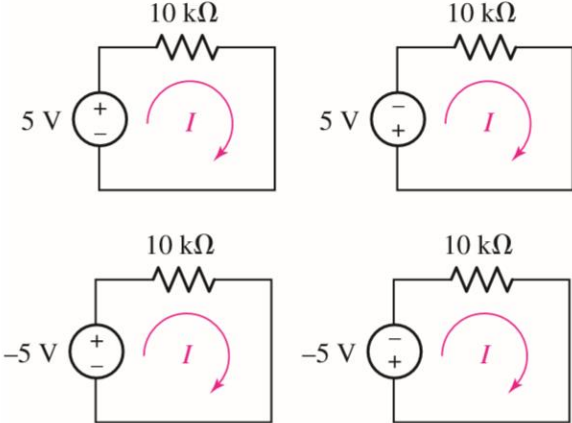
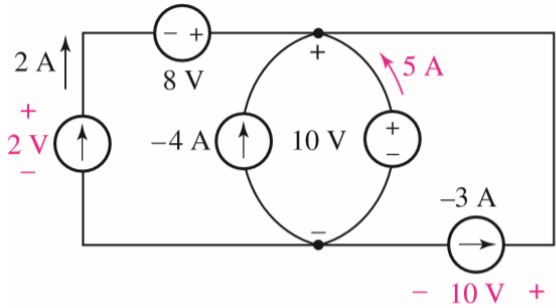
Instructor: _____

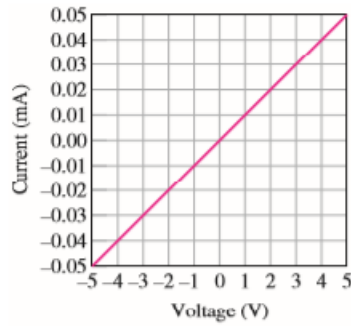
Total Marks: _____ 30 _____

Student Details

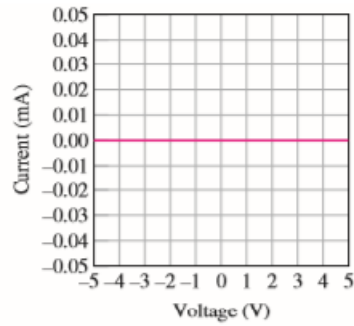
Name: _____

Student ID: _____

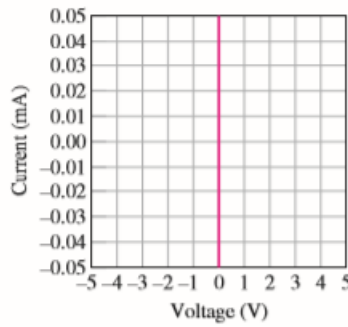
Q1	(a)	<p>For each of the circuits in figure, find the current I and compute the power absorbed by the resistor</p> <div style="display: flex; justify-content: space-around; align-items: center;">  </div>	<p>Marks 3</p>
			<p>PLO1</p>
	(b)	<p>Determine the power supplied by the leftmost element in the circuit of following figure</p> 	<p>Marks 4</p>
		<p>PLO1</p>	
(c)	<p>Following figure depicts the current-voltage characteristic of three different resistive elements. Determine the resistance of each, assuming the voltage and current are defined in accordance with the passive sign convention.</p>	<p>Marks 3</p>	
		<p>PLO1</p>	



(a)



(b)

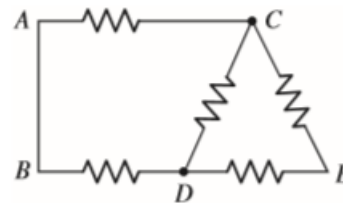
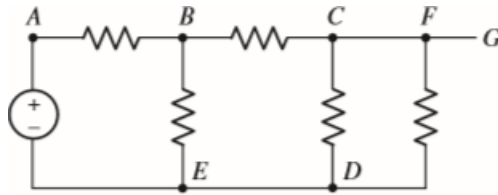


(c)

Q2 (a)

Refer to the circuits of following figures, and answer the following:

1. How many distinct nodes are contained in the circuit?
2. How many elements are contained in the circuit?
3. How many branches does the circuit have?
4. Determine if each of the following represents a path, a loop, both, or neither:
 - i. A to B
 - ii. B to D to C to E
 - iii. C to E to D to B to A to C
 - iv. C to D to B to A to C to E

Marks
4

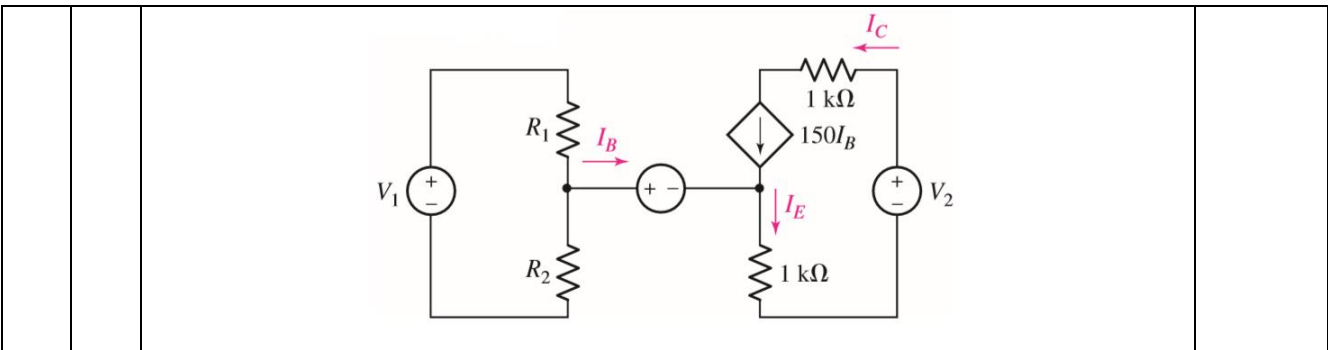
PLO2

(b)

For the circuit of following figure (which is a model for the dc operation of a bipolar junction transistor biased in forward active region), I_B is measured to be $100 \mu\text{A}$. Determine I_C and I_E

Marks
6

PLO2

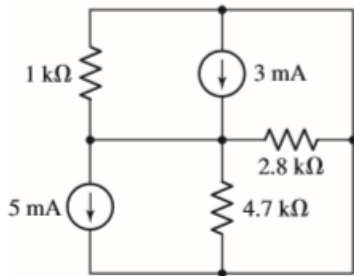


Q3

(a)

Although drawn so that it may not appear obvious at first glance, the circuit of following figure is in fact a single-node-pair circuit.

- a. Determine the power absorbed by each resistor.
- b. Determine the power supplied by each current source.
- c. Show that the sum of the absorbed power calculated in (a) is equal to the sum of the supplied power calculated in (b).

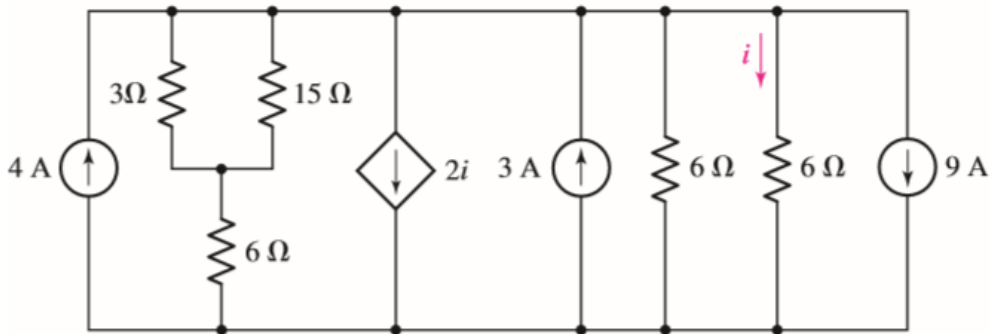


Marks
5

PLO1

(b)

Determine the power absorbed by the 15 Ω resistor in the circuit of following figure



Marks
5

PLO1