

PART A: MULTIPLE CHOICE (10 MARKS)

Choose the best response in each case and place your answer in the appropriate space on your answer sheet.

- An example of an electrical load is:
 - 25 V
 - 25 Ω
 - 25 A
 - 25 kg
- A circuit breaker or fuse is connected:
 - in series with the live wire
 - in parallel with the live wire
 - in series with the neutral wire
 - in parallel with the neutral wire
- The wall receptacle where you plug in an electric desk lamp has these properties:
 - 120 V, 60 Hz AC
 - 240 V, 120 Hz AC
 - 9.0 V DC
 - 120 V DC
- A 120 V, 8.0 A circuit has a resistance of:
 - 10 Ω
 - 12 Ω
 - 15 Ω
 - 18 Ω
- A circuit has a resistance of 12.0 Ω . The total current is 3.00 A. What is the potential drop in this circuit?
 - 36.0 V
 - 15.0 V
 - 9.00 V
 - 4.00 V
- In a series circuit, there are three resistors of values 3.0 Ω , 4.0 Ω , and 5.0 Ω . What is the total equivalent resistance of the circuit?
 - 0.78 Ω
 - 1.3 Ω
 - 12 Ω
 - 60 Ω
- The same resistors from question 6 are wired in parallel. What is the total equivalent resistance of the circuit?
 - 0.25 Ω
 - 1.3 Ω
 - 12 Ω
 - 60 Ω
- In a 3.00 A, 18.0 V series circuit that contains three identical resistors, what is the resistance of each resistor?
 - 15.0 Ω
 - 6.00 Ω
 - 3.00 Ω
 - 2.00 Ω
- Calculate the power rating of a device that, when connected to a 120 V circuit, draws 0.75 A of current.
 - 160 W
 - 90 W
 - 60 W
 - 30 W
- Energy costs \$0.053/kW·h. A toaster, rated at 1.0 kW·h, is used for a total of 30 minutes per week. How much does it cost to run the toaster, each week?
 - \$2.65
 - \$1.59
 - \$0.27
 - \$0.03

PART B: MATCH (5 MARKS)

Match the definition from the 1st column to the best term in the 2nd column and place the matching letter in the appropriate space on your answer sheet.

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|--|-----------------------------|
| 1. States that for many devices, the ratio of the electric potential difference across a resistor to the current through it is constant. | A) alternating current |
| 2. The instrument used to measure electric potential difference. | B) ammeter |
| 3. An electric current that reverses direction periodically. | C) direct current |
| 4. An electrical circuit in which the current exceeds the circuit's safe limit. | D) equivalent resistance |
| 5. States that in any complete path in an electrical circuit, the sum of the potential rises equals the sum of the potential drops. | E) Kirchhoff's Current rule |
| | F) Kirchhoff's Voltage rule |
| | G) Ohm's Law |
| | H) overloaded circuit |
| | I) resistor |
| | J) voltmeter |

PART A: MULTIPLE CHOICE (10 MARKS)

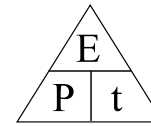
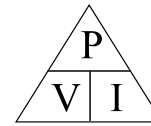
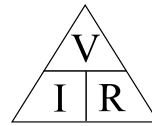
1	2	3	4	5	6	7	8	9	10
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PART B: MATCH (5 MARKS)

1	2	3	4	5
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PART C: SHORT ANSWER (30 MARKS)

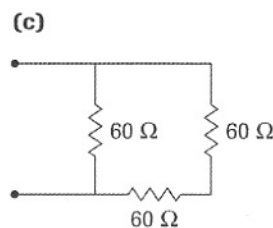
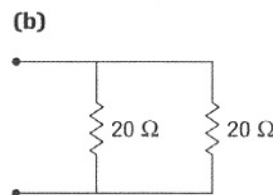
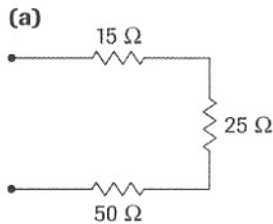
Answer the following questions in the space provided.
If more space is needed use the back of this sheet.



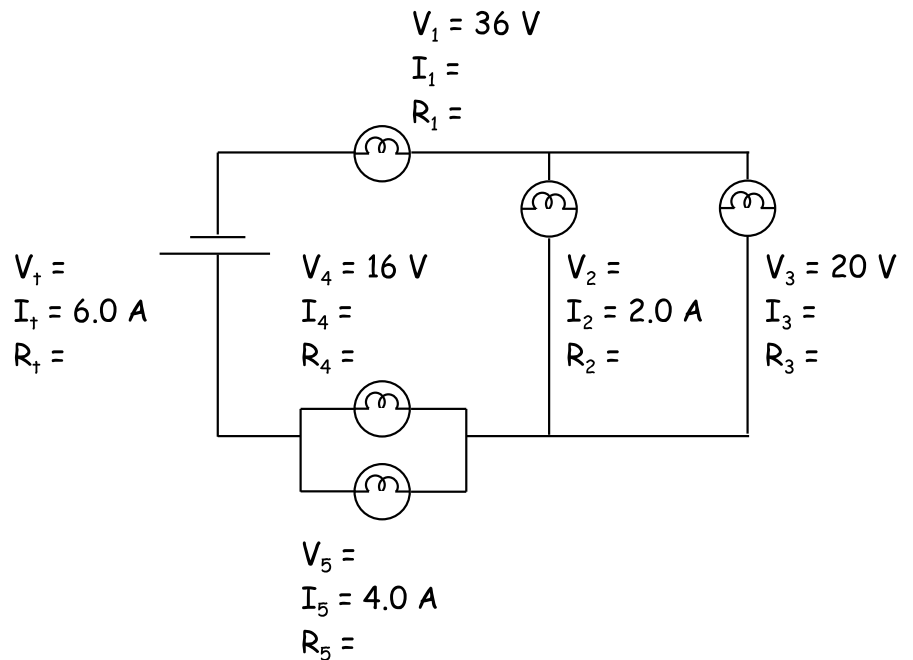
{9} 1. Complete the following chart. (You do NOT need to show your work for this question!)

	P (W)	ΔV (V)	I (A)	R (Ω)	ΔE (J)	Δt (s)
a		12	0.15			25
b	18	6.0				15
c	55		0.46		9.0×10^3	

{9} 2. For each of the following circuits, calculate the total equivalent resistance.



{12} 3. Determine the unknown values indicated in the diagram below. Don't forget their units!



PART D: PROBLEMS (10 MARKS)

Answer the following question on a separate sheet of paper. You may use the back of this sheet if you wish.

- A 2.2 kW stove burner operates on a 240 V household circuit.
 - Calculate the current total the burner uses.
 - Determine the energy consumed (in megajoules) by the burner in 75 min.
 - At a rate of 3.5 ¢/MJ, how much does this energy cost?