

**Started on** Wednesday, 28 September 2016, 11:55 AM

**State** Finished

**Completed on** Wednesday, 28 September 2016, 12:44 PM

**Time taken** 49 mins 39 secs

**Grade** 92.58 out of 100.00

**Question 1**

Correct

Mark 15.00 out of  
15.00

Q1d

A 12 V battery supplies 650 mA (milli A) to a portable music system.

a) Determine the power delivered/absorbed by the music system

$$P_{\text{music\_system}} = 7.8 \text{ W}$$

b) Determine how much energy the battery delivers/absorbs in 75 minutes?

$$\text{Energy } w = -35100 \text{ Joules}$$

“+” = absorbed      “-” = delivered

**Numeric Answer**

a)  $P_{\text{music\_system}} = 7.80 \text{ W}$

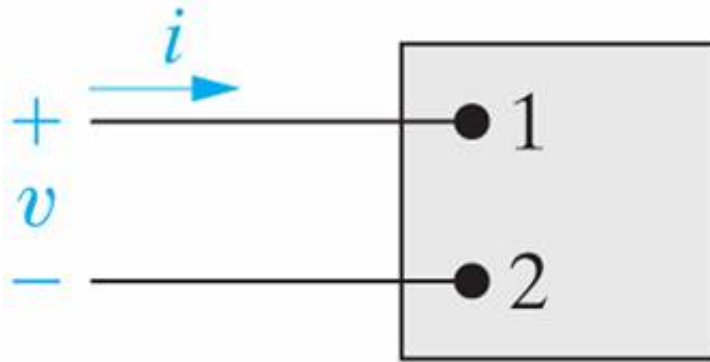
b)  $\text{Energy } w = -35,100 \text{ J}$

**Correct**

Marks for this submission: 15.00/15.00.

**Question 2**

Correct

Mark 20.00 out of  
20.00

Q2c

The voltage and current at the terminals of this circuit are zero for  $t < 0$ .

For  $t \geq 0$   $v = 40 e^{-1,700t}$  Volts  $i = 6 e^{-1,700t}$  Amps

a) Find the power absorbed/delivered by the circuit element at  $t = 500 \mu\text{s}$  (micro seconds).

$$P_{500\mu\text{s}} = 43.84 \text{ Watts}$$

b) How much energy is absorbed/delivered by the circuit element between zero and  $500 \mu\text{s}$  (micro seconds)?

$$w = 57.69 \text{ mJ (milli Joule)}$$

**Numeric Answer**

a)  $P_{500\mu\text{s}} = 43.8440 \text{ W.}$

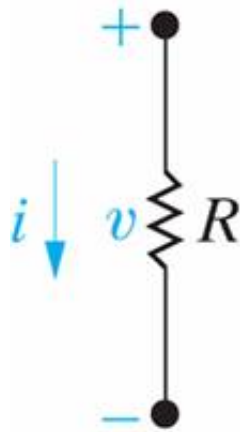
b)  $w = 57.6929 \text{ mJ}$

**Correct**

Marks for this submission: 20.00/20.00.

**Question 3**

Partially correct

Mark 14.25 out of  
15.00

Q3g

Given:

A student measured the voltage and current for the resistor as shown in the figure.

$$v = -9.37 \text{ Volts} \quad i = 0.56 \text{ Amps}$$

The instructor verified that the voltage was measured correctly.

a) Was the current measured correctly?

Correct? =  ✓

b) Find the power absorbed/delivered by the resistor. If needed, correct any measuring mistake (sign not magnitude). “+” = absorbed and “-” = delivered

$P_R =$   ✓ Watts

**Numeric Answer**

a) Correct? = No

b)  $P_R = 5.247$  Watts

**Partially correct**

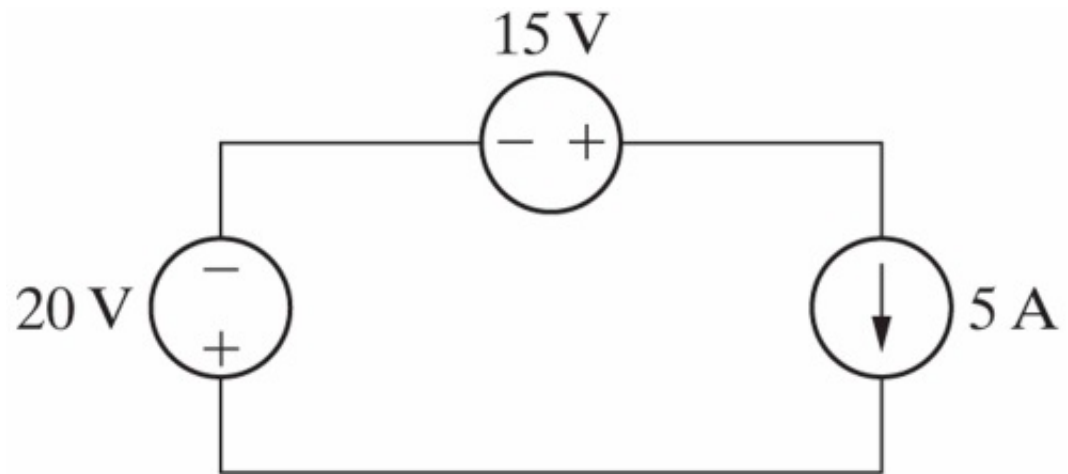
Marks for this submission: 14.25/15.00.

Comment:

You rounded too much.

**Question 4**

Correct

Mark 10.00 out of  
10.00

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Q4

Calculate the power in each circuit element.

“+” = absorbed and “-” = delivered

$$P_{20V} = \boxed{100} \checkmark \text{ Watts}$$

$$P_{15V} = \boxed{-75} \checkmark \text{ Watts}$$

$$P_{5A} = \boxed{-25} \checkmark \text{ Watts}$$

**Numeric Answer**

$$P_{20V} = +100W$$

$$P_{15V} = -75W$$

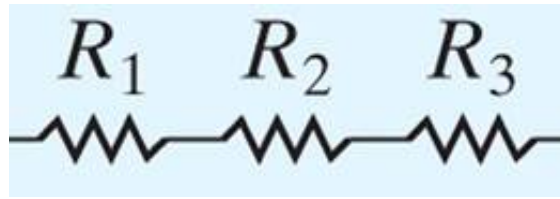
$$P_{5A} = -25W$$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 5**

Correct

Mark 10.00 out of  
10.00

Q5

Given:

$$R_1 = 134 \, \Omega \text{ (Ohm)} \quad R_2 = 371 \, \Omega \text{ (Ohm)} \quad R_3 = 4819 \, \Omega \text{ (Ohm)}$$

Find the equivalent resistance  $R_{\text{Eq}}$ .

$$R_{\text{Eq}} = ??? \, \Omega \text{ (Ohm)}$$

Answer: 5324



The equivalent resistance is the sum of the individual series resistances.

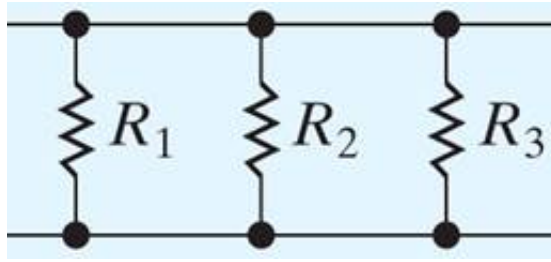
The correct answer is: 5324.00

**Correct**

Marks for this submission: 10.00/10.00.

**Question 6**

Correct

Mark 10.00 out of  
10.00

Q6

Given:

$$R_1 = 109 \, \Omega \text{ (Ohm)} \quad R_2 = 477 \, \Omega \text{ (Ohm)} \quad R_3 = 2797 \, \Omega \text{ (Ohm)}$$

Find the equivalent resistance  $R_{Eq}$ .

$$R_{Eq} = ?? \, \Omega \text{ (Ohm)}$$

Answer: 86



Calculated question.

Use the parallel resistor rules to find the equivalent resistance.

The correct answer is: 86.00

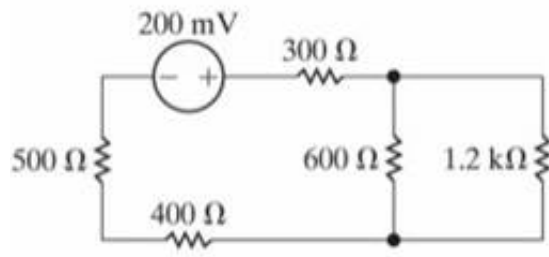
**Correct**

Marks for this submission: 10.00/10.00.

**Question 7**

Correct

Mark 13.33 out of 20.00



Q7a

Find the voltage across the 1.2 kΩ (kilo Ohm) resistor.

$$V_{1.2\text{k}\Omega} = 50 \text{ mV (milli Volts)}$$

**Numeric Answer**

$$V_{1.2\text{k}\Omega} = 50 \text{ mV}$$

**Correct**

Marks for this submission: 20.00/20.00. Accounting for previous tries, this gives **13.33/20.00**.