Started on	Tuesday, 6 September 2016, 2:06 PM
State	Finished
Completed on	Tuesday, 6 September 2016, 3:29 PM
Time taken	1 hour 23 mins
Grade	**100.00** out of 100.00

Question 1

Correct

Mark 10.00 out of 10.00

SI-05

In a science fiction show, an hour is 1/10 of a day and a minute is 1/100 of an hour (Centons). How many Centons are in two days of this science fiction show?

2000 ✓ Centons

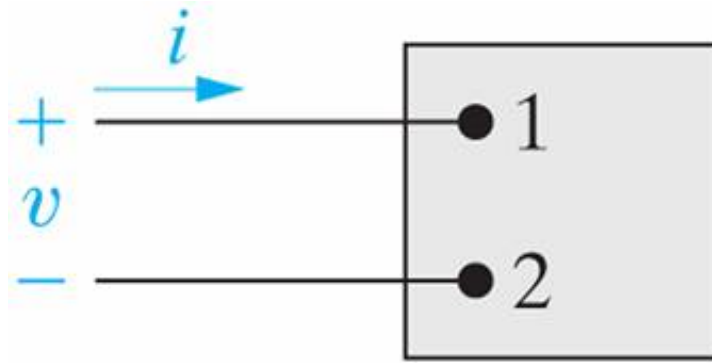**Question 2**

Correct

Mark 10.00 out of 10.00

SI-04

A political rally in 1995 known as the "Million Man March" occurred on the National Mall. Assume the Washington DC subway was the sole means of transport. A subway train arrives every 1 minute (not really - just for this problem) and delivered 1,000 men each time. How long in minutes did it take for all the million men to arrive?

Arrival time period: 1000 ✓ minutes.

P1.07_10ed

There is no charge at the upper terminal of the ideal element in the above figure for t < 0.

At t = 0 a current of 125 e$^{-2,500t}$ mA enters the upper terminal and will accumulate at the upper terminal.

a) Be able to derive the expression for the charge that accumulates at the upper terminal for t ≥ 0.

q(t) = 50 (1-e$^{-2,500t}$) µC (micro Coulomb)

b) Find the total charge that accumulates at the upper terminal, i.e. let t → ∞.

q(t → ∞) = | 50(1-e^(-2500t)) | ✓ µC (micro Coulomb)

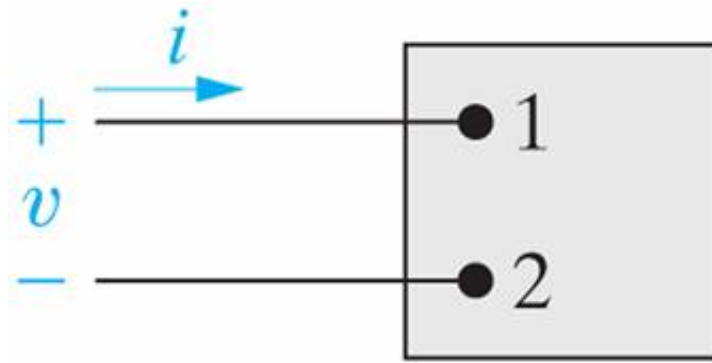c) If the current is abruptly stopped at t = 0.5 ms, how much charge has accumulated at the upper terminal?

q(t → 0.5ms) = | 35(1-e^-2500t) | ✓ µC (micro Coulomb)

Coulomb)

P1.07_10ed

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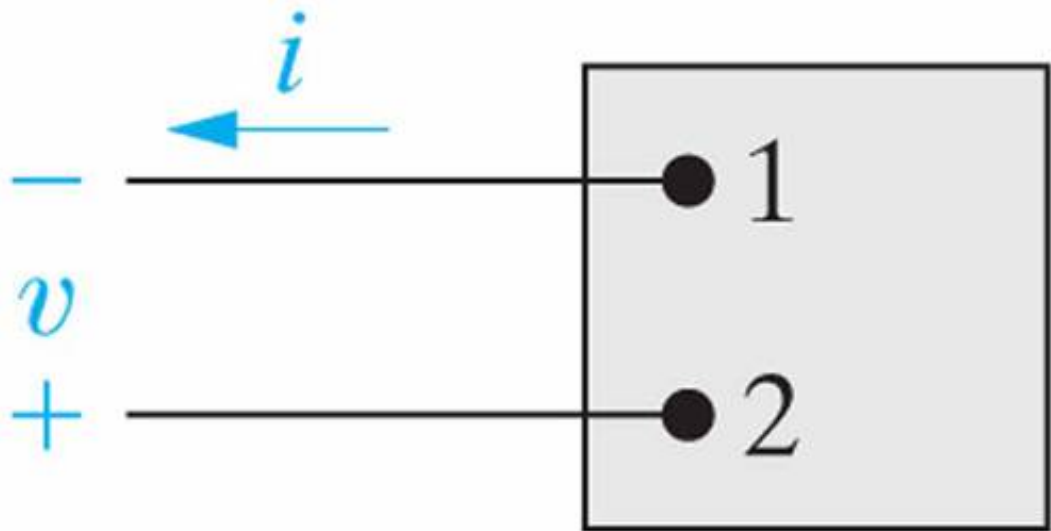c) If the current is abruptly stopped at t = 0.5 ms, how much charge has accumulated at the upper terminal?

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Coulomb)

PSS-1

Select the correct expression for power at the terminals 1,2 of the figure.

Select one:

- ◉ A. p = (+) vi ✓
- ○ B. p = (-) vi

PSS-1

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Select one:

- ○ A. p = (+) vi
- ◉ B. p = (-) vi ✓
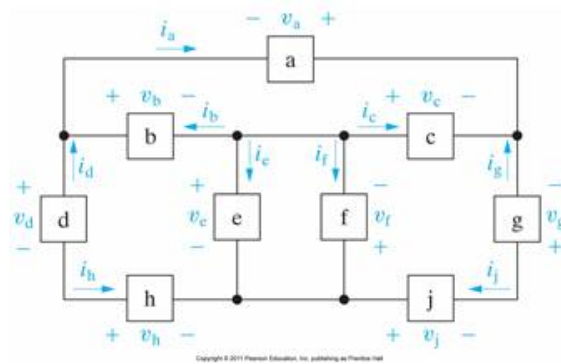
Question 7

Correct

Mark 10.00 out of 10.00

TABLE P1.30

Element	Voltage (V)	Current (mA)
a	1.6	80
b	2.6	60
c	−4.2	−50
d	1.2	20
e	1.8	30
f	−1.8	−40
g	−3.6	−30
h	3.2	−20
j	−2.4	30

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P1.30_9ed

To be valid, the total power delivered in a complete circuit MUST equal the power absorbed by the circuit.

Pabs + Pdel = zero   In other words, all energy is accounted for.

Use the circuit diagram and table to prove the circuit obeys this conservation-of-energy principle.

p_a = [-128] ✓ mW

p_b = [-156] ✓ mW

p_c = [210] ✓ mW

p_d = [-24] ✓ mW

p_e = [54] ✓ mW

p_f = [-72] ✓ mW

p_g = [108] ✓ mW

p_h = [-64] ✓ mW

p_j = [72] ✓ mW

Question 8

Correct

Mark 10.00 out of 10.00

P1.12_9ed

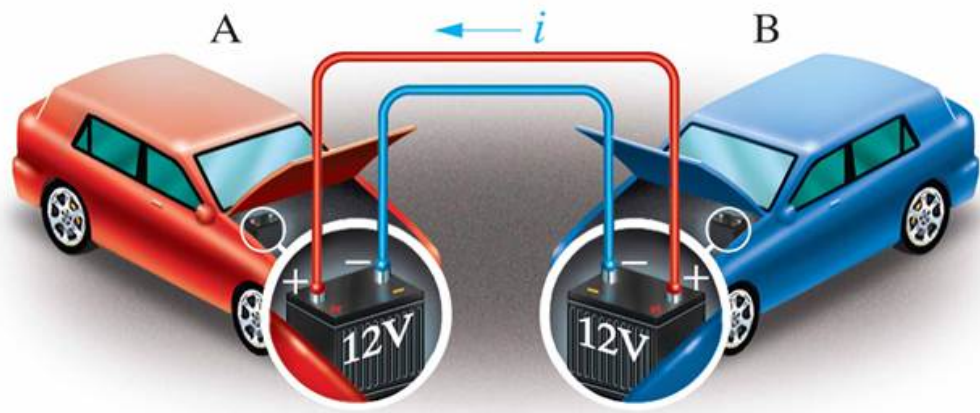One 12V battery supplies 100 mA to a music player.

How much energy does the battery supply in 4 hours?

w = [17280] ✓ J

Question 9

Correct

Mark 10.00 out of 10.00

A ← i   B

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P1.11a_9ed

You find out that your car's battery is dead. A friend "jumps" your battery as shown in the figure.

What is the color of your car? {Red} Red or Blue?

Select one:

⦿ A. Red - Car A ✔

◯ B. Blue - Car B

◯ C. Not enough information shown.

Question 10

Correct

Mark 10.00 out of 10.00

P1.12_9ed

One 12V battery supplies 100 mA to a music player.

How much energy does the battery supply in 4 hours?

w = [17280] ✔ J