Electricity and Electrical Energy - Set II

Phys Sci

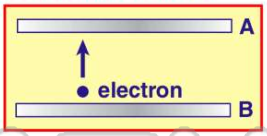
Name _____ Class _____ Date _____

1 In a **series circuit** containing two lamps, the battery supplies a potential difference of **1.5 volts**. If the **current** in the circuit is **0.10 ampere**, at what **rate** does the circuit use energy?

A 0.015 W
B 0.15 W
C 1.5 W
D 15 W

2 An **electron** placed between **oppositely charged** parallel plates *A* and *B* moves toward plate *A*, as represented in the diagram below.

What is the **direction** of the **electric field** between the plates?



A toward plate *A*
B toward plate *B*
C into the page
D out of the page

3 An **electrical generator** in a science classroom makes a lightbulb glow when a student turns a **hand crank** on the generator. During its operation, this generator **converts**

A chemical energy to electrical energy
B mechanical energy to electrical energy
C
D

4 Which changes would cause the **greatest increase** in the rate of flow of charge through a conducting wire?

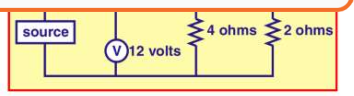
A increasing the applied potential difference and decreasing the length of wire
B increasing the applied potential difference and increasing the length of wire
C decreasing the applied potential difference

5

7

A *R*
B 2*R*
C ½*R*
D 4*R*

C 36 watts
D 48 watts



9 A **4.50-volt** personal stereo uses **1950 joules** of electrical energy in **one hour**. What is the **electrical resistance** of the personal stereo?

A 433 Ω
B 96.3 Ω
C 37.4 Ω
D 0.623 Ω

10 Which quantity of **excess** electric charge could be found on an object?

A 6.25×10^{-19} C
B 4.80×10^{-19} C
C 6.25 elementary charges
D 1.60 elementary charges

ANSWER KEY

In a **series circuit** containing two lamps, the battery supplies a potential difference of **1.5 volts**. If the **current** in the circuit is **0.10 ampere**, at what **rate** does the circuit use energy?

A 0.015 W
B 0.15 W
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b

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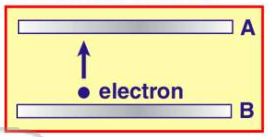

A toward plate *A*
B toward plate *B*
C into the page
D out of the page

b

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B mechanical energy to electrical energy
C electrical energy to mechanical energy
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Which changes would cause the **greatest increase** in the rate of flow of charge through a conducting wire?

A increasing the applied potential difference and decreasing the length of wire
B increasing the applied potential difference and increasing the length of wire
C decreasing the applied potential difference and decreasing the length of wire
D

a

A
a
w
2
is

A
B 2*R*
C ½*R*
D 4*R*

D 48 watts

A **4.50-volt** personal stereo uses **1950 joules** of electrical energy in **one hour**. What is the **electrical resistance** of the personal stereo?

A 433 Ω
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d

Which quantity of **excess** electric charge could be found on an object?

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c