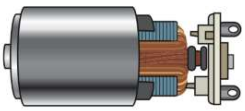
Electricity and Electrical Energy - Set I

Phys Sci

Name _____ Class _____ Date _____

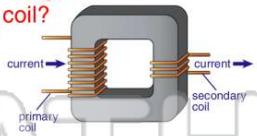
1 Which **device** converts **electrical** energy into **mechanical** energy?

A motor
B generator
C source of emf
D thermocouple



2 A **step-down transformer** used to run a toy train has an input of 120 volts to its primary coil. A potential difference of 12 volts is induced in the secondary coil, which carries a current of 12 amperes. If the transformer operates at **75% efficiency**, what is the current in the primary coil?

A 0.90 A **C** 90 A
B 1.6 A **D** 160 A



3 What is the **magnitude** of the electrostatic force acting on an electron located in an electric field having a strength of **5.0×10^3 newtons per coulomb**?

A 3.1×10^{22} N
B 5.0×10^{3} N

4 An operating electric iron draws a current of **5 amperes** and has a **resistance** of **20 ohms**. The amount of energy used by the iron in **40 seconds** is

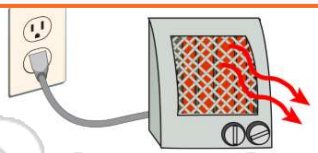
A 1×10^{2} J
B 5×10^{2} J

5

7

B 5.0 J
C 8.0×10^{-19} J
D 1.6×10^{-19} J

A 120 J
B 1200 J
C 7200 J
D 72,000 J



9 If the **charge** on each of two small charged metal spheres is **doubled** and the **distance** between the spheres remains **fixed**, the **magnitude** of the electric force between the spheres will be

A the same
B two times as great
C one-half as great
D four times as great

10 What is the **smallest** electric charge that can be put on an object?

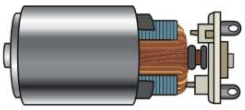
A 9.11×10^{-31} C
B 1.60×10^{-19} C
C 9.00×10^{9} C
D 6.25×10^{18} C

Phys Sci

ANSWER KEY

Which **device** converts **electrical** energy into **mechanical** energy?

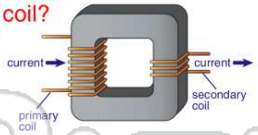
A motor
B generator
C source of emf
D thermocouple



a

A **step-down transformer** used to run a toy train has an input of 120 volts to its primary coil. A potential difference of 12 volts is induced in the secondary coil, which carries a current of 12 amperes. If the transformer operates at **75% efficiency**, what is the current in the primary coil?

A 0.90 A **C** 90 A
B 1.6 A **D** 160 A



b

What is the **magnitude** of the electrostatic force acting on an electron located in an electric field having a strength of **5.0 × 10³ newtons per coulomb**?

A 3.1×10^{22} N
B 5.0×10^{3} N
C 8.0×10^{-16} N

c

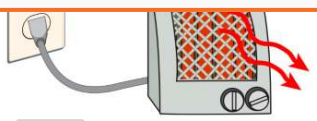
An operating electric iron draws a current of **5 amperes** and has a **resistance** of **20 ohms**. The amount of energy used by the iron in **40 seconds** is

A 1×10^{2} J
B 5×10^{2} J
C 4×10^{3} J

d

C 8.0×10^{-19} J
D 1.6×10^{-19} J

B 1200 J
C 7200 J
D 72,000 J



If the **charge** on each of two small charged metal spheres is **doubled** and the **distance** between the spheres remains **fixed**, the **magnitude** of the electric force between the spheres will be

A the same
B two times as great
C one-half as great
D four times as great

d

What is the **smallest** electric charge that can be put on an object?

A 9.11×10^{-31} C
B 1.60×10^{-19} C
C 9.00×10^{9} C
D 6.25×10^{18} C

b