



Name _____ Class _____ Date _____

1 An **electron** moving in a uniform magnetic field experiences the **maximum magnetic force** when the angle between the direction of the electron's motion and the direction of the magnetic field is

- A 0°
- B 45°
- C 90°
- D 180°

3 A beam of particles is produced in a **cathode-ray tube**. The beam may be **deflected by a magnetic field** because each **particle** in the beam

- A possesses a charge
- B is at rest
- C has a rest mass greater than 9.1×10^{-31}

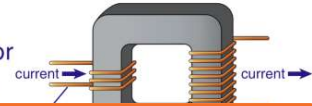
2 An **accelerating particle** that does **not generate electromagnetic waves** could be

- A a neutron
- B a proton
- C an electron
- D an alpha particle



4 Which **device** does **not** operate by means of **torque** exerted on a **current-carrying loop of wire** in a magnetic field?

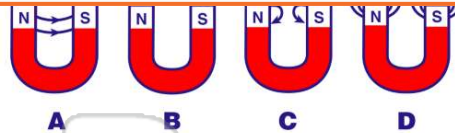
- A ammeter
- B electric motor
- C transformer



PREVIEW

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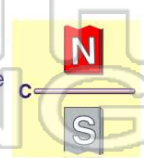
7
A green light
C yellow light
D red light



9 If the **speed** of the electrons traveling through the magnetic field **increases**, the **magnetic force** on the electrons will

- A decrease
- B increase
- C remain the same

10 This diagram shows **conductor C** between two opposite magnetic poles. Which procedure will produce the **greatest induced potential difference** in the conductor?



- A holding the conductor stationary between the poles
- B moving the conductor out of the page
- C moving the conductor toward the right side of the page
- D moving the conductor toward the N-pole



ANSWER KEY

An **electron** moving in a uniform magnetic field experiences the **maximum magnetic force** when the angle between the direction of the electron's motion and the direction of the magnetic field is

- A 0°
- B 45°
- C 90°
- D 180°

(C)

An **accelerating particle** that **does not generate electromagnetic waves** could be

- A a neutron
- B a proton
- C an electron
- D an alpha particle



(a)

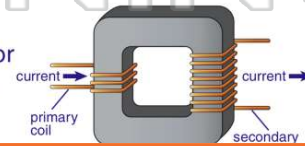
A beam of particles is produced in a **cathode-ray tube**. The beam may be **deflected by a magnetic field** because each **particle** in the beam

- A possesses a charge
- B is at rest
- C has a rest mass greater than 9.1×10^{-31} kilogram
- D has a speed of 2.0×10^8 meters per second

(a)

Which **device** does **not** operate by means of **torque** exerted on a **current-carrying loop of wire** in a magnetic field?

- A ammeter
- B electric motor
- C transformer
- D voltmeter



(C)



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D red light



A B C D

If the **speed** of the electrons traveling through the magnetic field **increases**, the **magnetic force** on the electrons will

- A decrease
- B increase
- C remain the same

(b)

This diagram shows **conductor C** between two opposite magnetic poles. Which procedure will produce the **greatest induced potential difference** in the conductor?

- A holding the conductor stationary between the poles
- B moving the conductor out of the page
- C moving the conductor toward the right side of the page
- D moving the conductor toward the N-pole

(b)