

Magnetism: Electromagnetic Induction

⚠ This is a preview of the draft version of the quiz

Started: Nov 20 at 2:04pm

Quiz Instructions

Question 1

1 pts

Which of the following has the most magnetic flux in magnetic field with a strength of 0.5 T?

- A 0.5 m² loop with its face at a 45 degree angle to the magnetic field
- A 0.5 m² loop with its face parallel to the magnetic field
- A 0.5 m² loop with its face parallel to the magnetic field
- A 0.5 m² loop with its face perpendicular to the magnetic field

Question 2

1 pts

Which of the following must change if there is to be an induced emf?

- the resistance in the loop
- the position of the loop in the magnetic field
- the induced current
- the magnetic flux

Question 3

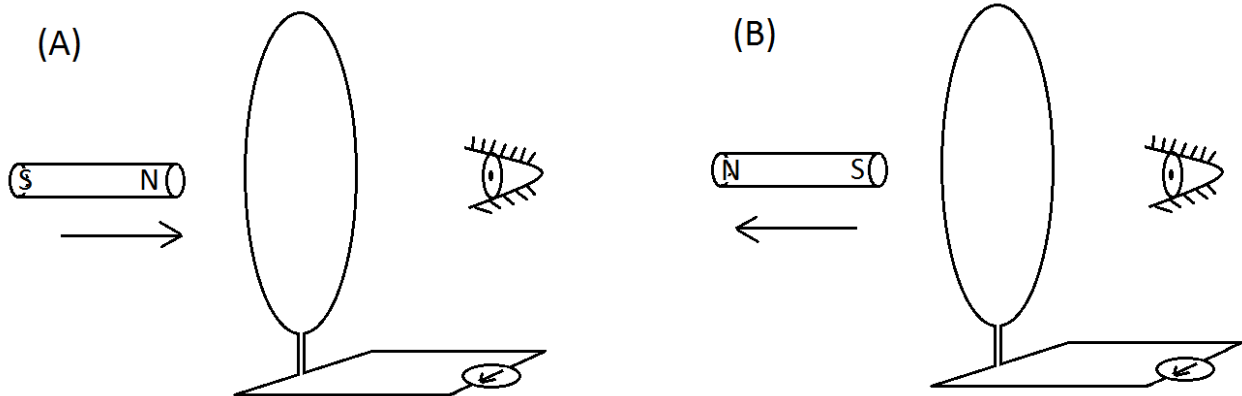
1 pts

All of the following will have an induced emf EXCEPT

- a loop of wire moves into a magnetic field.
- a loop of wire moves out of a magnetic field.
- a loop of wire moves from one end of a magnetic field to the other.
- a loop of wire rotates about its diameter in a magnetic field.

Question 4

1 pts

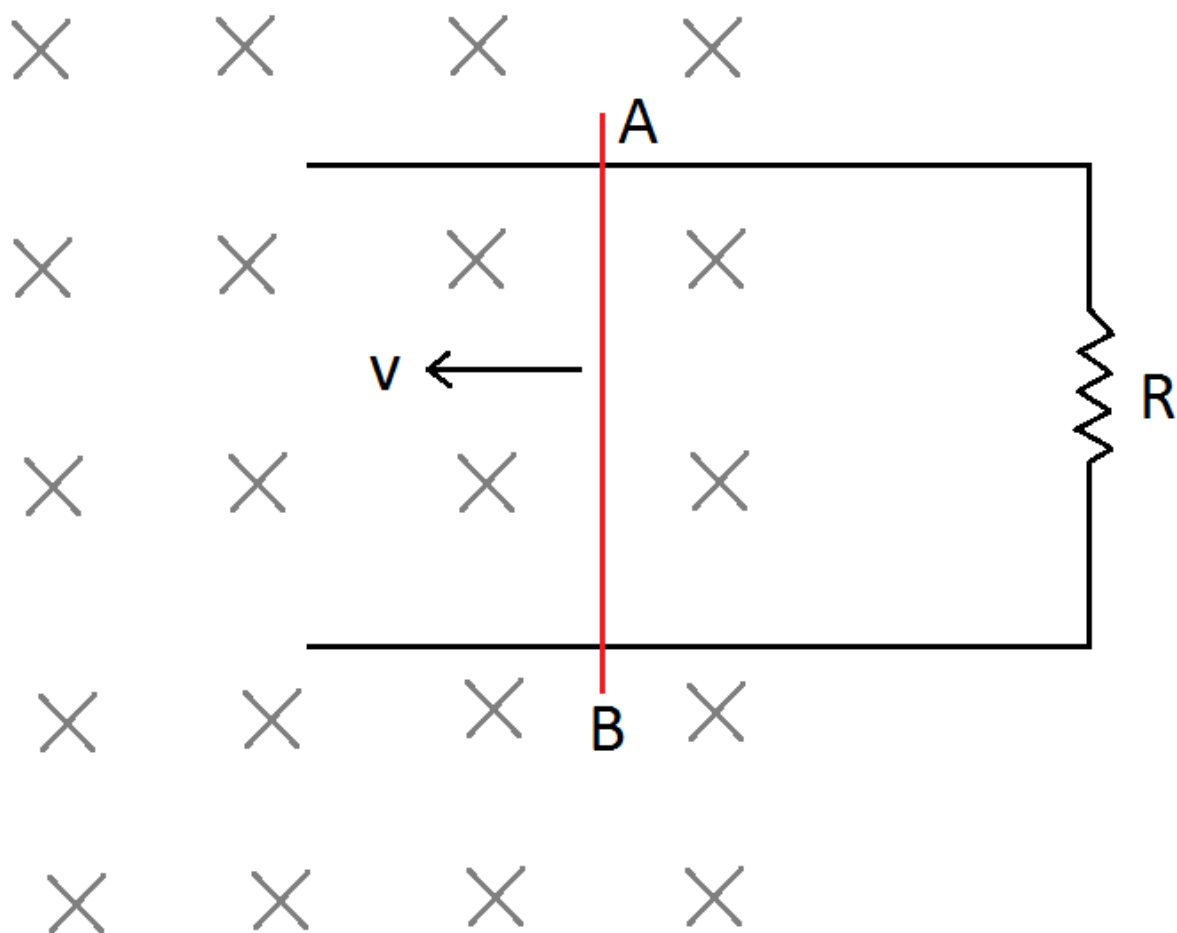


The two loops of conducting wires shown in (A) and (B) are connected to ammeters as shown above. A magnet is moved with constant speed towards the loop in (A) and away from the loop in (B). The observer is observing the process from the other side of the loop. Which of the following statement(s) is/are true? (Choose all that apply)

- In both the loops current is induced in clockwise direction as seen by the observer.
- The deflection of the ammeter in circuit (A) increases while the deflection in (B) reduces as the magnets keep moving.
- The deflection of the ammeter keeps increasing in both the circuits as the magnets keep moving.
- In both the loops current is induced in counter-clockwise direction as seen by the observer.

Question 5

1 pts



The wire AB of length ' l ' slides on the fixed rails with constant velocity ' v '. The magnetic field ' B ' is shown in the figure. The current induced in the loop is-

- $(B \cdot l \cdot v) / R$ anti-clockwise
- $2(B \cdot l \cdot v) / R$ clockwise
- zero
- $(B \cdot l \cdot v) / R$ clockwise

Question 6

1 pts

If the straight wire AB is replaced by a semicircular wire, the magnitude of the induced current will-

- increase
- remain the same
- increase or decrease depending on whether the semicircle bulges towards the resistance or away from it
- decrease

Question 7

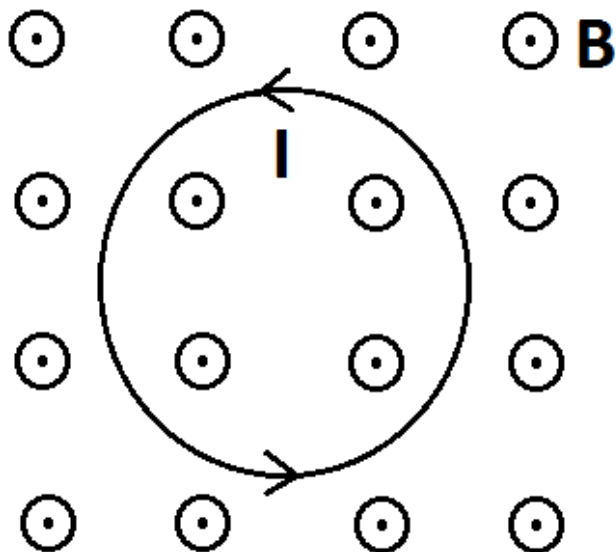
1 pts

A bar magnet is released from rest along the axis of a very long vertical copper tube, after some time the magnet -

- will stop in the tube
- will oscillate
- will move with acceleration 'g'
- will move with almost constant speed

Question 8

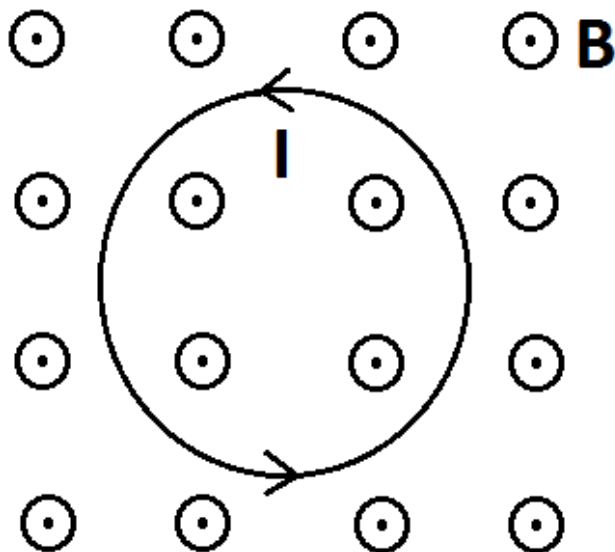
1 pts



There is a counterclockwise current ' I ' in a circular loop of wire situated in an external magnetic field ' B ' directed out of the page as shown. The effect of the forces that act on this current is to make the loop-

- expand in size
- accelerate into the page
- contract in size
- rotate about an axis perpendicular to the page
- rotate about an axis in the plane of the page

Question 9**1 pts**



A uniform magnetic field 'B' is directed out of the page, as shown above. A loop of wire of area 0.60 m^2 is in the plane of the page. At a certain instant the field has a magnitude of 4.0 T and is decreasing at the rate of 0.20 T/s . The magnitude of the induced emf in the wire loop at this instant is most nearly-

- 0.48 V
- 0.20 V
- 0.12 V
- 0.60 V
- 1.12 V

Question 10

1 pts

A conducting loop is placed in a uniform magnetic field with its plane perpendicular to the field. An emf is induced in the loop if (choose all that apply)-

- it is translated
- it is rotated about its axis
- it is deformed

it is rotated about a diameter

Not saved

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