

1. What is the formula for calculating induced emf according to Faraday's Law?

A) $\text{emf} = -N \Delta \Phi / \Delta t$

B) $\text{emf} = B l v$

C) $\text{emf} = I R$

D) $\text{emf} = E / l$

2. What is the induced emf when a metal rod of length 0.5 m moves at 2 m/s in a magnetic field of 5 Tesla?

A) 2.5 V

B) 5 V

C) 10 V

D) 0 V

3. Using Ohm's Law, what is the current in the circuit if the induced emf is 5 V and the resistance is 10 ohms?

A) 0.25 A

B) 0.5 A

C) 1 A

D) 2 A

4. What is the electric field in the rod if the induced emf is 5 V and the length of the rod is 0.5 m?

A) 5 V/m

B) 10 V/m

C) 15 V/m

D) 20 V/m

5. What is the force required to pull the rod if the work done is 12.5 J and the displacement is 10 m?

A) 0.5 N

B) 1 N

C) 1.25 N

D) 1.5 N