

UNIT 5 REVIEW

Understanding Concepts

- What current will pass through a $100\text{-m}\Omega$ resistor if the potential difference across it is 2.00 V ?
 - 0.200 A
 - 20.0 A
 - 5.00 A
 - 100 A
 - 2.00 kA
- Three resistors with values of $2.0\ \Omega$, $3.0\ \Omega$, and $4.0\ \Omega$ are connected in parallel. What is the effective resistance of the combination?
 - $0.80\ \Omega$
 - $0.92\ \Omega$
 - $1.1\ \Omega$
 - $9.0\ \Omega$
 - $24\ \Omega$
- What is the power loss across a $50.0\text{-}\Omega$ resistor if a potential difference of 20.0 V exists across it?
 - 2.50 W
 - 8.0 W
 - 20.0 W
 - 312 W
 - 1.00 kW
- For which of the coils in Figure 1 are the poles indicated correctly?
 - I and II
 - III and IV
 - I and III
 - II and IV
 - II and III

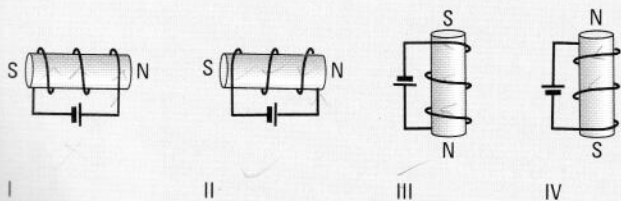


FIGURE 1

- Two coils are arranged as shown in Figure 2. Current flows into the page through a conductor indicated by the circle. In which direction will the electromagnetic force act on the conductor?
 - toward helix X
 - toward helix Y
 - to the right
 - to the left
 - up, out of the page

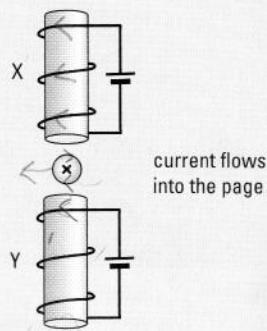


FIGURE 2

- In Figure 3, a south pole is being withdrawn from a helix. Which pole will be created at the left side of the helix and which way will the induced current flow between X and Y?
 - south, X to Y
 - south, Y to X
 - north, X to Y
 - north, Y to X
 - There is no induced current.

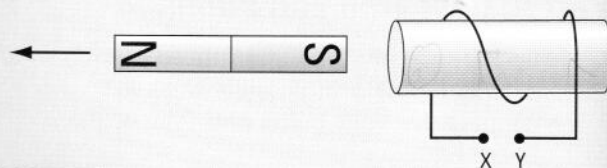


FIGURE 3

- A transformer converts 120.0 V AC to 12.00 V AC . If there are 200 turns on the primary coil, how many are on the secondary coil?
 - 12
 - 20
 - 100
 - 1200
 - 2000
- State Ohm's law.
 - What factor must be held constant for Ohm's law to be valid?
- What are the basic units for
 - the volt?
 - the ampere?
 - the ohm?
- Which magnetic pole is located in the Antarctic? Explain how you know.
- What is the direction of the lines of magnetic force inside a magnet?
- Which scientist discovered the magnetic field around an electric current?
- In a DC motor, what is the function of
 - the split-ring commutator?
 - the helix?
 - the field magnets?
- Why is a shunt needed in an ammeter?
 - Why does a shunt not work in a voltmeter?
- Who was the first scientist to make an electric generator?
- Which two scientists discovered electromagnetic induction?
- Wire is coiled around a vertical cardboard tube. State two ways of inducing a south pole at the upper end of the coil.