

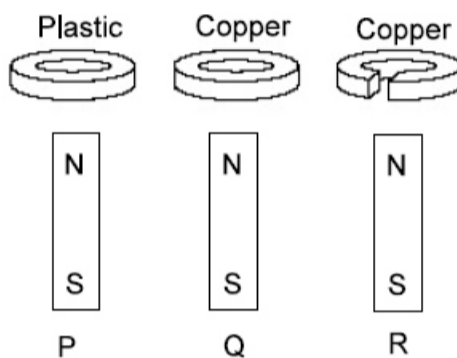
Physics 3204

Unit 2: Electromagnetism

Worksheet8: Faraday's Law - Inducing Current



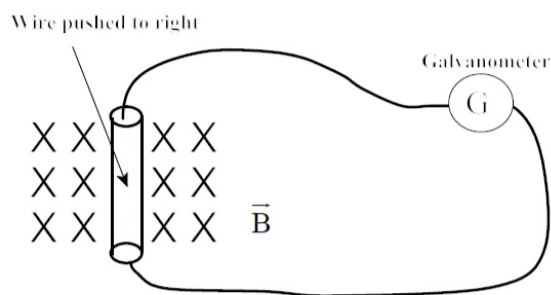
- Who discovered that a changing magnetic field near a conductor will induce a current in that conductor?
 - Faraday
 - Kirchoff
 - Lenz
 - Oersted
- Three rings are dropped at the same time over identical magnets, P, Q and R, as shown below. Which describes the order in which the rings reach the bottom of the magnets?



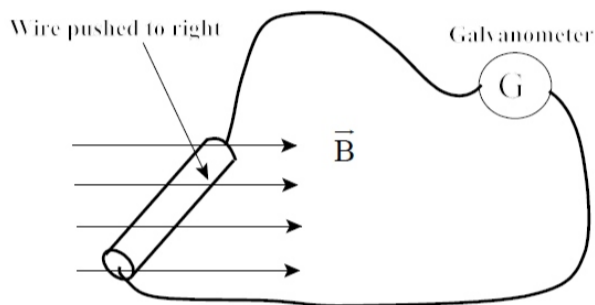
- They arrive in the order P, Q, R.
 - They arrive in the order P, R, Q.
 - Rings P and R arrive at the same time, followed by Q.
 - Rings Q and R arrive at the same time, followed by P.
- A student drops a bar magnet downward through a 1.0 m long plastic tube and then through a 1.0 m long copper tube of equal diameter. What will happen to the magnet in each situation?
 - come to rest about halfway down each tube
 - take longer to fall through the copper tube
 - take longer to fall through the plastic tube
 - take the same time to fall through each tube
 - spacecraft orbiting Earth has a coil of wire in it. An astronaut measures a small current in the coil although there is no battery connected to it and there are no magnets on the spacecraft. Explain what causes the current. AUGUST 2008

5. In the two situations below, a wire is pulled through a region with a given magnetic field as shown. Determine whether a current will be induced in the wire and show its direction. AUGUST 2004

(I)



(II)



6. Why is there an emf induced between the wingtips of an aircraft moving at 700.0 m/s in level flight directly above Earth's magnetic North Pole? (Assume Earth's magnetic field vector is pointing straight up as the plane flies over the North Pole.) JUNE 2004
