



INDIAN SCHOOL DARSAIT  
DEPARTMENT OF PHYSICS



Subject : PHYSICS

Topic : ELECTROMAGNETIC  
INDUCTION

Date of Worksheet : 6.6.17  
Worksheet # 7

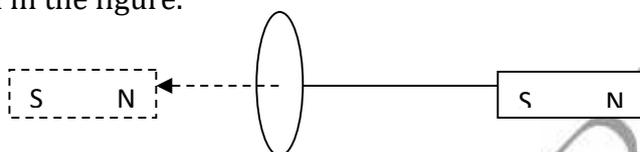
Resource Person: SUSAN ANIL

Name of the Student : \_\_\_\_\_

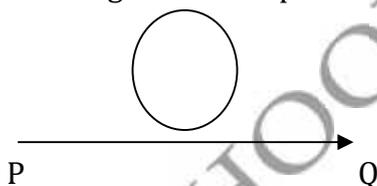
Class & Division : \_\_\_\_\_

Roll Number : \_\_\_\_

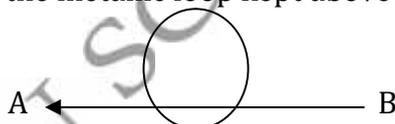
1. Give the direction in which the induced current flows in the coil mounted on an insulating stand when a bar magnet is quickly moved along the axis of the coil from one side to the other as shown in the figure.



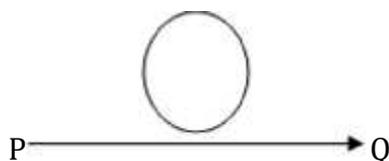
2. What is the magnitude of induced current in the circular loop of radius  $r$  if straight wire PQ carries a steady current of magnitude  $I$  ampere?



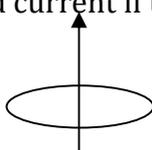
3. The electric current in a wire in the direction from B to A is decreasing. What is the direction of induced current in the metallic loop kept above the wire as shown in the figure?



4. The current through wire PQ is increasing. In which direction does the induced current flow in the closed loop?

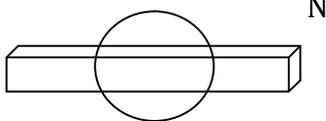
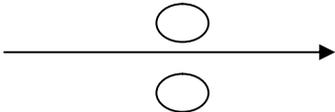
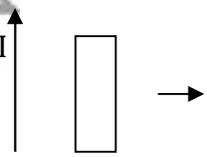


5. Predict the direction of induced current if the current is decreasing at a steady rate



6. A copper ring is suspended by a thread in a vertical plane. One end of a bar magnet is brought towards the ring horizontally. How will the position of the ring be affected?

7. A train is moving with uniform speed from north to south. Will any induced emf appear across the ends of its axis? What will happen if the train moves from east to west?

8.	A copper and an aluminium wire frame are rotated with same angular speed in same magnetic field. In which frame will induced current be more?
9.	A coil is placed in a uniform magnetic field. How should the coil be moved so that there is no emf induced in it?
10.	When primary coil is moved towards secondary coil the galvanometer shows momentary deflection. What can be done to have larger deflection in the galvanometer with the same battery?
11.	<p>Consider a magnet surrounded by a wire with an on/off switch. If the switch is thrown from the off position to the on position, will a current flow in the circuit? Explain.</p> 
12.	<p>Predict the directions of induced currents in metal rings 1 and 2 lying in the same plane where current in the wire is increasing steadily.</p> 
13.	<p>Predict the direction of induced current in a metal ring when the ring is moved towards a straight conductor with constant speed <math>v</math>. The conductor is carrying current <math>I</math> in the direction as shown in the figure</p> 
14.	<p>A rectangular loop of wire is pulled to the right, away from the long straight wire through which steady current <math>I</math> flows upwards. What is the direction of induced current in the loop?</p> 
15.	<p>A rectangular loop and a circular loop are moving out of a uniform magnetic field to a field free region with constant velocity <math>v</math> as shown in the figure. Explain in which loop you expect the induced emf to be constant during the passage out of the field region.</p> 