

# O P JINDAL SCHOOL, SAVITRINAGAR

## ASSIGNMENT

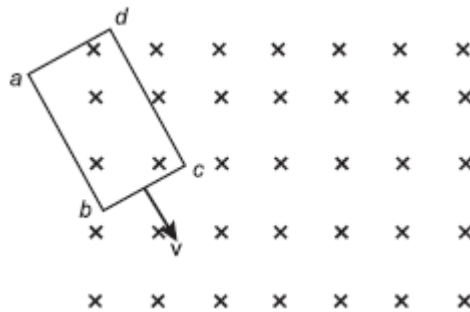
### CLASS XII PHYSICS

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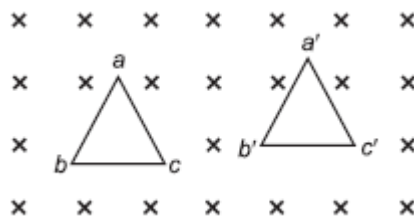
- 1 The electric current flowing in a wire in the direction from B to A is decreasing. Find out the direction of the induced current in the metallic loop kept above the wire as shown.



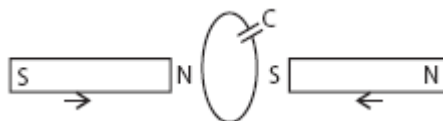
- 2 Use Lenz's law to determine the direction of the induced current when a rectangular conducting loop  $abcd$  is moved into a region of magnetic field which is directed normal to the plane of the loop away from the reader.



- 3 A triangular loop of wire placed at  $abc$  is moved completely inside a magnetic field which is directed normal to the plane of the loop away from the reader to a new position  $a'b'c'$ . What is the direction of the current induced in the loop? Give reason.

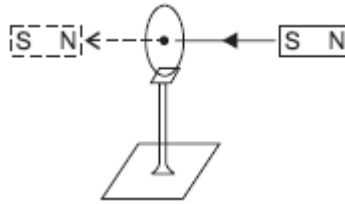


- 4 Two bar magnets are quickly moved towards a metallic loop connected across a capacitor C as shown in the figure. Predict the polarity of the capacitor.

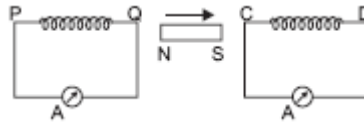


- 5 Give the direction in which the induced current flows in the coil mounted on an insulating stand when a bar magnet is quickly moved along the axis of the coil from one side to the

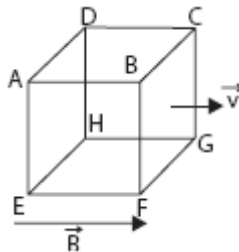
other as shown in the figure.



- 6 A closed loop is held stationary in the magnetic field between the north and south poles of two permanent magnets held fixed. Can we hope to generate current in the loop by using very strong magnets?
- 7 A closed loop moves normal to the constant electric field between the plates of a large capacitor. Is a current induced in the loop
  - (i) when it is wholly inside the region between the capacitor plates, and
  - (ii) when it is partially outside the plates of the capacitor? The electric field is normal to the plane of the loop.
- 8 A bar magnet is moved in the direction indicated by the arrow between two coils *PQ* and *CD*. Predict the directions of induced current in each coil.



- 9 Twelve wires of equal length are connected to form a skeleton cube which moves with a velocity  $v$  parallel to the magnetic field  $\vec{B}$ . What will be the induced emf in each arm of the cube?



- 10 Two spherical bobs, one metallic and the other of glass, of the same size are allowed to fall freely from the same height above the ground. Which of the two would reach earlier and why?