

O P JINDAL SCHOOL, SAVITRINAGAR

ASSIGNMENT

CLASS XII PHYSICS

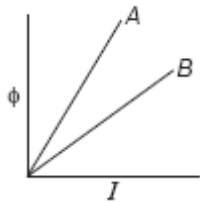
Predict the direction of induced current in a metal ring when the ring is moved towards a straight conductor with constant speed v . The conductor is carrying current I in the direction shown in the figure.

21



A plot of magnetic flux (ϕ) versus current (I) is shown in the figure for two inductors A and B. Which of the two has larger value of selfinductance?

22

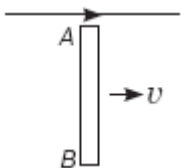


The motion of copper plate is damped when it is allowed to oscillate between the two poles of a magnet. What is the cause of this damping?

23

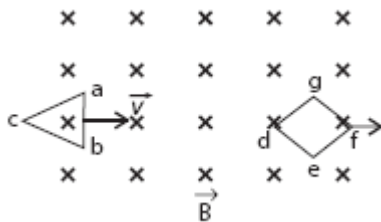
A wire and a rod AB are in the same plane. The rod moves parallel to the wire with the velocity v , then which end of the rod is at higher potential?

24



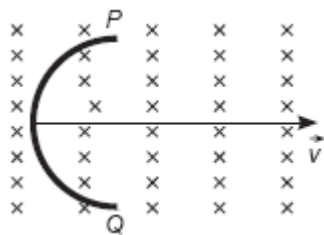
Two loops of different shapes are moved in a region of uniform magnetic field in the directions marked by arrows as shown in the figure. What is the direction of the induced current in each loop?

25



A semicircular conductor of radius R is moved in uniform magnetic field \vec{B} as shown. Determine emf induced in it.

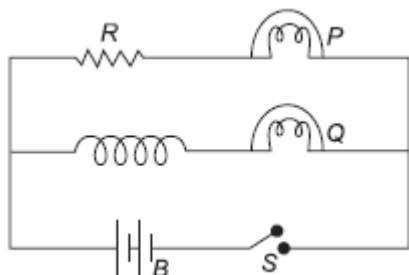
26



Which end is at higher potential?

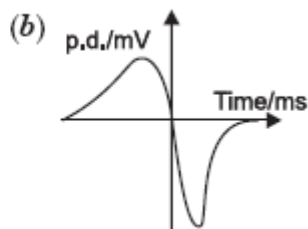
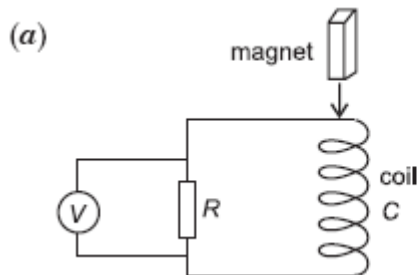
The given figure shows an inductor L and resistor R connected in parallel to a battery B through a switch S . The resistance of R is the same as that of the coil that makes L . Two identical bulbs, P and Q are put in each arm of the circuit as shown in the figure. When S is closed, which of the two bulbs will light up earlier? Justify your answer.

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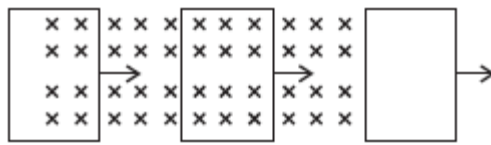


28 A bar magnet M is dropped so that it falls vertically through the coil C . The graph obtained for voltage produced across the coil vs time is shown in figure (b).

- Explain the shape of the graph.
- Why is the negative peak longer than the positive peak?

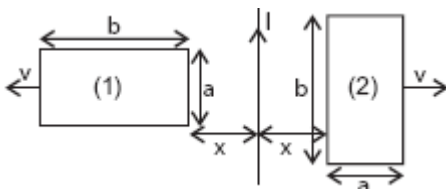


- 29 A uniform magnetic field exists normal to the plane of the paper over a small region of space. A rectangular loop of wire is slowly moved with a uniform velocity across the field as shown in figure.



Draw the graph showing the variation of

- (i) magnetic flux linked with the loop and
 - (ii) the induced emf in the loop with time.
- 30 The figure shows two identical rectangular loops (1) and (2), placed on a table along with a straight line current carrying conductor between them.



- (i) What will be the directions of the induced currents in the loops when they are pulled away from the conductor with same velocity v ?
- (ii) Will the emf induced in the two loops be equal? Justify your answer.