

NEET ELECTROMAGNETIC INDUCTION — MOTIONAL EMF — PYQs

Max. Marks: 16

Questions: 4

Section A (MCQ) — 4 questions

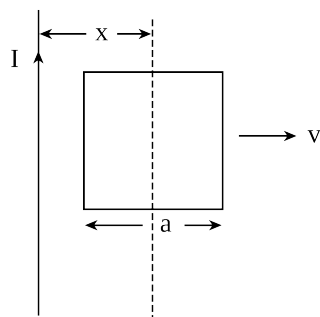
- Q.1** A rectangular wire loop of sides 8 cm and 3 cm with a small cut, is moving out of a region of uniform magnetic field of magnitude 0.3 T directed normal to the plane of the loop. The emf developed across the cut, if the velocity of the loop is 2 cm s^{-1} , in a direction normal to the shorter side of the loop, will be : [NEET (UG) 2026]

- (1) 1.8×10^{-4} volt (2) 1.3×10^{-4} volt
(3) 1.2×10^{-4} volt (4) 4.8×10^{-4} volt

Scan or tap for the full solution



- Q.2** A conducting square frame of side 'a' and a long straight wire carrying current I are located in the same plane as shown in the figure. The frame moves to the right with a constant velocity 'V'. The emf induced in the frame will be proportional to [AIPMT 2015 (Cancelled)]

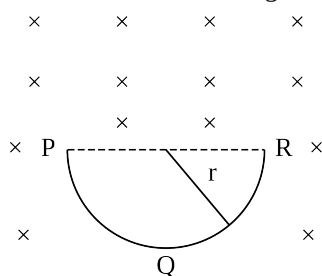


- (1) $\frac{1}{(2x+a)^2}$ (2) $\frac{1}{(2x-a)(2x+a)}$
(3) $\frac{1}{x^2}$ (4) $\frac{1}{(2x-a)^2}$

Scan or tap for the full solution



- Q.3** A thin semicircular conducting ring (PQR) of radius r is falling with its plane vertical in a horizontal magnetic field B, as shown in the figure.



The potential difference developed across the ring when its speed is v, is [AIPMT 2014]

- (1) zero
(2) $\frac{Bv\pi r^2}{2}$ and P is at higher potential
(3) $\pi r B v$ and R is at higher potential
(4) $2r B v$ and R is at higher potential

Scan or tap for the full solution



- Q.4** A rectangular, a square, a circular and an elliptical loop, all in the (x-y) plane, are moving out of a uniform magnetic field with a constant velocity $\vec{V} = v\hat{i}$. The magnetic field is directed along the negative z axis direction. The induced emf, during the passage of these loops, out of the field region, will not remain constant for [AIPMT 2009]

- (1) the circular and the elliptical loops
(2) only the elliptical loop
(3) any of the four loops
(4) the rectangular, circular and elliptical loops

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4															
Ans.	1	2	4	1															