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JEE MAIN ELECTROMAGNETIC INDUCTION — AC GENERATOR — PYQS

Max. Marks: 8 **Questions:** 2

Section A (MCQ) — 1 question

Q.1 A coil of area A and N turns is rotating with angular velocity ω in a uniform magnetic field $\vec{B}$ about an axis perpendicular to $\vec{B}$. Magnetic flux φ and induced emf ε across it, at an instant when $\vec{B}$ is parallel to the plane of coil, are :

[JEE Main 2025 (Online) 29th January Morning Shift]

(1) φ = AB, ε = NABω (2) φ = AB, ε = 0

(3) φ = 0, ε = 0 (4) φ = 0, ε = NABω

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Section B (Numerical) — 1 question

Q.2 A conducting circular loop is rotated about its diameter at a constant angular speed of 100 rad/s in a magnetic field of 0.5 T perpendicular to the axis of rotation. When the loop is rotated by 30° from the horizontal position, the induced EMF is 15.4 mV. The radius of the loop is _____ mm.

(Take $\pi = \frac{22}{7}$)

[JEE Main 2026 (Online) 22nd January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 1 question

Ques.	1										
Ans.	4										

Section B (Numerical) — 1 question

Ques.	2										
Ans.	14										