

JEE MAIN ALTERNATING CURRENT — AC VOLTAGE APPLIED TO A RESISTOR, RMS AND PEAK VALUES — PYQS

Max. Marks: 16

Questions: 4

Section A (MCQ) — 4 questions

- Q.1** The electric current in the circuit is given as $i = i_0(t/T)$. The r.m.s current for the period $t = 0$ to $t = T$ is _____.

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) $\frac{i_0}{\sqrt{2}}$ (2) $\frac{i_0}{\sqrt{3}}$ (3) i_0 (4) $\frac{i_0}{\sqrt{6}}$

Scan or tap for the full solution



- Q.2** An ac current is represented as $i = 5\sqrt{2} + 10\cos\left(650\pi t + \frac{\pi}{6}\right)$ Amp
The r.m.s. value of the current is

[JEE Main 2025 (Online) 7th April Morning Shift]

- (1) 10 Amp (2) $5\sqrt{2}$ Amp
(3) 100 Amp (4) 50 Amp

Scan or tap for the full solution



- Q.3** An alternating current is represented by the equation, $i = 100\sqrt{2}\sin(100\pi t)$ ampere. The RMS value of current and the frequency of the given alternating current are

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) $\frac{100}{\sqrt{2}}$ A, 100 Hz (2) $50\sqrt{2}$ A, 50 Hz
(3) $100\sqrt{2}$ A, 100 Hz (4) 100 A, 50 Hz

Scan or tap for the full solution



- Q.4** An electric bulb rated as 100 W – 220 V is connected to an ac source of rms voltage 220 V. The peak value of current through the bulb is:

[JEE Main 2025 (Online) 3rd April Evening Shift]

- (1) 0.32 A (2) 0.64 A (3) 0.45 A (4) 2.2 A

Scan or tap for the full solution



ANSWER KEY

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