



JEE Main PYQs on AC Circuits: JEE Main Questions for Practice with Solutions

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The JEE Main Physics section requires speed and accuracy, along with a thorough understanding of the Alternating Current (AC) Circuits. This article provides a set of JEE Main PYQs on AC Circuits to help you understand the topic and improve your problem-solving skills with the help of detailed solutions by ensuring conceptual clarity, which will help you in the **JEE Main 2026** preparation.

Whether you're revising the basics or testing your knowledge, these JEE Main PYQs will serve as a valuable practice resource.

The JEE Main 2026 exam is likely to continue on the same pattern as JEE Main 2025. Out of 90 questions, students can expect a fair mix from the previous year questions (PYQs) is one of the

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Alternating Current (A.C) Circuits

JEE MAIN QUESTIONS FOR PRACTICE WITH SOLUTIONS

JEE Main PYQs on Alternating Current (A.C) Circuits

1. 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 :

- ☐ A 0.64 A
- ☐ B 0.45 A
- ☐ C 2.2 A
- ☐ D 0.32 A

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2. 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:



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☐ A $100\sqrt{2}$ A, 100 Hz

☐ B 100 A, 100 Hz

☐ C 100 A, 50 Hz

☐ D $50\sqrt{2}$ A, 50 Hz

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3. An AC current is represented as: $i = 5\sqrt{2} + 10 \cos(650\pi t + \pi/6)$ Amp. The RMS value of the current is:

☐ A 50 Amp

☐ B 100 Amp

☐ C 10 Amp

☐ D $5\sqrt{2}$ Amp

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4. A series LCR circuit is connected to an alternating source of emf E . The current amplitude at resonance frequency is I_0 . If the value of resistance R becomes twice of its initial value, then amplitude of current at resonance will be:

☐ A $I_0/2$

☐ B $2I_0$

☐ C I_0

☐ D $I_0/\sqrt{2}$

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JEE Main Questions

1. A series LCR circuit is connected to an alternating source of emf E . The current amplitude at resonance frequency is I_0 . If the value of resistance R becomes twice of its initial value, then amplitude of current at resonance will be:

☐ A $\frac{I_0}{2}$

☐ B $2I_0$

☐ C I_0

JEE Main PYQ

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D $\frac{I_0}{\sqrt{2}}$

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2. An alternating voltage source $V = 260 \sin(628t)$ is connected across a pure inductor of $5mH$. Inductive reactance in the circuit is :

A 3.14Ω

B $6.28S$

C 0.318Ω

D 0.5Ω

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3. A series L, R circuit connected with an AC source $E = (25 \sin 1000t)$ V has a power factor of $\frac{1}{\sqrt{2}}$. If the source of emf is changed to $E = (20 \sin 2000t)$ V, the new power factor of the circuit will be:

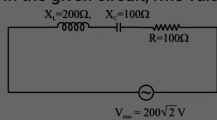
A $\frac{1}{\sqrt{2}}$

B $\frac{1}{\sqrt{3}}$

C $\frac{1}{\sqrt{5}}$

D $\frac{1}{\sqrt{7}}$

4. In the given circuit, rms value of current (I)



A $\frac{1}{2}A$

B $20A$

C $2A$

D $2\sqrt{2}A$

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5. 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

A $100\sqrt{2} \text{ A}, 100 \text{ Hz}$

B $\frac{100}{\sqrt{2}} \text{ A}, 100 \text{ Hz}$

C $100 \text{ A}, 50 \text{ Hz}$

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D $50\sqrt{2}$ A, 50 Hz

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6. 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 :

A 0.64 A

B 0.45 A

C 2.2 A

D 0.32 A

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Structure based on different categories

Categories

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