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 fro... previous year questions (PYQs) is one of the ...

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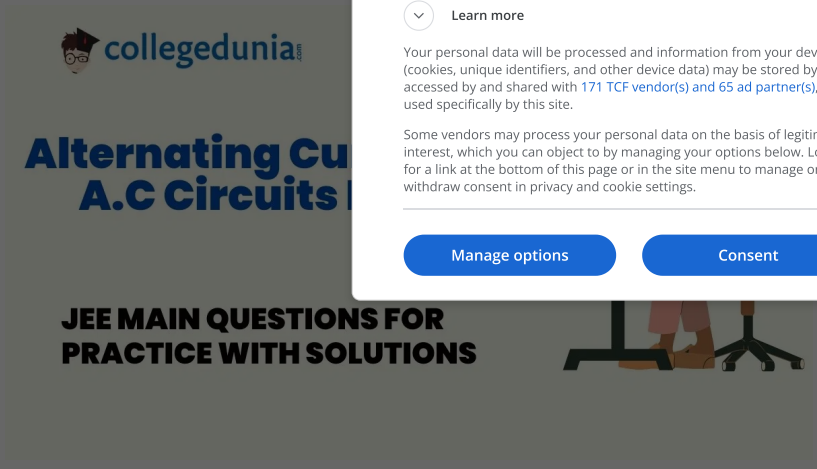

JEE Main PYQs on Alternating Current (A.C) Circuits

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√2 sin(100πt) ampere. The RMS value of current and the frequency of the given alternating current are:

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A 100√2 A, 100 Hz

B 100 A, 100 Hz

C 100 A, 50 Hz

D 50√2 A, 50 Hz

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3. An AC current is represented as: i = 5√2 + 10 cos (650πt + π/6) Amp. The RMS value of the current is:

A 50 Amp

B 100 Amp

C 10 Amp

D 5√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 $E = (25\sin 1000\,t)\ \text{V}$ has a power factor of $\frac{1}{\sqrt{2}}$. If the source of emf is changed to $E = (20\sin 2000\,t)\ \text{V}$, the new power factor of the circuit will be:

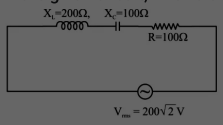
A $\frac{1}{\sqrt{2}}$

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, $\text{i} = 100\sqrt{2}\sin(100\pi\text{t})$ 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 $100\ \text{A}, 50\ \text{Hz}$

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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