2022-Ph-H1-Q21

Section: Electricity

Topic: Monitoring and Measuring a.c.

A peak alternating current of 2.0 A flows in a resistor. What is the root mean square (rms) current?

Answer: C

(1.4 A)

Guidance for Students:

RMS current is used in a.c. circuits to give the equivalent heating effect of a d.c. current.

Use the formula:

$$I_{\text{rms}} = \frac{I_{\text{peak}}}{\sqrt{2}} = \frac{2.0}{\sqrt{2}} \approx 1.4\,\text{A}$$

Revision Tips:

- Use $I_{\text{rms}} = \frac{I_{\text{peak}}}{\sqrt{2}}$
- For voltage: $V_{\text{rms}} = \frac{V_{\text{peak}}}{\sqrt{2}}$
- RMS gives the equivalent **d.c. value**