2023 H1 Q19

Section: Electricity
Topic: Monitoring and Measuring A.C.

- The rms voltage is 5.0 V, so the peak voltage is $V_{peak} = \sqrt{2} \times V_{rms}$.

- Thus $V_{peak} = \sqrt{2} \times 5.0 \approx 7.07$ V.

- For a resistor, the peak power is $P_{peak} = V_{peak}^2 / R$.

- Substituting values: $P_{peak} = 7.07^2 / 8.0 \approx$ 6.3 W.

- Therefore the correct option is 6.3 W (E).

Revision Tips:

- $V_{peak} = \sqrt{2} \times V_{rms}$ and $V_{rms} = V_{peak} / \sqrt{2}$.

- Peak power in a resistor: $P_{peak} = V_{peak}^2 / R = I_{peak}^2 \times R$.

- Rms power is half the peak power: $P_{rms} = P_{peak} / 2$.

- Use Ohm's law ($V = IR$) to relate voltage, current, and resistance.