2017 H1 Q16

Section: Electricity

Topic: Monitoring and Measuring A.C.

- Count the oscilloscope divisions of the A.C. waveform to find the peak-to-peak amplitude.

- Convert the peak-to-peak divisions into a peak voltage using the Y-gain (volts per division) and then divide by 2.

- Calculate the r.m.s. voltage by dividing the peak voltage by √2.

- For this trace the correct r.m.s. voltage is 2.1 V.

Final Answer: A — 2.1 V

Revision Tips:

- For an alternating voltage trace, determine the peak-to-peak amplitude first; half this value gives the peak amplitude.

- Use the Y-gain setting to convert divisions into volts and divide the peak by √2 to find the r.m.s. voltage.

- Remember that the timebase controls the horizontal scaling; this affects frequency measurements but not amplitude.