

2019 H1 Q21

Section: Electricity

Topic: Monitoring and Measuring A.C.

- Doubling the frequency halves the period of the signal, so without any other changes, twice as many cycles would appear on the screen.
- Halving the timebase setting (from 1.0 ms/div to 0.5 ms/div) doubles the horizontal scale, stretching the trace so that each cycle spans twice the width.
- These two changes cancel one another; the number of cycles displayed remains the same and the amplitude is unchanged.
- Therefore, the observed trace looks the same as the original.

Final Answer: B — the trace is unchanged

Revision Tips:

- Frequency is the reciprocal of the period; doubling the frequency halves the period and affects how many cycles fit on the screen.
- The timebase setting controls the time represented by each horizontal division; decreasing the timebase makes the waveform appear stretched horizontally.
- If frequency and timebase change by inverse factors, their effects on the horizontal spacing cancel, leaving the trace unchanged.