

Moderate

Assistant Engineer (Electrical), Class 2025

Building Department

The output frequency related to the sampling interval of a frequency counter as _____

A

Directly with the sampling interval

B

Inversely with the sampling interval

C

More precision with longer sampling interval

Correct

D

Less precision with longer sampling interval

Correct Answer: C

Full Detailed Explanation

Concept & Reasoning If N complete cycles are counted during a gate interval T_g , the measured frequency is N/T_g . The 1-count uncertainty corresponds to an approximate frequency resolution of $1/T_g$. Thus increasing the sampling interval reduces the frequency quantization step and improves precision. How to Solve It in the Exam Longer gate time → finer frequency resolution. Important Exam Point Separate actual signal frequency from measurement resolution; the signal itself does not change when gate time changes. Related Revision Path This question sits in the revision path Digital Electronics → Digital Measurement → Frequency Counters .

Open live question on website:

<https://sarkariresultout.com/pyq/question/gpsc-ae-electrical-q162-sampling-interval-and-frequency-resolution/>