

EE23BTECH11047 - Deepakreddy P

32 An analog signal is sampled at 100 MHz to generate 1024 samples. Only these samples are used to evaluate 1024-point FFT. The separation between adjacent frequency points (ΔF) in FFT is _____ kHz.

(GATE BM 2021)

Solution:

Table I
INPUT PARAMETERS

Symbol	Description	value
f_s	Sampling frequency	100 MHz
N	No of samples	1024

$$\Delta F = \frac{f_s}{N} \quad (1)$$

$$\Delta F = \frac{100}{1024} MHz \quad (2)$$

$$\Delta F = \frac{10^5}{1024} kHz \quad (3)$$

$$\Delta F = 97.66 kHz \quad (4)$$

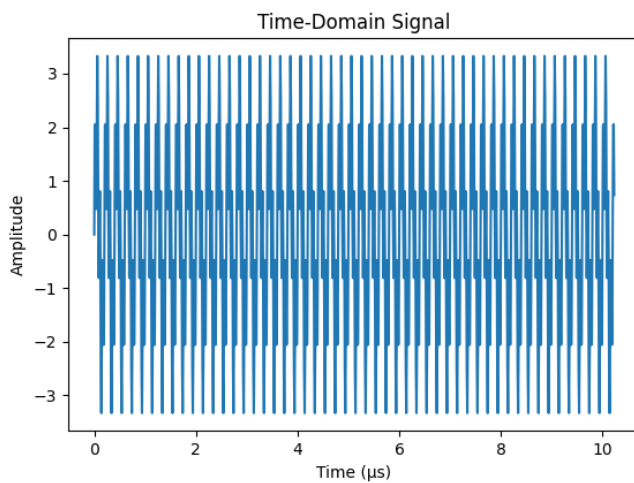


Figure 1. Time Domain Signal

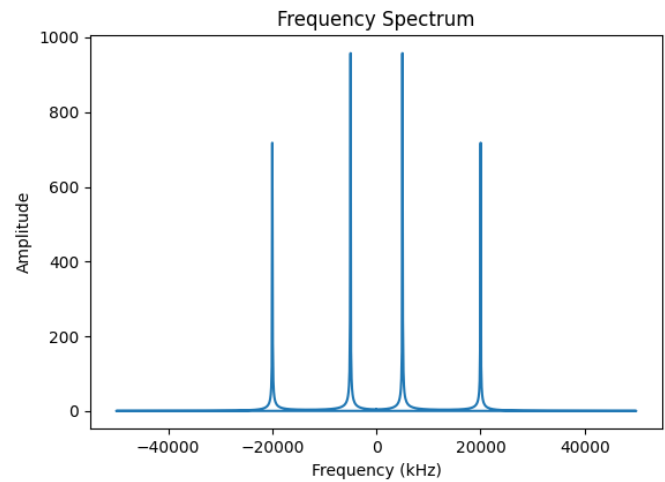


Figure 2. Frequency Spectrum