

UNIT WISE QUESTION BANK

S NO	Short Answer Questions	Blooms Taxonomy Level	Course Outcome
	UNIT - V		
	Sampling theorem		
1	What is meant by sampling?	Knowledge	5
2	State Sampling theorem.	Understand	5
3	What is meant by aliasing?	Understand	5
4	What are the effects aliasing?	Understand	5
5	What are all the blocks are used to represent the CT signals by its samples	Understand	5
6	Mention the types of sampling.	Understand	5
7	Define Nyquist's rate.	Understand	5
8	What is the condition for avoid the aliasing effect?	Understand	5
9	What is an anti-aliasing filter?	Understand	5
10	What is the Nyquist's Frequency for the signal $x(t) = 3 \cos 50t + 10 \sin 300t - \cos 100t$?	Understand	5
11	What is the period of the signal $x(t) = 10 \sin 12t + 4 \cos 18t$	Knowledge	5
12	Define Nyquist's interval.	Understand	5
	Correlation		
13	Explain about Auto correlation?	Understand	5
14	Explain about Cross correlation?	Understand	5
15	Properties of Auto correlation	Understand	5
16	Properties of Cross correlation	Knowledge	5
17	Define Energy spectral density	Understand	5
18	Define Power spectral density	Understand	5
	UNIT - V		
	Sampling theorem		
1.	State and prove the sampling theorem for band-limited signals.	Understand	5
2.	State and explain the sampling theorem for band pass signals.	Understand	5
3.	What is zero order hold? Obtain the transfer function of zero order hold	Understand	5
4.	A signal $x(t) = 2 \cos 400\pi t + 6 \cos 640\pi t$ is ideally sampled at $f_s = 500\text{Hz}$, if the sampled signal is passed through an ideal LPF with a cut off frequency of 400Hz , what frequency components will appear in the output.	Knowledge	5
5.	Determine the Nyquist's rate and interval corresponding to each of the following signals $x(t) = \sin 4000\pi t / \pi$ $x(t) = 1 + \cos 2000\pi t + \sin 4000\pi t$	Apply	5
6.	The signal $x(t) = \cos 5\pi t + 0.3 \cos 10\pi t$ is instantaneously sampled. Determine the maximum interval of the sample	Understand	5
7.	A signal $x(t) = 2 \cos 400\pi t + 6 \cos 640\pi t$ is ideally sampled at $f_s = 500\text{Hz}$, if the sampled signal is passed through an ideal LPF with a cut off frequency of	Understand	5

	400Hz, what frequency components will appear in the output.		
8	Explain the signal recovery (reconstruction) from its sampled signals	Understand	5
9	Explain the impulse sampling method. Explain the flat top sampling method. Explain the natural sampling method.	Understand	5
10	Show that $R(t)$ and ESD form a Fourier transform pair	Understand	5
11	Show that $R(t)$ and PSD form a Fourier transform pair	Understand	5
12	Write the properties of ESD and PSD	Understand	5
13	Explain the detection of periodic signals in the presence of noise by cross correlation.	Understand	5
14	Explain the extraction of a signal from noise by filtering	Understand	5
15	Find the autocorrelation, power, RMS value and sketch the PSD for the signal $x(t)=(A+\sin 100t)\cos 200t$	Understand	5