GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

B.TECH Electronics and Communication Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem V - G2UC502C - Digital Signal Processing

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Classify discrete time signals.	K2	(2)
2)	Find DFT of the sequence x(n) = { 1, 1, 1, 1, 1, 1, 0, 0} using radix-2 DIF – FFT algorithm	K1	(3)
3)	Mention any 4 requirements for an analog filter to be stable and causal.	K2	(4)
4)	Examine the magnitude and phase functions of an FIR filter, assuming the impulse response is symmetric and the filter order (N) is an odd number	K2	(6)
5)	Estimate the Z transform of of the discrete-time signal x(n) = 5^n u(n).	K3	(6)
6)	Estimate percentage saving in computing through radix – 2, DFT algorithm of DFT coefficients. Assume N = 512.	K3	(9)
7)	Design a linear phase FIR highpass filter using hamming window, with cut-off frequency, 0.8 pi rad/sample and N=5.	K4	(8)
8)	Find the linear & Circular convolution of the sequences, x(n) = {1, 0.5} and h(n) ={0.5, 1}.	K4	(12)
	OR		
	Estimate the Z transform of a) x(n) = {3,4,2,7} , b) x(n) = (2,4,6,8,10) And plot its ROC.	K4	(12)