School of Computing Science and Engineering

Bachelor of Technology in Computer Science and Engineering
Semester End Examination - Jun 2024

Duration : 180 Minutes
Max Marks : 100

Sem VI - R1UC620T - BECE3025 - 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)	What are the advantages of parallel form of realization technique of IIR filter.	K1(2)
2)	If H(s) = (2 / (S+1)(S+2)) then find its inverse Laplace Transform.	K2(4)
3)	Discuss the mapping from S-plane to Z plane in case of Bilinear Transformation.	K2(6)
4)	Draw the pole zero plot for the system described by the difference equation y(n) -0.75y(n-1)+0.125y(n-2) = x(n) - x(n-1)	K3(9)
5)	Obtain direct form-1 and direct form-2 realization of a system described by y(n) - 0.75y(n-1)+0.125y(n-2) = x(n) + 0.5x(n-1)	K3(9)
6)	Determine Inverse Laplace Transform of F(s) = (s + 4) / {2(s*s) +5s+3}	K5(10)
7)	Explain IIR filter and FIR filter. Compare characteristics of IIR filter with an FIR filter.	K4(12)
8)	Determine the parallel realization of the IIR digital filter transfer function H(Z) = {3Z(5Z-2)} / {(Z+0.5)(3Z-1)}	K5(15)
9)	Design a high pass filter using Hamming window with cut-off frequency of 1.2 radian/ second and filter length N=9	K5(15)
10)	Obtain direct form and cascade form realization for the transfer function of a FIR system given by H(Z) = [1- {1/(4Z)} + {3/(8Z*Z)}] [1- {1/(8Z)} - {1/(2Z*Z)}]	K6(18)