

No Preview
Available

Total No. of Question : [4]

Registration No. :

Programme Name : Bachelor of Electronics and Telecommunication Engineering
Regular T.Y.B.Tech. ESE (A.Y. 2023-24) Sem.V Nov.2023
V SEMESTER (2021 BATCH)
201ETL303-Digital Signal processing

Duration : [11:00 AM - 01:00 PM]

Date : 24 Nov, 2023

Day : Friday

Marks : 50

Instructions :

(Q1.) All Questions are compulsory [20.0]

(1.1) Solve using overlapp add method [6.0]

$$x(n)=(3,-1,0,1,3,2,0,1,2,1)$$

$$h(n)=(1,1,1)$$

CO :- CO1

Blooms Taxonomy :- Apply

(1.2) Design a linear phase FIR LPF of order 7 with cut off frequency 1 rad/sec using rectangular window method. [7.0]

$$\begin{aligned} H_d(e^{jw})=H_d(w) &= e^{-jw\alpha} & -w_c \leq w \leq +w_c \\ &=0 & -\pi \leq w \leq +w_c \\ &=otherwise & w_c \leq w \leq \pi \end{aligned}$$

CO :- CO2

Blooms Taxonomy :- Apply

(1.3) For the analog transform function $H(s)=2/(S+1)(S+2)$. [7.0]

Determine $H(z)$ using impulse Invariant Method. (assume $T=1$ sec.0)

CO :- CO2

Blooms Taxonomy :- Apply

(Q2.) All Questions are compulsory [10.0]

(2.1) write a short note on Finite word length [4.0]

CO :- CO3

Blooms Taxonomy :- Analyze

(2.2) Realize the system using Cascade form [6.0]

$$H(z) = \frac{3 + 3.6z^{-1} + 0.6z^{-2}}{1 + 0.1z^{-1} - 0.2z^{-2}}$$

CO :- CO3

Blooms Taxonomy :- Analyze

OR [2.2 / 2.3]

(2.3) Realize the system using Parallel form

[6.0]

$$H(z) = \frac{0.7 - 0.252z^{-2}}{1 + 0.1z^{-1} - 0.72z^{-2}}$$

(Q3.) All Questions are compulsory

[10.0]

(3.1) write a short note on aliasing effect

[4.0]

CO :- CO3

Blooms Taxonomy :- Analyze

(3.2) Explain the Interpolation by factor I with up sampling method

[6.0]

CO :- CO3

Blooms Taxonomy :- Analyze

(Q4) All Questions are compulsory

[10.0]

(4.1) Explain implementation of Narrow Band Low pass filter

[5.0]

CO :- CO4

Blooms Taxonomy :- Understand

(4.2) Explain frequency domain coding techniques

[5.0]

CO :- CO4

Blooms Taxonomy :- Understand

(4.3) Explain Digital Processing of audio signal

[5.0]

CO :- CO4

Blooms Taxonomy :- Understand
