

S. B. Roll. No.....

DIGITAL SIGNAL PROCESSING
6th Exam/ECE/4614/Nov'24
(For 2018 Batch Onwards)

Duration: 3Hrs.

M.Marks:75

SECTION-A

Q1. Do as directed.

15x1=15

- Energy is non periodic signal (T/F)
- Continuous time signal is converted to discrete time signal by _____
- For a continuous time signal $x(t)$ to be periodic with a period T , then $x(t+mT)$ should be equal to _____
- Define periodic signal
- Name the filters which don't use feedback.
- What is the major similarity between Fourier transform and Z transform?
- An ideal filter should have _____ gain in their stop band.
- The filter with the system function $H(z) = z^{-k}$ is a _____ Pass filter.
- The z transform of $\delta[n]$ is _____
- FFT algorithm is designed to perform complex operations. (T/F)
- How many quantization errors are present in one complex valued multiplication?
- LTI stands for _____
- FIR filters are more stable than IIR filters. (T/F)
- A causal system is a system where the output depends on past and current inputs but not _____ inputs
- IIR stands for _____

SECTION-B

Q2. Attempt any six questions.

6x5=30

- What is a continuous and discrete time signal?
- Distinguish IIR and FIR filters.
- Differentiate between analog and digital filters.
- List the basic elements of Digital Signal Processing.
- Determine if the system represented by following equation is linear or non-linear:-
 $Y(n) = n X(n)$
- Write down advantages and limitations of digital signal processing.
- Determine if the system represented by the following input output equation is causal or non-causal:-
 $Y(n) = X(n) - X(n-1)$

SECTION-C

Q3. Attempt any three questions.

3x10=30

- Write down the properties of DFT.
- Write various application and features of DSP processors.
- State properties of z-transform.
- Write note on:-
i) Correlation ii) LTI System
- Explain the process of designing direct form I of filter structures

P.S.B.T.E.&I.T.

