Roll No. .....

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015602

August/September 2022
B.Tech. (ENC/EIC) 6th Semester
Digital Signal Processing (ECC-04)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) List the properties of discrete signals. (1.5)

(b) List the properties of z transforms. (1.5)

(c) List the properties of digital filters. (1.5)

(d) Write applications of digital filters. (1.5)

(e) What do you mean by multi rate signal processing? (1.5)

(f) Differentiate between DFT and FFT. (1.5)

(g) Define the use of Chebyshev filters. (1.5)

(h) Define the importance of sampling. (1.5)

(i) Define various types of signals used in DSP. (1.5)

(j) Write applications of Fast Fourier Transforms. (1.5)

PART-B

2. (a) Explain the following

(i) Unit sample response.

(ii) Time invariant systems. (5+5)

(b) Define stability criterion for discrete systems. (5)

3. (a) Explain Causality criterion for discrete time systems. (5)

(b) Write methods for the implementation of Discrete time system. Explain the necessary steps. (10)

4. Write properties of Fourier Transforms. Prove them. (15)

5. (a) Obtain Z transform of the 3-sample averager, also derive system function. (5)

(b) Write steps to evaluate filter coefficients from singularity locations. (10)

6. (a) Explain cascade and parallel combination of filters. (10)

(b) What is effect of finite register length in filter design? Explain. (5)

7. (a) Differentiate between parametric and non-parametric estimations. (7.5)

(b) Differentiate between LPF and BPF and HPF filters. (7.5)
