Code No: 117CK **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2018
DIGITAL SIGNAL PROCESSING
(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART- A

(25 Marks)

1.a)	Draw the parallel form of Digital filters.	[2]
b)	Write applications of Z-transform.	[3]
c)	Write any two properties of DFT.	[2]
d)	Differentiate between Over-Lap save and Over-Lap Add method.	[3]
e)	List the properties of Chebyshev filter.	[2]
f)	Give the steps in the design of a digital filter from analog filters.	[3]
g)	What are the properties of IIR filters?	[2]
h)	What are the desirable characteristics of window?	[3]
i)	What is interpolation?	[2]
j)	What is Dead-band of a filter?	[3]

PART-B

(50 Marks)

2. Explain the cascade form of digital filter realization. [10]

OR

3. Explain in detail the Frequency Response of Stable Systems. [10]

4. Explain the properties of DTFT. [10]

OR

5. Explain Radix- 2 Decimation- in-Frequency FFT algorithms. [10]

6. Using Bilinear transformation, design a high pass filter, monotonic in pass band with cutoff frequency of 1000 Hz and down 10dB at 350 Hz. The sampling frequency is 5000 Hz. [10]

OR

7. Explain the procedure for designing Analog filters using the Chebyshev approximation. [10]

8. Explain the finite word length effects in FIR digital filters. [10]

OR

9. Realize the system function $H(z)=\left(\frac{2}{3}\right)z+1+\left(\frac{2}{3}\right)z^{-1}$ by linear phase FIR structure. [10]

10. Explain the application of sampling rate conversion in sub-band coding. [10]

OR

11. Explain the different methods to prevent overflow. [10]

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