[M19CS1102]
IM. Tech I Semester (R19) Regular Examinations
ADVANCED DIGITAL SIGNAL PROCESSING
DEPARTMENT OF ELECTRONICS & COMMUNICATIONS ENGINEERING
MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT.**
All questions carry equal marks.
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			CO	KL	M
		UNIT-I			
1.	**a).**	Using Decimation in Time algorithm find the FFT of x[n]={1,2,3,1,-1,3,-4}.	**1**	**2**	**8**
	b).	Perform the two-band poly-phase decomposition of the transfer function $H(z) = \frac{2 + z^{-1}}{1 + 0.5z^{-1}}$	**1**	**1**	**7**
		OR			
2.	**a).**	Describe the frequency domain description of an Interpolator.	**1**	**1**	**8**
	b).	Calculate the DFT of x[n]={1,0,1,2,1,3,1,4}.	**1**	**2**	**7**
		UNIT-II			
3.	**a).**	Describe the oversampling A/D and D/A converters.	**2**	**3**	**8**
	b).	Explain the implementation of sampling rate converters using Polyphase filters.	**2**	**3**	**7**
		OR			
4.	**a).**	Explain how sampling rate conversion of band pass signals can be achieved.	**2**	**4**	**8**
	b).	Draw and explain the block diagram of two channel QMF bank.	**2**	**3**	**7**
		UNIT-III			
5.	**a).**	Explain the blackmann and tukey method of smoothing the periodogram.	**3**	**4**	**8**
	b).	Derive the expressions for quality factor for varis non -parametric methods.	**3**	**3**	**7**
		OR			
6.	**a).**	Discuss in brief abt Bartlett method of power spectrum estimation.	**3**	**6**	**8**
	b).	Explain the Welch's method for the power spectrum estimation.	**3**	**2**	**7**
		UNIT-IV			
7.	**a).**	Explain the operation of Backward Linear predictor with a neat derivation.	**4**	**3**	**8**
	b).	what are the advantages of lattice structures?	**4**	**2**	**7**
		OR			
8.	**a).**	Explain lattice structures for IIR filters.	**4**	**6**	**8**
	b).	Explain the quantization and rnd off errors in a digital filter.	**4**	**5**	**7**
		UNIT-V			
9.	**a).**	Explain Burg method of power spectrum estimation.	**5**	**4**	**8**
	b).	Explain the autocorrelation function with its properties.	**5**	**5**	**7**
		OR			
10.	**a).**	Explain the MA & ARMA models for power spectrum estimation.	**5**	**3**	**7**
	b).	Describe the Yule-Walker method of power spectrum estimation.	**5**	**4**	**8**

CO-CRSE TCOME **KL -KNOWLEDGE LEVEL** **M-MARKS**