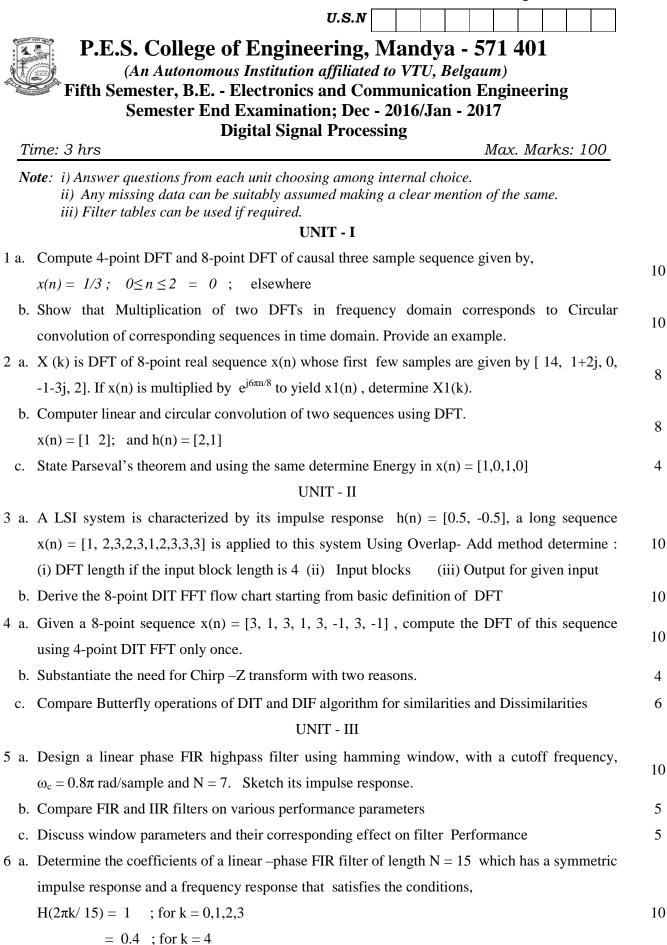
= 0



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b.	Explain the procedure of window based FIR filter design.	5
c.	Justify necessity of Linear Phase filters in specific applications	5
UNIT - IV		
7 a.	Discuss Impulse Invariance and Bilinear Transformation techniques with regard to preserving	10
	frequency response characteristics while mapping from analog to digital domain.	10
b.	Design a Butterworth digital lowpass filter using Bilinear transformation by taking T = 1 sec, to	
	satisfy the following specifications.	10
	$0.6 \le H(e^{jw}) \le 1.0$; $0 \le \omega \le 0.35\pi$	10
	$ H(e^{jw}) \le 0.1$; 0.7 $\pi \le \omega \le \pi$	
8 a.	Determine the poles of Lowpass Butterworth filter for $N = 3$. Sketch the location of poles on	0
	s-plane and hence determine the normalized transfer function of low pass filter.	8
b.	Design a Chebyshev digital low pass filter using impulse invariant transformation by taking	
	T = 1 second, to meet the following specifications:	12
	$0.9 \le H(e^{jw}) \le 1.0$; $0 \le \omega \le 0.25\pi$	12
	$ H(e^{jw}) \le 0.24$; $0.5\pi \le \omega \le \pi$	
9 a.	Find the Direct form-II and Parallel realizations for the system described by the difference	10
	equation, $y(n) = x(n) + 0.3 x(n-1) - 0.4x(n-2) - 0.8y(n-1) + 0.7 y(n-2)$	10
b.	Given that $H(z) = 1/3 + 1/4 z^{-1} + 3/2 z^{-2} + 3/2 z^{-3} + 1/4 z^{-4} + 1/3 z^{-5}$	
	Determine whether the system is FIR or IIR and has Linear -phase or not with suitable	10
	justifications, Realize the system with minimum multipliers	
10.a	Realize the given system in cascade and parallel forms.	10
	$H(z) = (1 + 0.25 z^{-1}) / (1 - 2z^{-1} + 0.25z^{-2})(1 - 3z^{-1} + 0.2z^{-2}).$	10
b.	Derive the lattice form realization for a second-order IIR system.	10

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