



Scheme of Valuation/Answer Key			
(Scheme of evaluation (marks in brackets) and answers of problems/key)			
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY			
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2019			
Course Code: AE306			
Course Name: DIGITAL SIGNAL PROCESSING			
Max. Marks: 100		Duration: 3 Hours	
PART A			
<i>Answer any two full questions, each carries 15 marks.</i>			Marks
1	a)	DIT algorithm -6 DFT of the sequence-2	(8)
	b)	Jury's test – condition of roots ,5+2	(7)
2	a)	Sampling theorem -3	(3)
	b)	Nyquist rate-max.frequency-ans-1+1+2	(4)
	c)	Z transform of each 4	(8)
3	a)	DTFT eqn-steps1+2	(3)
	b)	Inverse z transform of each ROC's -3	(9)
	c)	Computational complexities of DITFFT-direct method- 2+1	(3)
PART B			
<i>Answer any two full questions, each carries 15 marks.</i>			
4	a)	Eqn of $h_d(n)$ -calculation of $h(n)$ - $H(z)$ 1+3+3	(7)
	b)	Impulse invariant method + $H(z)$ -8	(8)
5	a)	Pre warping digital frequencies $\Omega_p=7265$ rad/sec, $\Omega_s=2235$ rad/sec, $N=1$, $H(s)=\frac{s}{(s+7265)}$, $H(z)=\frac{0.5792(1-z^{-1})}{(1-0.1584z^{-1})}$, 2 marks for each	(10)
	b)	$h(n)$ calculation -5	(5)
6	a)	Explanation of 4 cases , each case 2.5	(10)
	b)	Eqn of N , $N=4$ - 1+4	(5)
PART C			
<i>Answer any two full questions, each carries 20 marks.</i>			
7	a)	Each realization -2.5	(10)



		Pages 2
	b)	Architecture +explanation -5+5 (10)
8	a)	Explanation-10 (10)
	b)	Realization -5 (5)
	c)	Explanation of fixed point + floating point 2.5+2.5 (5)
9	a)	Harvard architecture +pipelining 5+5 (10)
	b)	Explanation of each 3 (6)
	c)	Explanation of each 2 (4)

