Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination

March 2019

Max. Marks: 20 **Duration: 60 Min**

Class: T.E. **Semester: VI**

Course Code:CE64 **Branch: Computer Engineering**

Name of the Course: Digital Signal Processing

Instruction:

(1) All questions are compulsory

(2) Draw neat diagrams

(3) Assume suitable data if necessary

Q No.		Max. Marks	CO
Q.1	Draw the graphical representation of the i) Unit step sequence u(n) ii) Right shift the unit step sequence u(n) by one unit in time Perform the signal subtraction operation, sketch resultant signal and infer the conclusion based on resultant signal.	05	CO1
	OR		
Q.1	Determine the finite-duration sequence x(n) from a given sequence x(n) which is a sum of weighted impulse sequence $x(n) = 4\delta(n+1) + 8\delta(n) + 6\delta(n-2)$ Also infer the length L of a output signal.	05	CO1
Q.2	The impulse response of a linear time-invariant system is $h(n) = \{1, 1/2\}$ Determine the response of the system to the input signal $x(n) = \{1, 2, 3\}$ Also summarize names of the 4 steps involved in the process of computing the convolution sum.	05	CO2
Q.3	Justify the special case when we have the auto correlation of x(n). Determine the auto-correlation sequence of the sequence $x(n) = \{1, 2, 3, 4\}$ and infer the significance of value y(0).	05	CO2
Q.4	Determine the IDFT of X(k) = {3, (2+j), 1, (2-j)}.	05	CO3