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

September 2018

Max. Marks: 20 | **Duration: 60 Min**
Class: B.E. | **Semester: VII**
Course Code:CPC701 | **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	Define and show the graphical representation of the following basic signals. i) Unit sample sequence ii) Unit step signal iii) Unit ramp signal	05	CO1
Q.2	Plot the given sequences x(n) and h(n). Find the linear convolution of the two finite duration sequences and list the steps involved in finding out the convolution sum. $x(n) = \begin{cases} 1, & -1 <= n <= 1. \\ 0, & \text{otherwise.} \end{cases}$ and $h(n) = \begin{cases} 1, & -1 <= n <= 1. \\ 0, & \text{otherwise.} \end{cases}$	05	CO2
Q.3	What is discrete time system? Classify the following discrete time system as time variant or time-invariant system. y(n)=cos x(n). y(n)=$\mid x(n) \mid$ **OR** What are the different steps to check the linearity? Classify the following discrete time system as linear or non-linear. y(n)=n $x^2(n)$. $y(n) = g(n)x(n)$	05 05	CO2 CO2
Q.4	Compute the DFT of the four point sequence x (n) = (0,1, 2, 3).	05	CO3