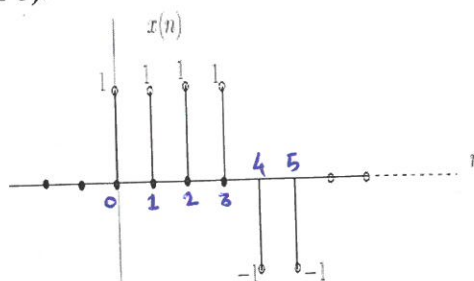


Enroll No

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.

			Marks	BT Level	COs
Q.1		Solve any two			
	a	Analyze the fundamental differences between Continuous Time (CT) signals and Discrete Time (DT) signals, exploring their mathematical representations and real-world applications.	07	4	CO1
		OR			
	a	Write mathematical descriptions of standard discrete - time test signals. Sketch the signals. Represent unit impulse signal in terms of unit step signal and vice versa.	07	3	CO1
	b	Sketch the following signal i. $x(n) = 0.5[u(n) - u(n-3)]$ ii. $x(n) = a^n$ for $0 \leq n \leq 4$	06	2	CO2
Q.2		Solve any two			
	a	Consider the system shown below. Determine whether it is (a) memory less (b) Causal (c) Linear and (d) Time invariant $y(n) = 2x(n-1) + x(2n)$	06	5	CO2
		OR			
	a	For given signals $x(n)$ and $h(n)$ compute the convolution between signal and impulse response of a system $x(n) = \{1,1,1\}$ and $h(n) = \{3,2,1\}$	06	6	CO2
	b	$y(n) = x(n)*h(n)$ where * stands for the convolution operator and $x(n)$ is given in the following fig.1 and $h(n)$ is given by $h(n) = \delta(n) - \delta(n-3) + \delta(n-5)$.	06	4	CO1



Find the value of $y(n)$

