PRN:		Course Code :	ECE210R1

Second Year **B. Tech** End Semester Examination summer 2023

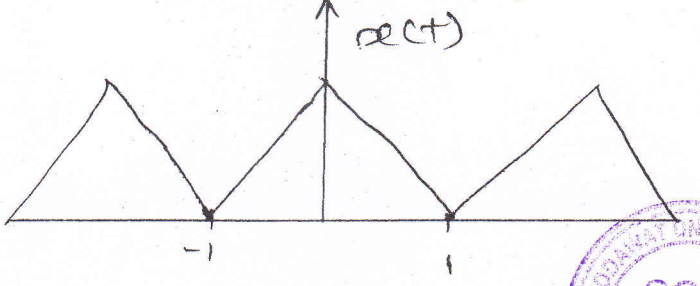
Signals and systems

Day and Date: Thursday, 22/06/23 Max Marks: **100**

Time : 2:00 to 5:00 pm Duration: **03**hrs

Instructions:All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Find the signals 1. x(t-2) 2. x(2t+3) 3. x($\frac{3}{2}$t) 4. x(-t+1)	08	L1	CO1
	b)	Explain in detail 1. Triangular pulse function 2. Signum function 3. Sinc Function 4. Gaussian Function	08	L2	CO1
		OR			
	b)	Find the Even and odd component of Following 1. x(t)=cos t +sin t +cos t sin t 2. x(n)={-2,1,2,-1,3}	08	L3	CO1
Q.2		**Attempt the following**			
	a)	Find the convolution of the following sequence X(n)={1,-1,2,3} X(n)={1,-2,3,1}	08	L1	CO2
	b)	Find the convolution of the following sequence by both matrix methods X(n)={1,-2,3,1} X(n)={2,-3,2}	08	L2	CO2
		OR			
	b)	Find the convolution of the following sequence by both matrix methods X(n)={1,4,3,2} X(n)={1,3,2,1}	08	L1	CO2
Q.3		**Attempt any two from the following**			
	a)	Find the cosine fourier series of following signal	08	L2	CO3
	b)	Find the cosine fourier series of following signal X(t)=1.5 for 0 < t < 1 X(t)= 1.5 for 1 < t < 2	08	L1	CO3
	c)	Find the exponential fourier series of following signal	08	L2	CO3



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Q.4		**Attempt any two from the following**			
	a)	Find fourier transform of the following sketch the Phase and magnitude $x(t) = e^{2t}u(t)$	08	L3	CO4
	b)	Find fourier transform of the following sketch the Phase and magnitude $x(t) = sgn(t)$	08	L3	CO4
	c)	Illustrate properties of Fourier Transform	08	L1	CO4
Q.5		**Attempt any Two of the following**			
	a)	Find Discrete time fourier transform of the following $X(n) = u(n)$	09	L1	CO5
	b)	Illustrate properties of Discrete time fourier transform	09	L2	CO5
	c)	Find Discrete time fourier transform of the following $X(n) = a^n\ u(n)$	09	L2	CO5
Q.6		**Attempt any Two of the following**			
	a)	Define ROC and Explain the properties of ROC	09	L1	CO5
	b)	State & Explain the properties of z-transform	09	L2	CO5
	c)	Determine the Z-transform of finite duration sequences given below: $x(n)=\{\underset{\uparrow}{1},2,3,4,5,6\}$ ii) $x(n)=\{\underset{\uparrow}{3},2,-1,-4,1\}$	09	L1	CO5

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