Sanjay Ghodawat University, Kolhapur

2020-21

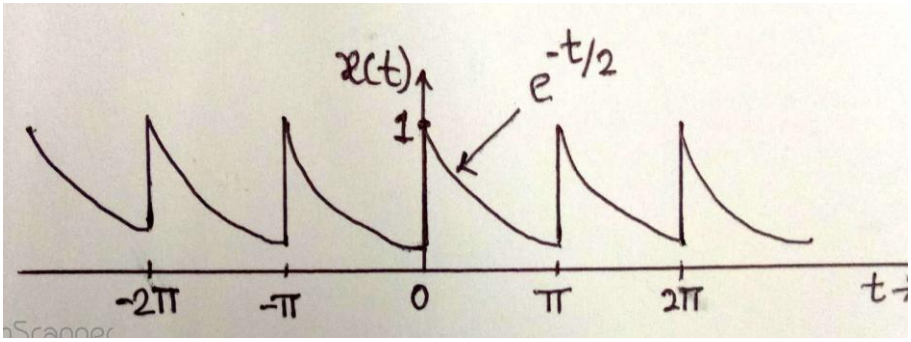
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EXM/P/09/00

Year and Program: T.Y.B Tech.	**School of Technology**	**Department: Electrical Engineering**
Course Code: ELE301	**Course Title: Signals & Systems**	**Semester : V**
Day : Monday **Date: 14/12/20**	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.
2)Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (Any Two)**–			
a)	Describe classification of continuous time system in detail.	8	L1	1
b)	Identify whether the following systems are causal or non-causal. i)$y(t)= x^2(t)+ x(t-2)$ ii) $y(n)= x(n) + x(n-1)$	8	L2	1
c)	Discuss properties of convolution sum in detail.	8	L2	3
Q.2	**Answer the following (Any two) –**			
a)	Find the zero-input response of an LTIC system described by $(D+5)\, y(t) = x(t)$, if the initial condition is $y(0) = 5$.	8	L3	3
b)	Analyze z-transform of following signal & sketch the ROC. $x(n)= (0.6)^n\, u(n) + (0.4)^n\, u(n)$	8	L4	4
c)	Evaluate Laplace Transform of following signals: i) $x(t)= e^{-at}\, u(t)$ ii) $x(t)= \delta(t)$	8	L5	4
Q.3	**Answer the following (Any two) –**			
a)	Illustrate the properties of Discrete Time Fourier Transform.	9	L2	2
b)	State Nyquist theorem. Calculate Nyquist sampling rate and folding frequency if the analog signal given below is sampled by 600 samples per second . $x(t)= 2 \sin 480\pi t + 3 \sin 720\pi t$	9	L3	2
c)	Determine trigonometric Fourier series for the periodic signal x(t) shown in the Figure a .	9	L3	2



Q.3c) Figure a

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