

## Department of Electrical Engineering

### Mid term exam

Date: 19/08/2020

#### Course Details

Course Title: Signals & Systems

Module: 04

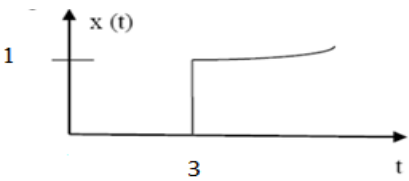
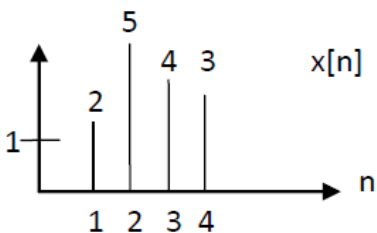
Instructor: \_\_\_\_\_

Total Marks: 30

#### Student Details

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Q1.	(a)	Differentiate between systems with & without memory using examples.	Marks 05+04
	(b)	Identify the basic difference between a deterministic and a random signal.	CLO 1
Q2.	(a)	Sketch the transformed versions for the signal $x(t)$ mentioned in i. and ii.	Marks 08+06
		<div style="text-align: center;">  </div> <p style="margin-left: 40px;">i. <math>x(t + 4)</math> and <math>x(2t)</math>                      ii. <math>x(t/5)</math> and <math>x(t-3)</math></p> <p style="margin-left: 40px;">(b) Outline the given system as invertible or non-invertible, linear or non-linear, causal or non-causal. Give the reason for your answers too.</p> <p style="margin-left: 40px;">i. <math>y[n] = x^2[n]</math>                      ii. <math>y[n] = x[n + 2]</math></p>	CLO 1
Q3.		Let $x[n]$ be a signal with $x[n] = 0$ for $n < 1$ and $n > 4$ . For the signal given below, determine value of "n" for which the signal is guaranteed to be zero.	Marks 04
	i.	<div style="text-align: center;">  </div> <p style="margin-left: 40px;"><math>x[n+5]</math></p>	CLO 1

Q4.	<b>State</b> the correct answer. If a time shift in the input signal does not result in an identical time shift in the output signal, the system is said to be _____	Marks 03 CLO 1
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