

Department of Electrical Engineering

Assignment

Date: 25/06/2020

Course Details

Course Title: Signals & Systems
 Instructor: _____

Module: 04
 Total Marks: 50

Student Details

Name: _____

Student ID: _____

Q1.	(a)	Show with a help of an equation that the differentiation of a function in time domain results in the multiplication by $j\omega$ in frequency domain.	Marks 06+08
	(b)	If $x[n] = 2\delta[n] - 4\delta[n - 2] + 2\delta[n - 3]$ $h[n] = 3\delta[n] + \delta[n - 1] + 2\delta[n - 2]$ Produce $Y(z)$ and $y[n]$	CLO 3
Q2.		$f(x) = \begin{cases} -\pi/2 & -\pi \leq x \leq 0 \\ \pi/2 & 0 \leq x \leq \pi \end{cases}$ Retrieve the Fourier series for the given function.	Marks 10
			CLO 3
Q3.		If $X(z) = 2z^2 + 2z / (z^2 + 2z - 3)$ Retrieve $x[n]$ using inverse Z-transform method.	Marks 10
			CLO 3
Q4.		Express the transfer function using the given data. $A = \begin{bmatrix} -2 & -1 \\ 1 & 0 \end{bmatrix}$ $B = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$ $C = [1 \ 2]$ $D = [0]$	Marks 09
			CLO 3
Q5.		Apply Fourier transform on the signal, $x(t) = e^{-a t } u(t)$ where $u(t)$ is a unit step function.	Marks 07
			CLO 3