Department of Electrical Engineering
Assignment
Date: 23/06/2020

Course Details

Course Title: Analog and Digital Communication System   **Module:** _____

Instructor: _____   **Total Marks:** _____50_____

Student Details

Name: _____   **Student ID:** _____

			Marks
Q.1	(a)	How a Line Coder and Regenerative Repeater plays a role in digital communication system. Explain in detail	**Marks 6**
.	(b)	Derive a mathematical expression used to find the Power Spectral Density of different line coders used in digital communication systems	**Marks 6**
Q2.	(a)	Explain along with the diagram the concept of equalizers in regenerative repeaters.	**Marks 6**
	(b)	How QAM systems are used in digital communication system. Explain along with the QAM architecture.	**Marks 6**
Q3.	(a)	For a (6,3) code, the generator matrix G is $$G = \begin{cases} 1\,0 & 0 & 10 & 1 \\ 0\,1 & 0 & 01 & 1 \\ 0\,0 & 1 & 11 & 0 \end{cases}$$ For all eight possible data words. Find i. Find the correspond codewords and verify that this code is a single error correcting code. ii. If the receiver receives r = 100011. Determine the corresponding data word if the channel is BSC and the maximum likelihood decision is used.	**Marks 8**

	(b)	Construct a systematic (7,4) cyclic code using a generator polynomial $g(x) = x^3+x^2+1$ using the data vector d = 1010.	**Marks 6**
Q.4	(a)	Explain the concept of non-linear modulators and its types in the generation of DSB-SC signals.	**Marks 6**
	(b)	Explain the process of Demodulation of AM signals. Explain each type along with its diagram.	**Marks 6**