CSE320

Quiz-3

Time: 25 Min

Total Marks: 15

Name:	ID:	Section:

1. The following table represents a sampled analog signal for digital signal representation. By applying the concept of Pulse Code Modulation (PCM), assume there will be 2-bit code words for each sampled amplitude. Show the normalized quantized value and quantization code for the given analog signal values at different time stamps. Assume that the sampling amplitudes are between -12V to +12V. [5]

Time (ms)	Analog Signal Value (V)
0	4.5
1	-6.7
2	9.2
3	-11.4

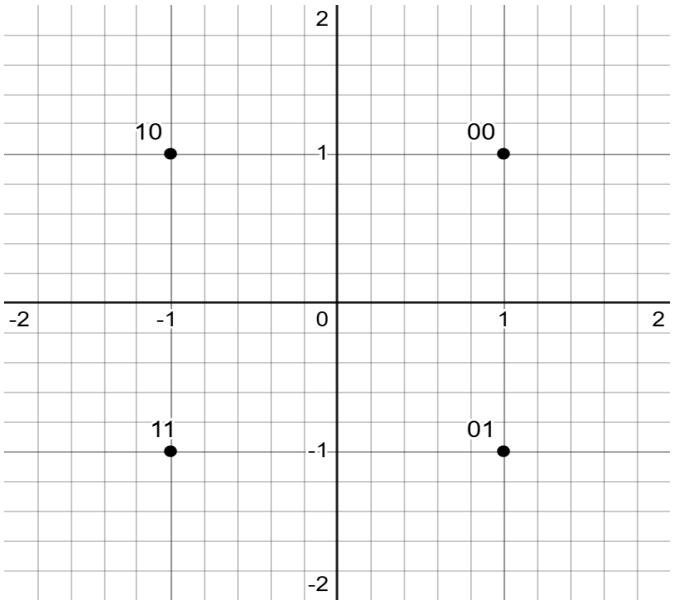
2. In a Multi-Level FSK system, each signal element represents 2 bits. The carrier signal has an amplitude of 8V and a phase of 0 degrees. The frequency of the signal changes according to the following table: [5]

Bit Pattern	Number of cycles of the signal element
00	1
01	2
10	3
11	4

Draw the modulated signal for the bit sequence **1001010011.**

3. The following is a constellation diagram representing a Quadrature Phase Shift Keying (QPSK) modulation. Consider the carrier signal completes 3 cycles at each signal element. [5]

Binary Pair	Coordinates (I, Q)
00	(+1,+1)
01	(+1,-1)
11	(-1,-1)
10	(-1,+1)



Constellation Diagram

Using this constellation diagram, draw the corresponding QPSK waveform for the bit sequence: **11001011.**