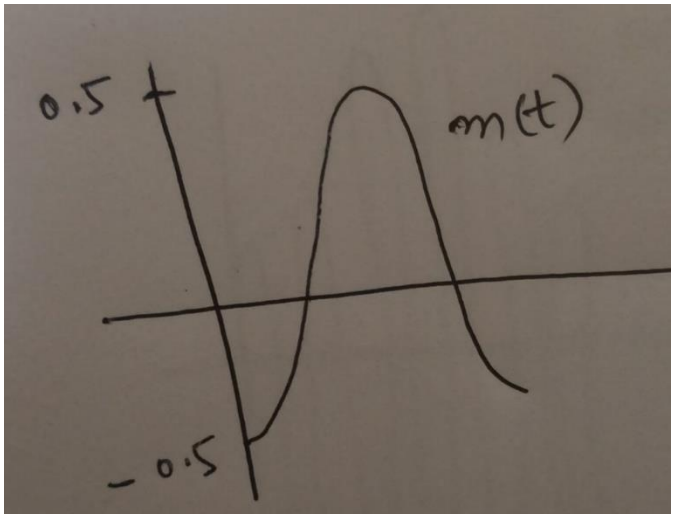
**Assignment No 2**

1. Convert the binary data "011010" into analog waveforms using following modulation techniques:
    a. Two level Amplitude Shift Keying
    b. Two level Frequency Shift Keying
    c. Two level Phase Shift Keying
    d. Differential Phase shift keying
    e. Four level Amplitude Shift Keying
    f. Four level Phase Shift Keying
    g. Eight level Amplitude Shift Keying
2. With fc = 500 kHz, fd = 25 kHz, and M = 16 (L = 4 bits), compute the frequency assignments for each of the sixteen possible 4-bit data combinations.
3. Draw the approximate Analog Modulation and Frequency Modulation waveforms in complete steps for the following signal:




4. Draw the 16 QAM Constellation Diagram having two different amplitude levels and eight different phase levels.
5. Explain and draw the Error Detection Process for Cyclic Redundancy Check (CRC).
6. Compute the frame check sequence for the following information:

    Message = 10111100, Pattern = 11011

7. Compute the transmitted signal using Direct Sequence Spread Spectrum for the following information:

   Input: 1011, Locally Generated PN bit stream: 101011011010, T = 3Tc

8. What is the difference between Infrastructure and ad hoc modes in WLAN? Draw their relative diagrams as well.
9. Compare the differences of TCP and OSI protocols for wired and wireless LANs using diagrams.
10. Explain why the square and circle shapes cells for cellular communications are not appropriate as compared to hexagonal shape cells.