**1. Your report should be written in English. The report should include the code (with comments or notes), the resulted figure (or print-screen), and a short discussion on the result if necessary.**

**2. Upload: .m file, .fig file and .doc report**

**3. Pack all the above files and send to 1315480535@qq.com**

**4. The format of pack name: LabX\_ID\_Name.zip, X is the experiment number.**

**5. Deadline: Thursday in Next week.**

**Complete the following tasks:**

1. Consider the following 8-PAM waveforms, where T=1:



 and 

The mapping rule: 000->0, 001->1,010->2,...,111->7

(1) Give the symbol interval and bit interval.

(2) Give the average energy per symbol and average energy per bit.

(3) Simulate the symbol error rate and bit error rate of 8-PAM when the **SNR per bit** is 0dB.算蒙地卡罗仿真，不做理论

（八阶脉冲幅度调制波形，符号周期1s，比特周期1/3s；平均符号能量/8，比特能量再/3；符号错误率eg5.8，比特错误率）

2. Simulate the band-limited channel.(计算带限信号)

(1) Randomly generate a sequence of **ten** 8-PAM signals. The sampling rate fs=1000Hz. Give the signal both in time domain and frequency domain.

（信号的时域和频域，F2T.m）

(2) Consider a band-limited noiseless channel. The channel response in frequency domain is H(f)=1, |f|≤3Hz, otherwise, H(f)=0. Give the resulted signal waveform after the signal in (1) passing through this channel, both in time domain and frequency domain. Explain the result. What will happen under a larger channel bandwidth?（经过无噪带限信道，时域卷积或者频域相乘后反傅里叶变换，结果变平缓）

(Hint: Multiply the spectrum of the input signal with the channel response to get the output signal. Use the functions F2T(.) and T2F(.). You can refer to Problem 1.7 in the Ch.2 ppt.).

3 (Optional). Try to illustrate using Matlab that the raised cosine waveform satisfies the following condition:（验证升余弦波形满足折叠普是常数）

