ASSIGNMENT 1

Digital Communication

Q1.If a delta modulator is fed with sinusoidal input of frequency 4 kHz, then what should be the minimum sampling frequency for the SNR to be at least 25 dB, assuming system is designed to avoid slope overload.

Q2. Find the out SNR of a Delta modulator for a 2 kHz input signal sampled at 64 kHz, assuming slope overload is not present and reconstruction filter has BW of 4 kHz.

Q3. A voice frequency signal is sampled at rate of 32kbps and peak voltage of 2v with a BW of 4khz.Determine

1. Step size to avoid slope overload
2. Quantization noise power
3. SNR

Q4.A signal having BW of 4 kHz is sampled quantized and coded using PCM. The signal is then transmitted over the channel with a transmission rate of 100kbps. Assuming signal has peak value of 6 v and rms value of 0.4 v, find the maximum SNR of this system.

Q5. Comparison between PCM, DPCM, DM and ADM