

Ex Consider that we have an audio signal sampled at a rate of 8k sample per second and quantized using 8 bits per sample determine

- The bit rate R_b
- The signal to quantization noise energy (assume the input signal can be approximated by sine waves)

Solution

$$\begin{aligned}
 a) R_b &= \text{no of bits} \times \text{no of samples per second} \\
 &= 8 \times 8000 = 64 \text{ kbit/s} \\
 b) (SNR) &= 1.8 + 6R \\
 &= 1.8 + 6(8) = 49.8 \text{ dB}
 \end{aligned}$$

Ex 2

For the signal shown below
sketch the resulting pulse
code modulated signals

