

Question one: Solve the following problems

1. Calculate the space required to store an audio file 5 minutes long in stereo mode. Each sample is 8 bits. The minimum frequency is 20 Hz and its maximum frequency is 22.05 KHz.
2. Calculate the space required to store an audio that is 3 minutes long in mono mode. The sampling rate is 88.2 KHz and each sample is 8 bits.
3. Apply the DPCM algorithm to compress a digital audio signal with the following samples:
 - a. {1.5 ,2.4 ,2.8 ,3.2 ,2.7 ,2.9}
 - b. {1000.5, 1002.4, 1005.9, 1006.1, 1007.5, 1008.0}.