REPORT

LAB-7

7.1 Quantization

PART-(d)

When we compare the histograms, we see that the maximum error that it can have increases as B value decreases.

PART-(e)

When we compare the errors, we see that the as B increases, the Max Quantisation error decreases. This can be accounted to the fact that as B increases, number of quantization levels increases, so the precision of the value to which the output signal is mapped also increases as there are more edge points now.

PART-(f)

When we compare the SQNR, we see that as B increases, the SQNR also exponentially increases.

PART-(g)

When we compare accuracy, we see that due to unequal length of intervals, the accuracy of the points falling within small intervals is greater than that of a uniform quantizer and the accuracy of points that fall within huge length intervals is lesser than that of uniform quantizer. So, overall, we can say that the accuracy is lesser and more at other places when compared to the uniform quantizer.

7.2 Quantization of Audio Signals

PART-(a)

We see that the quality of the sound from the original signal is more accurate, precise, and less noisy compared to the quantized signal because in the quantized signal, we are approximating the output signal to a value depending on the window to which it belongs to, so we have a minor error and so, quantized signal is noisy.

PART-(b)

We see that as B increases, the quality of sound keeps on increasing. This is because as B increases, number of quantization levels increases, so the precision of the value to which the output signal is mapped also increases as there are more edge points now.

PART-(c)

We see that there is not much change in frequency content of the quantized signal. The effect of B is that as we increase B the accuracy increases and error decreases.