ID=173-35-2218 Sec=A
Course Code = SWE 321

Ans to the Q NO-1

One goal in data Communications is to increase the data rate while decreasing the signal rate.

Data rate is the number of data elements sent in 1s, it also known as bit rate.

Signal rate is the number of signal elements sent in 1s, also known as baud rate.

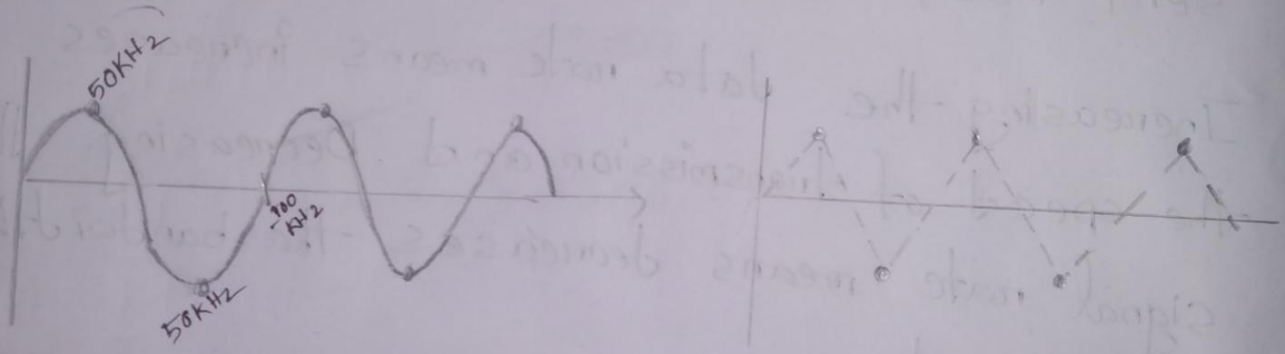
Increasing the data rate means increases the speed of transmission and Decreasing the signal rate means decreases the bandwidth requirement

For Example: We need to carry more people in fewer vehicles to prevent traffic jams. We have a Limited bandwidth in our transportation system.

Ans to the Q NO-2

According to the Nyquist theorem, The highest frequency (f) of a signal is half of the sampling rate (f_s), $f_s = 2f$

If signal frequency(f) is 50KHz then Sampling(f_s) rate will be 100KHz.



Nyquist rate sampling $f_s = 2f$

Ans to the Q NO-3

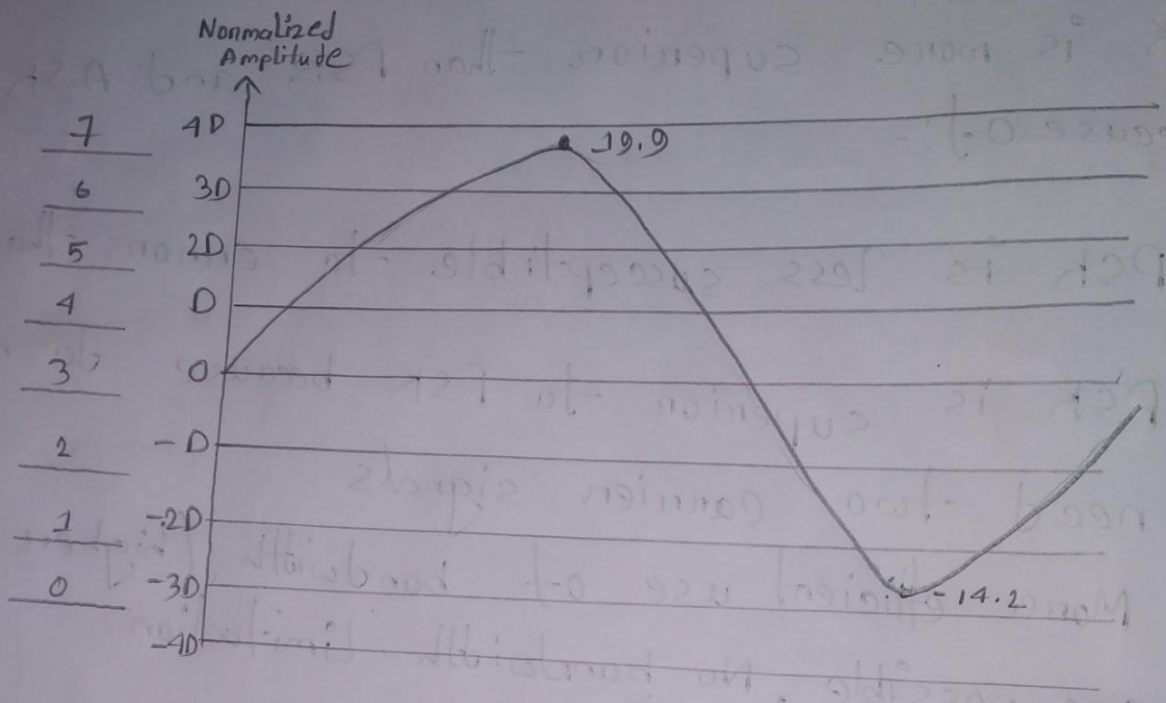
PSK is more superior than FSK and ASK Because of:-

i) PSK is less susceptible to errors than ASK

ii) PSK is superior to FSK because do not need two carrier signals

iii) More efficient use of bandwidth (higher datarate) are possible, No bandwidth Limitation

Ans to the Q. NO-4



Normalized PAM Values: ⟶	3.98	-2.84
Normalized quantized values ⟶	3.50	-2.50
Normalized Error ⟶	-0.48	0.34
Quantization Code ⟶	7	1
Encoded Words ⟶	111	001