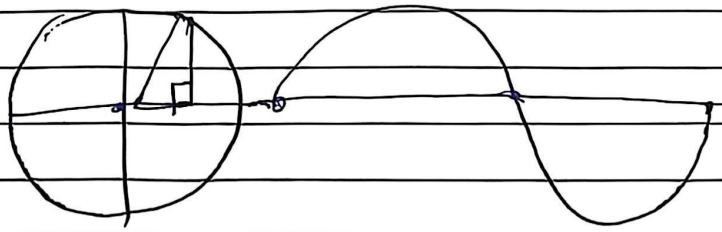
4 september 2025

OSI model is a conceptual model
we will fow Top to down approach-

Application layer

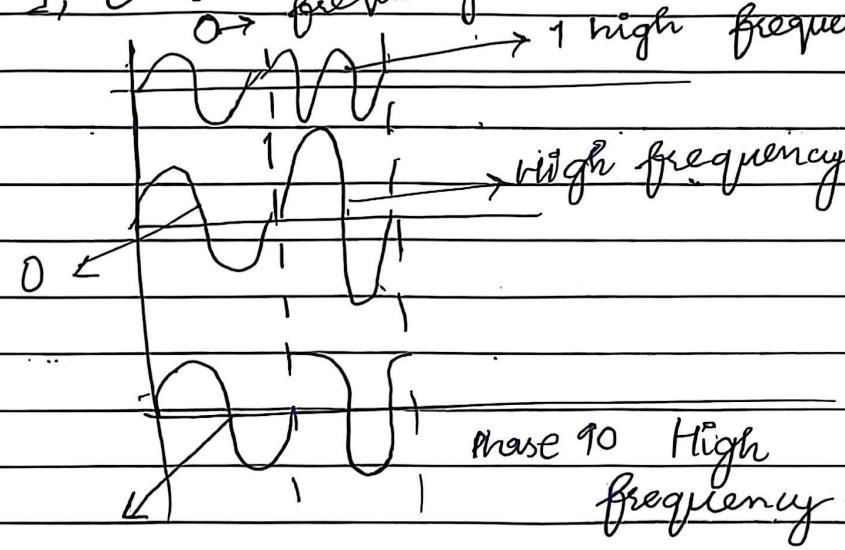
Physical layer : Physical movement of data from one machine to the other.

The data is transferred in form of bits
How data is transferred? In form of signals
Signals: → Analog
Electrical / Digital



Properties of Analog signal
1 frequency
2 Amplitude
3 Phase

Frequency shift Key: By changing frequency we represent 1, 0



To increase the number of bits sending by same number of waves increase variations.

Phase
0 0
frequency

QAM ⟶ combination of Amplitude shift key + Phase shift key

Quadrachured Amplitude Modification

Variations : $\log_{(2)}(N) = (x \times y)$

N → number of variations

x → Amplitude variation

y → Phase variation

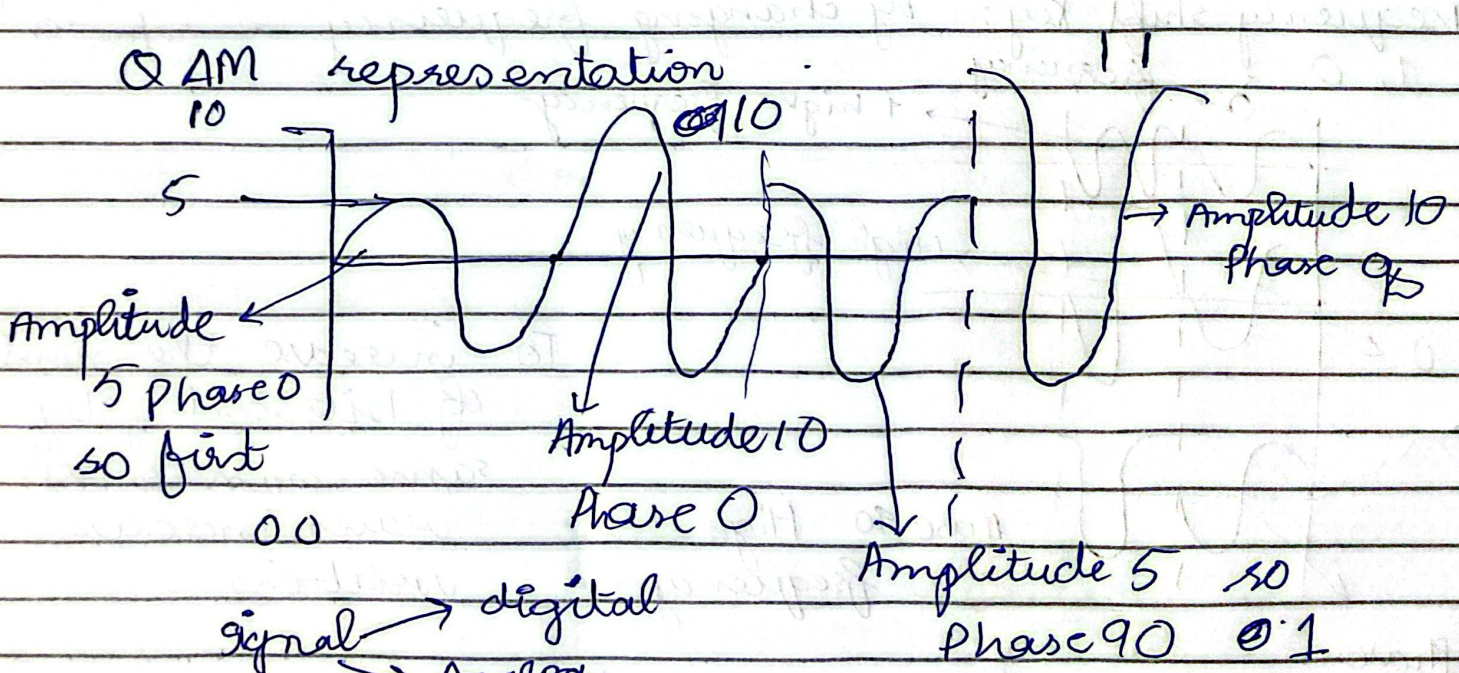
In QAM we will always use Amplitude and Phase as they both have same frequency.

(8)

QAM 256 higher bits per cycle

QAM 128 less than 256 -

QAM representation



signal → digital
→ Analog.

Data → Digital
→ Analog

Signals are transformed from Digital to Analog with Data.

Analog signal is continuous in nature

Digital is discrete in nature.