Distinguish, differentiate, compare and explain what is the Difference between Frequency and Phase Modulation. Comparison and Differences.

What is Phase Modulation ?

Phase modulation works by modulating the phase of the signal, i.e. changing the rate at which the point moves around the circle. This changes the phase of the signal from what it would have been if no modulation was applied. In other words the speed of rotation around the circle is modulated about the mean value.

Forms of phase modulation

Although phase modulation is used for some analogue transmissions, it is far more widely used as a digital form of modulation where it switches between different phases. This is known as phase shift keying, PSK, and there are many flavours of this. It is even possible to combine phase shift keying and amplitude keying in a form of modulation known as quadrature amplitude modulation, QAM.

What is Frequency Modulation ?

Frequency modulation requires a carrier wave and a modulator wave. Here we will be modulating the frequency of the carrier wave with a modulator wave.

Difference between Frequency and Phase Modulation

1. In frequency modulation FM, the max frequency deviation depends on amplitude of modulating signal and its frequency. In phase modulation PM, the max phase deviation depends on amplitude of modulating signal.
2. In frequency modulation FM, frequency of the carrier is modulated by modulating signal. In phase modulation PM, phase of the carrier is modulated by modulating signal.
3. In FM, modulation index is increased as modulation frequency is reduced and vice versa. In PM, modulation index remains same if modulating signal frequency is change.