Pulse width modulation

It is a switching techniques where different width of pulses is generated from an analog signal.

Q. what is duty cycle?

Ans: It is the ratio of time a signal is ON compared to the time the signal is off.

Modulation technique can be used to encode information for transmission.

Allows control of power supplied to electrical Devices.

Harmonics

Harmonics are integer multiples of a fundamental frequency.

5 KHz

* 1st Harmonic 1 x 5 KHz
* 2nd Harmonic 2 x 5 KHz
* 3rd Harmonic 3 x 5 KHz
* 4th Harmonic 4 x 5 KHz etc

Here,

1 & 3 → odd Harmonics

2 & 4 → Even Harmonics.

Effect of Total Harmonic Distortion

This THD has an adverse effect on equipment and conductor.

Effects

1) Heating loss
2) false triggering
3) Reduced lifitime
4) Increased cost and size.

Low THD

1) Advanced Powen factor
2) ~~Smooth~~ Less pick currents
3) High efficieney.

Essential to diminish THD of multilevel inverter.

Sinusoidal Pulse Width

* Pulse will have different widths
* Height of the pulse is kept as constant.
* Reduces unwanted Harmonics
* Odd multiples of 3 and even harmonics are suppressed