**Experiment No.: Date:**

**Aim:** To study DSB-FC and DSB-SC using Matlab

**Theory:**

Modulation is the process by which some characteristics of a carrier are varied in accordance with a modulating frequency. Amplitude modulation is the process of changing the amplitude of a high frequency carrier signal in proportion with the instantaneous value of modulating signal. This is called as double sideband full carrier (DSB-FC) modulation. Modulation Index is defined as the ratio of amplitudes of modulating wave and carrier wave.

m=Em

Ec

If m=1 then it is called as perfect modulation. If m>1 then it is called as over modulation. If m<1 then it is called as under modulation. The formula for m from observing the output is given by:

m= Emax-Emin

Emax+Emin

The equation of am wave for DSB-FC is given by:

eAM= Eccosωct+ Emcos(ωc+ωc)t+ Emcos(ωc-ωc)t

2 2

The equation of am wave for DSB-SC is given by:

EAM= Emcos(ωc+ωc)t+ Emcos(ωc-ωc)t

2 2

**Conclusion:**