

Quiz #2

1. In the following FM synthesis case, what would be the frequencies of the first three upper and first three lower sidebands.

Main oscillator (carrier) set to a frequency of 1000 hz. Modulator (program) oscillator set to 100 Hz

3<sup>rd</sup> upper sideband:

2<sup>nd</sup> upper sideband:

1<sup>st</sup> upper sideband:

- - 1000 Hz Oscillator - -

1<sup>st</sup> lower sideband

2<sup>nd</sup> lower sideband

3<sup>rd</sup> lower sideband

2. In the following FM synthesis case, what would be the frequencies of the first three upper and first three lower sidebands.

Main oscillator (carrier) set to a frequency of 500 hz. Modulator (program) oscillator set to 500 Hz

3<sup>rd</sup> upper sideband:

2<sup>nd</sup> upper sideband:

1<sup>st</sup> upper sideband:

- - 500 Hz Oscillator - -

1<sup>st</sup> lower sideband

2<sup>nd</sup> lower sideband

3<sup>rd</sup> lower sideband

3. In the most general sense, what is the effect of increasing the strength (amplitude) of the modulating oscillators effect on the main (carrier) oscillator? (e.g. "turning up FM") – One good way to approach this is to set it up on the Subtractor, try it, and describe how the sound changes, taking into consideration how sideband frequencies might be involved. (For this question, assume that both oscillators produce *audio frequencies*, as in the first two questions above.)