

Quiz #1

1. What are the frequencies of the first six harmonics of a tone with a fundamental frequency of 100Hz/ (Watch out – *slightly* trick question!)

6th harmonic

5th harmonic

4th harmonic

3rd harmonic

2nd harmonic

1st harmonic

2. In terms of the “quality of the sound,” how would you describe the difference between that of a sawtooth wave and that of a sine wave? (Remember that you can select and hear these on the Subtractor synth in Reason! Your answer will be somewhat subjective.)

3. Which of these waveforms consists of pure first harmonic (or fundamental)?

- a. sine
- b. square
- c. sawtooth

4. Which of these waveforms consists of only odd-numbered harmonics?

- a. sine
- b. square
- c. sawtooth

5. Which of these waveforms contains all harmonic frequencies?

- a. sine
- b. square
- c. sawtooth

6. 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

3rd upper sideband:

2nd upper sideband:

1st upper sideband:

- - 1000 Hz Oscillator - -

1st lower sideband

2nd lower sideband

3rd lower sideband

7. 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

3rd upper sideband:

2nd upper sideband:

1st upper sideband:

- - 500 Hz Oscillator - -

1st lower sideband

2nd lower sideband

3rd lower sideband

8. 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")