Science Of Music Study Guide

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Contents

1 Musical Definitions

Please refer to the file on Canvas for the full list of definitions. Below are the definitions the professor highlighted in class.

1.0.1 Acoustical Beating

The audible vibration created when two or more frequencies, that are not quite in a simple whole number relationship to each other, are sounded together. For example if 100 and 102 Hz are played together you can hear the 2 vibrations per second difference.

1.0.2 Audiation

"The mind's ear", or the ability to hear previously heard sounds in one's mind.

1.0.3 Chord

Three or more different pitches occuring simultaneously.

1.0.4 Consonance and Dissonance

The concept of relatively pleasing sound, due to combinations of particular harmonies, melodic progressions, and/or rhythms. What is consonant or dissonant depends on what is culturally the norm.

1.0.5 Dynamics

Level(s) of loudness or softness in a piece of music. Italian terms such as forte and piano are used. Adding an "issimo" is a suffix that means even more of that quality and adding "mezzo" means not so much of this. Pianissimo versus mezzo piano.

1.0.6 Harmony

1.0.7 Instrumentation

1.0.8 Melody

1.0.9 Music

1.0.10 Note

1.0.11 Octave

1.0.12 Pitch

1.0.13 Range

1.0.14 Scale

1.0.15 Timbre

1.0.16 Triad

2 What are waves

EXPLAIN WHAT WAVES ARE (INCLUDING WAVELENGTH)

2.1 Simple Harmonic Motion

2.2 Amplitude and Frequency

2.3 Standing Waves

2.4 Resonance

2.4.1 Mechanical Coupling

3 Variables to Know

$Variable$	$Abbreviation$	$Units$	$UnitsAbrv$	$Misc$
$Frequncy$	f	$Hertz$	Hz	$\frac{1}{sec}$
$SpeedOfSound$	$C(V_{air})$	$Meters/Second$	m/s	$344m/s$
$Wavelength$	λ	$Meters$	m	
$Length$	L	$Meters$	m	

4 Equations to Know

Wavelength:

$$\lambda = \frac{C}{f}$$

Drt equation:

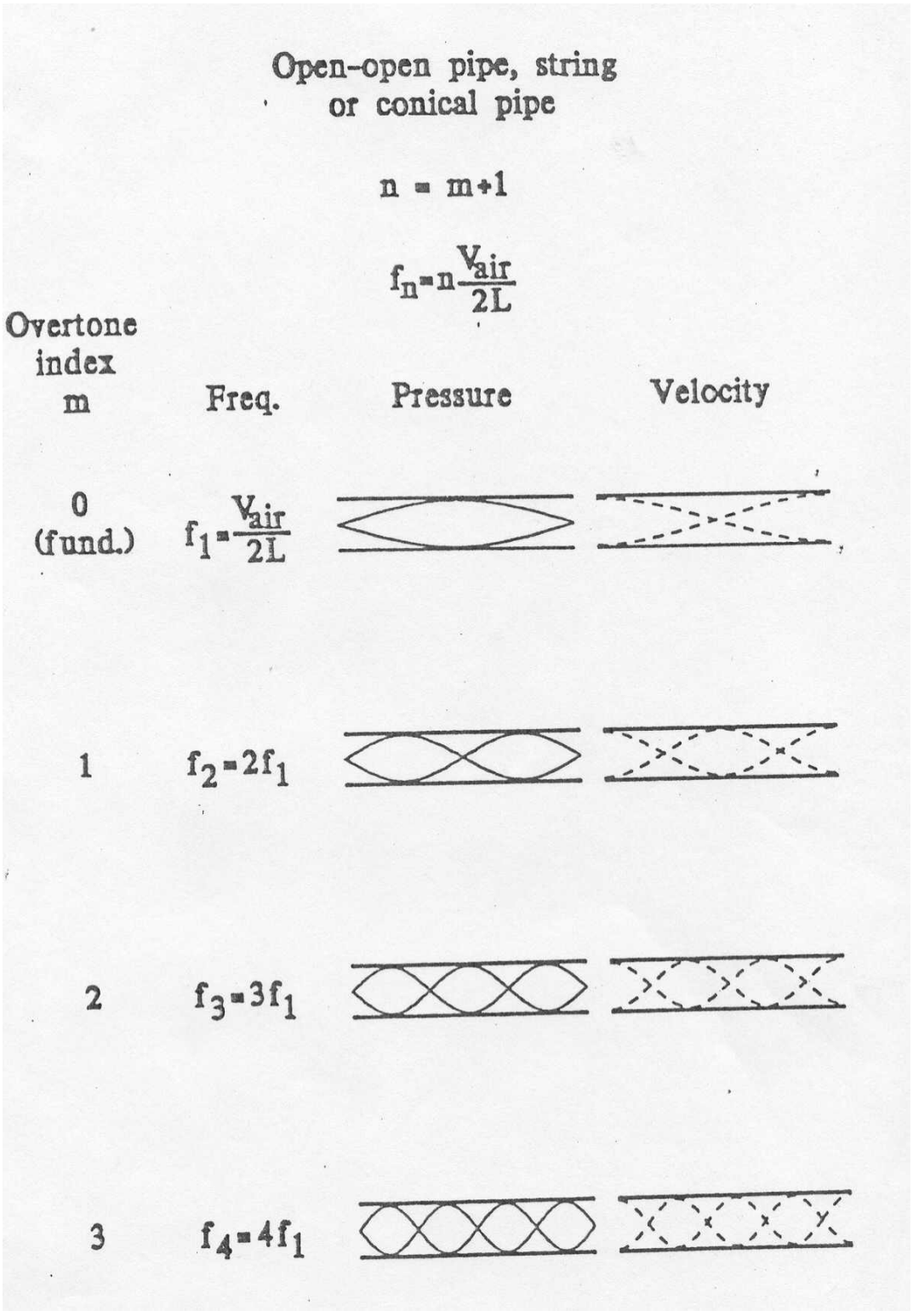
$$d = rt$$

This is common equation where distance is equal to rate times time.

Open-Open Pipe fundamental:

$$f_1 = \frac{C}{2L}$$

The open-open pipe is also called a half wave resonator, strings also follow the half wave resonation pattern. The overtones follow increasing consecutive integer harmonic multiples. Below is an illustration of the half wave resonator sound waves.



Open-Close Pipe fundamental:

$$f_1 = \frac{C}{4L}$$

The open-closed pipe is also called a quarter wave resonator. The overtones follow an increasing consecutive

odd integer harmonic multiples. Below is an illustration of the quarter wave resonator sound wave.