

**Ling 205 A1 2006. Assignment 4 Due Thursday Nov 9. (Note due date is one class later than on syllabus).**

Colour version available on web site.

**Part 1.**

A) Rogers p. 147. Ex. 1.

B) Rogers p. 146-147 Ex 2. All. (The first question is asking for the fundamental frequency of the wave in fig 7.17).

C) Rogers p 147 Exercise 3. 3b) and 3c) as written,. But Instead of 3a) give approximate frequencies of the first, 4th and 10th harmonic at the time indicated by the arrow.

D) Rogers p 148 Exercise 5. Just give list the four formant frequencies

(F1 = \_\_\_\_\_, F2 = \_\_\_\_\_, F3 = \_\_\_\_\_, F4 = \_\_\_\_\_)

**Part 2. Acoustic measurements.** The following figure shows the waveform and spectrogram produced by Wavesurfer displays of the syllables 'pat' 'sped' and 'bit': Provide the following information.

A) VOT in milliseconds to nearest 10 ms of each of the bilabial consonants. Note that time calibration is in seconds. Each minor tic mark represents 10 ms.

B) First four formant frequencies in Hz at the temporal midpoint of each vowel. Note that Wavesurfer has tracked formant center frequencies.

