

025:250 Electronic Media I
Assignment 5, due Sept. 20

Name _____

Show all steps.

1. If a sound has a fundamental frequency f of 720 Hz, what is the frequency f_6 of its 6th harmonic?

- a)
- b)
- c)

2. If a sound has a fundamental frequency f of 360 Hz, what is the harmonic number N of the harmonic frequency $f_N = 2880$ Hz?

- a)
- b)
- c)
- d)

3. If harmonic $f_N = 800$ Hz and harmonic $f_{(N+1)} = 1200$ Hz, what is the fundamental frequency f ?

- a)
- b)
- c)
- d)
- e)

4. If a sawtooth wave has an amplitude A of 16000, what is the amplitude A_4 of its 4th harmonic?

- a)
- b)
- c)
- d)

5. If a square wave has an amplitude A of 24000, what is the amplitude A_3 of its 3rd harmonic?

- a)
- b)
- c)
- d)

6. If a square wave has an amplitude A of 24000, what is the amplitude A_6 of its 6th harmonic?

a)

b)

c)

7. If a sine wave carrier frequency $c = 200$ Hz is modulated by a sine wave modulator frequency $m = 80$ Hz, what are the frequencies of the N th = 3rd order upper and lower sidebands? List all the frequencies, including the carrier, in ascending order to see the resulting harmonic structure of the modulated tone.

a)

b)

c)

d)

e)

f)

g)

h)

i)

j)

k)

l)