

## Blitz, Chapters 12 & 13, Form S

Name \_\_\_\_\_ Period \_\_\_\_\_

*This is a Take Home Exam. You may use your notes but you may NOT use help from human beings.*

**EXPLAIN IN COMPLETE SENTENCES AND GIVE EXAMPLES:**

**You MUST HAND WRITE THIS EXAM!! NO TYPED PAPERS WILL BE ACCEPTED!**

1. Define: amplitude, wave length, period, frequency, and rectilinear propagation.
2. Show how diffraction happens to water waves, and include constructive and destructive interference.
3. Differentiate between the intensity and loudness of sound.
4. Explain forced vibrations and resonant vibrations, and give examples.
5. Define the quality of sound and illustrate why two instruments playing the same note sound differently.

**\*\*\* SHOW METHOD OF SOLUTION FOR ALL PROBLEMS (The 1,2,3,4!)**

6. A closed tube organ pipe is 0.062m in diameter and 0.30m long. Its frequency is 463 hz. Find the speed of sound.
7. Find the wavelength of a sound whose frequency is 745hz at 28.0°C.
8. Find the speed of a wave whose frequency is 67.3hz and whose wavelength is 5.45 m.
9. Determine the frequency of an open tube organ pipe that has a diameter of 0.13m and a length of 2.6m at 19.0°C.
10. Find the distance to a thunder clap when the time for the sound to arrive is 10.0s at 16°C.

**FORMULAS:**

$$v = f \lambda \quad \dots \quad d = vt \quad \dots \quad \lambda = 4(l + 0.4d) \quad \dots \quad \lambda = 2(l + 0.8d) \quad \dots \quad v = 331\text{m/s at } 0^\circ\text{C and increases } 0.6\text{m/s}/^\circ\text{C}$$

**When finished, please STAPLE this exam onto your papers and turn in on due date.**