**Characteristics Of Waves**  (p. 514 – 523)

**I. Wave Properties**

 **1. Define the terms amplitude and wavelength.**

 Amplitude : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Wavelength : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **2. Draw a picture of a transverse wave and label the crest, trough, and rest position.**

 **3. Draw a picture of a longitudinal wave and label the rarefactions and compressions.**

 **4. Circle the type of wave characteristic that produces the most energy.**

 Amplitude : Smaller Larger

 Wavelength : Shorter Longer

 **5. Define the terms period and frequency.**

 Period : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Frequency : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **6. What are the SI units for period and frequency?**

 Period = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Frequency = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **7. What is one Hertz equal to with regards to vibrations.**

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **8.** **Write out the equation to determine frequency.**

 Frequency = *f* =

 **9. As frequency increases, the wavelength increases.**

 Circle One : True False

**II. Wave Speed**

 **1.** **Write out the equation to determine wave speed *(with regards to wavelength & frequency).***

 Wave Speed = *v* =

 *v* =

 **2. What determines the speed of a sound wave?**

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **3. Rate the speed of sound in the following mediums.** *[1 = fastest; 3 = slowest]*

 \_\_\_\_\_ - Gases \_\_\_\_\_ - Liquids \_\_\_\_\_ - Solids

 **4. Rate how tightly bound the molecules are in each type of matter.** *[1 = tightly; 3 = loosely]*

 \_\_\_\_\_ - Gases \_\_\_\_\_ - Liquids \_\_\_\_\_ - Solids

 **5. The speed of light has no upper limit.**

 Circle One : True False

 **6. What is the speed of light?**

 *c* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ miles / second

**III. The Doppler Effect**

 **1. Define the term pitch.**

 Pitch –

 **2. A higher pitch corresponds with a higher frequency.**

 Circle One : True False

 **3.** **Define the term Doppler effect.**

 Doppler Effect –

 **4. For a stationary observer, as a moving sound approaches, the observer will first hear a**

 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ frequency of sound and then a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ frequency as**

 **the source moves away.**

 **5. The Doppler effect is a change in sound frequencies caused by movement of :**

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **6. Besides sound wave applications, how is the Doppler effect used?**

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_