

## Chapter 25 Test Vibrations and Waves

**True or False Questions***Circle the correct answer.*

- T**     **F**     1. The time for a complete to-and-fro swing of a pendulum is called its frequency.
- T**     **F**     2. The number of times a wave vibrates each second is called its period.
- T**     **F**     3. Sound waves are examples of longitudinal waves.
- T**     **F**     4. When the high part of one wave fills in the low part of another wave, constructive interference occurs.
- T**     **F**     5. As a train sounding a horn goes away from you, both the sound speed and the pitch of the horn fall.

**Multiple Choice Questions***Choose the best answer to each question and write the appropriate letter in the space provided.*

- \_\_\_\_\_ 6. The source of nearly all wave motion is a  
a. movement of matter.  
b. harmonic object.  
c. vibration.  
d. region of variable high and low pressure.
- \_\_\_\_\_ 7. Which of the following is NOT a transverse wave?  
a. sound  
b. light  
c. radio wave  
d. all of these  
e. none of these
- \_\_\_\_\_ 8. The distance between successive identical parts of a wave is called its  
a. frequency.  
b. period.  
c. wavelength.  
d. amplitude.
- \_\_\_\_\_ 9. The period of an ocean wave is 10 seconds. What is the wave's frequency?  
a. 10 Hz  
b. 1.0 Hz  
c. 0.5 Hz  
d. 0.1 Hz
- \_\_\_\_\_ 10. A certain ocean wave has a wavelength of 10 meters and a frequency of 0.05 hertz. What is the wave's speed?  
a. 200 m/s  
b. 10 m/s  
c. 0.5 m/s  
d. 0.05 m/s

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- \_\_\_\_\_ 11. A wave created by shaking a rope up and down is called a
- longitudinal wave.
  - transverse wave.
  - standing wave.
  - constructive wave.
- \_\_\_\_\_ 12. Suppose a bug is jiggling up and down and swimming towards you at the same time. Compared to the frequency at which the bug is emitting waves, the frequency of the waves reaching at you is
- higher.
  - lower.
  - just the same.
- \_\_\_\_\_ 13. As the sound of a car's horn passes and recedes from you, the pitch of the horn
- increases.
  - decreases.
  - stays the same.

**Math Problems**

*Solve the following problems in the space provided. Show all work.*

14. Waves in a lake are 5.00 m in length and pass an anchored boat 1.25 s apart. What is the speed of the waves?
15. A radio station broadcasts at a frequency of 660 kHz. Knowing that radio waves have a speed of  $3.0 \times 10^8$  m/s, calculate the wavelength of these waves.

**Essay Question**

*On a separate sheet of paper, answer the following question.*

16. What is the difference between a transverse wave and a longitudinal wave? Give examples of each.