

Physics SHM and Waves Exam

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 1. The source of all wave motion is a
- ___ 2. The time needed for a wave to make one complete cycle is its
- ___ 3. The actual units for Hertz are
- ___ 4. Which of the following is NOT a transverse wave?
a. light.
b. radio wave.
c. sound.
d. all of the above.
e. none of the above
- ___ 5. When two or more waves are at the same place at the same time, the resulting effect is called
- ___ 6. As the sound of a car's horn passes and recedes from you, the pitch of the horn seems to
- ___ 7. The Doppler effect is the change in observed frequency due to
a. the original frequency of the source.
b. the type of medium the wave is in.
c. the motion of the source or observer.
d. the type of wave.
e. all of the above
- ___ 8. The amplitude of a particular wave is 4.0 m. The top-to-bottom distance of the disturbance is

- ___ 9. If you double the frequency of a vibrating object, its period
- halves.
 - is quartered.
 - doubles.
- ___ 10. You dip your finger repeatedly into water and make waves. If you dip your finger more frequently, the wavelength of the waves
- lengthens.
 - stays the same.
 - shortens.
- ___ 11. What happens when an airplane is flying faster than the speed of sound?
- There is no sonic boom.
 - It becomes very quiet inside the plane.
 - Nobody can hear the plane fly overhead.
 - A shock wave is produced.
 - none of the above
- ___ 12. An observer on the ground hears a sonic boom that is created by an airplane flying at a speed
- equal to the speed of sound.
 - greater than the speed of sound.
 - just below the speed of sound.
 - none of the above
- ___ 13. A sound wave that has a higher frequency has a wavelength that is
- shorter.
 - longer.
- ___ 14. The frequency of the second hand on a clock is
- ___ 15. The period of an ocean wave is 10 seconds. What is the wave's frequency?
- ___ 16. A certain ocean wave has a frequency of 0.07 hertz and a wavelength of 10 meters. What is the wave's speed?
- ___ 17. A cork floating in a pool oscillates up and down three complete cycles in 1 second as a wave passes by. The wave's wavelength is 2 meters. What is the wave's speed?

- ___ 18. A wave travels an average distance of 6 meters in 3 seconds. What is the wave's velocity?
- ___ 19. A wave has two crests and two troughs each second. If the wave travels an average distance of 8 meters in 4 seconds, its wavelength is
- ___ 20. What is for dinner?

True/False

Indicate whether the statement is true or false.

- ___ 21. The time for a complete to and fro swing of a pendulum is its frequency.
- ___ 22. The amplitude of a wave is the vertical distance from the midpoint to either the crest or the trough of the wave.
- ___ 23. The distance between successive identical parts of a wave is its displacement.
- ___ 24. The number of times a wave vibrates each second is its period.
- ___ 25. A wave on a rope whose motion is at right angles to the direction of wave propagation is a longitudinal wave.
- ___ 26. Sound waves are examples of longitudinal waves.
- ___ 27. The unit of the period of a wave is the hertz.
- ___ 28. When the high part of one wave fills in the low part of another wave, constructive interference occurs.
- ___ 29. Nodes in a standing wave normally remain stationary.
- ___ 30. Galaxies show a red shift in their spectrums.
- ___ 31. As a light source is coming towards you, you see light of a frequency higher than the source it emits.