

Name \_\_\_\_\_

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

- 1) A common source of wave motion is a
  - A) region of variable high and low pressure.
  - B) vibrating object.
  - C) harmonic object.
  - D) wave pattern.
  - E) none of these
  
- 2) In a longitudinal wave the compressions and rarefactions travel in
  - A) a vacuum. B) the same direction. C) opposite directions.
  
- 3) Which of the following is not a transverse wave?
  - A) light
  - B) radio
  - C) sound
  - D) all of these
  - E) none of these
  
- 4) The vibrations of a transverse wave move in a direction
  - A) at right angles to the direction of wave travel.
  - B) that changes with speed.
  - C) along the direction of wave travel.
  
- 5) If the frequency of a certain wave is 10 hertz, its period is
  - A) 10 seconds. B) 100 seconds.
  - C) 0.1 second. D) None of the above choices are correct.
  
- 6) To say that one wave is out of phase with another is to say that the waves are
  - A) of different wavelengths.
  - B) of different amplitudes.
  - C) out of step.
  - D) of different frequencies.
  - E) all of these
  
- 7) Wave interference occurs for
  - A) light waves.
  - B) sound waves.
  - C) water waves.
  - D) All of the above choices are correct.
  - E) None of the above choices are correct.

- 8) A standing wave occurs when
- A) the amplitude of a wave exceeds its wavelength.
  - B) a wave reflects upon itself.
  - C) the speed of the wave is zero or near zero.
  - D) two waves overlap.
- 9) The Doppler effect is characteristic of
- A) sound waves.
  - B) light waves.
  - C) water waves.
  - D) all of the above choices
  - E) none of the above choices
- 10) A Doppler effect occurs when a source of sound moves
- A) away from you. B) in a circle around you.
  - C) either towards you or away from you. D) towards you.
- 11) A sound source of high frequency emits a high
- A) amplitude.
  - B) speed.
  - C) pitch.
  - D) all of these
  - E) none of these
- 12) Double the frequency of a sound and you halve its
- A) wavelength.
  - B) amplitude.
  - C) speed.
  - D) all of these
  - E) none of these
- 13) The approximate range of human hearing is
- A) 40 hertz to 40,000 hertz.
  - B) 10 hertz to 10,000 hertz.
  - C) 20 hertz to 20,000 hertz.
  - D) Actually all of these – depends on the hearing ability of the person.
- 14) A sound wave is a
- A) longitudinal wave.
  - B) standing wave.
  - C) shock wave.
  - D) transverse wave.
  - E) None of the above choices are correct.

- 15) Sound travels faster in
- A) water.
  - B) air.
  - C) a vacuum.
  - D) steel.
  - E) Sound travels at about the same speed in all of the above media.
- 16) Compressions and rarefactions are characteristic of
- A) transverse waves.
  - B) longitudinal waves.
  - C) both longitudinal and transverse waves.
  - D) none of the above.
- 17) Sound waves cannot travel in
- A) steel.
  - B) air.
  - C) water.
  - D) a vacuum.
  - E) any of the above media
- 18) Sound travels faster in air if the air temperature is
- A) cold. B) warm. C) average.
- 19) When you tune a radio to a certain station, you match the frequency of the internal electrical circuit to the frequency of the wanted radio station. In so doing you are employing the principle of
- A) wave interference.
  - B) forced vibrations.
  - C) resonance.
  - D) reverberation.
  - E) beats.
- 20) Inhaling helium increases the pitch of your voice. One reason for this is that sound travels
- A) faster in helium than in air.
  - B) the same speed in helium, but the wavelength is greater.
  - C) slower in helium than in air.