

Name _____ Date _____ Period _____

Chapter 26 Concept Review

CONCEPTUAL PHYSICS: WAVES

Directions: Answer the following questions using your notes and textbook

- All sound is produced by _____ in an object
- Then vibrating material sends _____ through a surrounding medium (usually the air)
- Under ordinary conditions, frequency of vibrating source equals the frequency of sound _____ produced.
- Frequency of sound wave called _____
- Young person hears pitches from _____ to _____ hertz.
- Sound waves below 20 hertz called _____
- Sound waves above 20,000 hertz called _____
- Vibration creates _____ in air
 - _____ out in all directions
 - Energy moves like _____ wave in spring
- Pulse of compressed air is called a _____. Areas of lower-pressure air in between compressions called _____ (rarefied regions)
- Solids and liquids are generally good _____ of sound
- In general sound transmitted _____ in liquids than gasses. Faster still in solids
- Sound cannot travel in a _____. Transmission of sound requires a medium
- Speed of sound in dry air at 0°C is about _____ m/s (or about 1200 kilometers per hour)
 - _____ in air increases speed slightly
 - Increased _____ increases speed (For each degree increase in air temperature, the speed increases by 0.60 m/s)
 - Speed at room temperature of about 20°C is _____ m/s

14. Speed of sound in a material depends on its _____ not its density
15. Elasticity is ability of material to change _____ in response to an applied force, and then resume its initial shape. Once distortion is removed (steel elastic, putty is inelastic)
16. Sound travels 15 times faster in _____ than air, 4 times faster in _____
17. Intensity measured in _____ (dB)
- 0 dB _____ of hearing for normal ear
 - Increase of 10 dB is increase by factor of _____ (20 dB is 100 times more intense than 0 dB)
18. _____ vibration- like the soundboard on a guitar. Is forced to vibrate by vibrations of strings
19. _____ frequency is one at which minimum energy is required to produce forced vibrations and frequency that requires the least energy to continue vibration
20. _____ - increase in amplitude when frequency of forced vibration matches the objects natural frequency.
21. resonance means to “resound” of “ _____ ”
- Sound waves (like any waves) can be made to interfere. Crest overlaps crest of another wave (_____ interference) = increase in amplitude
 - Crests overlaps troughs of another wave (_____ interference) = decrease in amplitude
22. Resonance not restricted to _____ motion
23. Beats occur when tones of slightly different _____ are sounded together.
24. Fluctuation of _____ of combined sounds is heard (sound is loud, then faint, then loud, then faint, and so on)
25. _____ can occur in any kind of waves
- Used to _____ musical instruments
 - When frequencies the same the beats _____