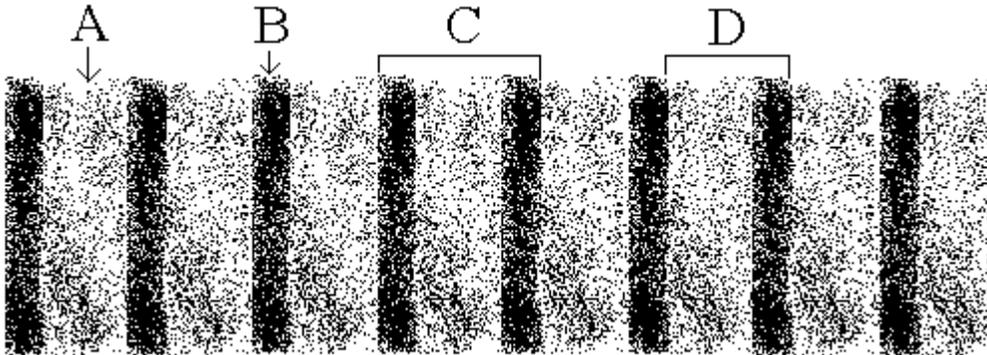


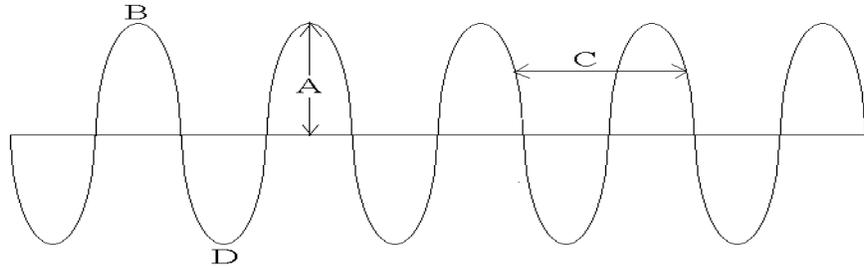
Place the letter of the best answer in the space provided

Use the following diagram to answer questions 1-7.



- ____ 1. Which letter in the diagram represents the wavelength?
- ____ 2. Letter A in the diagram represents which of the following?
 A. crest B. amplitude C. compression D. none of these
- ____ 3. What type of wave does this diagram represent?
 A. transverse B. longitudinal C. surface D. none of these
- ____ 4. How many waves are represented by this diagram?
 A. 7 B. 7.5 C. 8 D. 8.5
- ____ 5. If this diagram represents 2 seconds of time, what is the frequency of this wave?
 A. 4 Hz B. 16 Hz C. 3.75 Hz D. 15 Hz
- ____ 6. If the wavelength of this wave is 30 meters, what is its speed?
 A. 240 m/s B. 120 m/s C. 480 Hz D. 450 Hz
- ____ 7. Which of the following is an example of a wave that travels as this type of waves.
 A. sound B. P-wave of an earthquake C. slinky squeezed together then released
 D. none of these E. all of these
-
- ____ 8. What is its speed of a wave if its wavelength is 50 cm and its frequency is 100 Hz?
 A. 500 cm/s B. 2 cm/s C. 5000 cm/s D. .5 cm/s
- ____ 9. What is the wavelength of a wave traveling at 400 m/s with a frequency of 200 Hertz?
 A. 2 m B. 80,000 m C. .5 m D. 20 m
- ____ 10. What is the frequency of a wave if the wavelength is 10 m and the speed is 50 m/s?
 A. 500 Hz B. 5 Hz C. .2 Hz D. 20 Hz
- ____ 11. The pitch of the sound we hear depends mostly on the _____ of the sound waves.
 A. amplitude B. frequency C. speed D. intensity E. volume

Use the following diagram to answer questions 12-16



- ____ 12. Which letter in the diagram represents the amplitude of the wave?
- ____ 13. What does letter D represent?
A. compression B. wavelength C. trough D. rarefaction
- ____ 14. What type of wave is this?
A. transverse B. longitudinal C. surface D. none of these
- ____ 15. How many waves are represented by this diagram?
A. 4 B. 4.5 C. 5 D. 5.5
- ____ 16. If this diagram represents $\frac{1}{2}$ second of time, what is the frequency of this wave?
A. 9 Hz B. 10 Hz C. 2.25 Hz D. 2.5 Hz
-
- ____ 17. This spiral shaped structure of the inner ear has thousands of nerve endings to send electrical signals to the brain.
A. eardrum B. cochlea C. hammer D. stirrup E. anvil
- ____ 18. What happens to a wave when it is reflected?
A. its frequency changes B. its wavelength changes C. its speed changes
D. none of these E. all of these
- ____ 19. The highest point of a transverse wave is the
A. amplitude B. wavelength C. crest D. trough E. volume
- ____ 20. The distance between corresponding points on consecutive waves is
A. amplitude B. volume C. wavelength D. height E. crest
- ____ 21. When the crest of one wave meets the trough of another wave this occurs.
A. constructive interference C. refraction
B. destructive interference D. reflection
- ____ 22. In which type of waves is the disturbance of the wave parallel to the direction that the wave is traveling?
A. longitudinal B. transverse C. refracted D. rarefaction
- ____ 23. The area of a longitudinal wave in which the particles of the medium are squeezed together is called the
A. crest B. trough C. compression D. rarefaction E. amplitude

- ____ 24. The amount that a wave disturbs the rest position is known as the _____ of the wave.
 A. wavelength B. frequency C. crest D. trough E. amplitude
- ____ 25. The number of waves that pass a point per second is known as the _____ of the wave.
 A. wavelength B. frequency C. crest D. trough E. amplitude
- ____ 26. In which type of waves is the disturbance of the wave perpendicular to the direction the wave is traveling?
 A. longitudinal B. transverse C. refracted D. rarefaction
- ____ 27. The material through which waves travel is known as the _____.
 A. standing wave B. vacuum C. medium D. resonance E. none of these
- ____ 28. Ocean waves are _____ waves.
 A. surface B. longitudinal C. transverse D. electromagnetic
- ____ 29. The unit of frequency is _____.
 A. watts B. meters C. meters per second D. hertz E. decibels
- ____ 30. The part of a longitudinal wave in which the particles of the medium are spread apart is the
 A. refraction B. crest C. trough D. rarefaction E. reflection
- ____ 31. The lowest point of a transverse wave is called the _____.
 A. crest B. trough C. rarefaction D. compression E. amplitude
- ____ 32. The bending of waves as they go from one material into another at an angle is _____.
 A. refraction B. reflection C. rarefaction D. none of these
- ____ 33. Which of the following waves requires a medium?
 A. visible light B. sound C. x-rays D. ultraviolet E. radio
- ____ 34. The _____ the air the _____ sound waves will travel through it.
 A. warmer, slower C. warmer, faster
 B. cooler, faster D. none of these are correct
- ____ 35. In which of the following materials will sound travel the fastest?
 A. air B. water C. pure oxygen gas D. rubbing alcohol E. aluminum
- ____ 36. Ultrasonic waves refer to sound waves that have frequencies greater than
 A. 20 Hz B. 1,000 Hz C. 10,000 Hz D. 20,000 Hz
- ____ 37. As the length of a vibrating string _____ the pitch of the sound produced is _____.
 A. increases, higher C. decreases, lower
 B. increases, lower D. the length of the string does not affect the pitch
- ____ 38. When a car is driving toward you and honking its horn ...
 A. it will sound higher pitched to you than to the driver
 B. it will sound lower pitched to you than to the driver
 C. the pitch of the horn will be the same for you and the driver

- _____39. The time it takes for one wave to pass by a given point is called the _____ of the wave.
 A. wavelength B. frequency C. amplitude D. speed E. none of these
- _____40. Which of the following equations is correct?
 A. speed of waves = wavelength/frequency C. speed of waves = wavelength + frequency
 B. speed of waves = wavelength x frequency D. speed of waves = wavelength – frequency
- _____41. Recording studios often have carpet or foam on the walls to reduce
 A. echoes B. volume C. frequency D. amplitude
- _____42. As the energy of a sound wave increases so does the
 A. pitch B. frequency C. wavelength D. volume
- _____43. The unit for measuring the volume of sound is
 A. hertz B. kilohertz C. decibels D. meters per second E. none of these
- _____44. In medicine, ultrasonic waves can be used to create a picture called a(n)
 A. X-ray B. sonogram C. hologram D. MRI
- _____45. The word SONAR stands for
 A. SONic Acoustic Reflections C. SOund NAVigation Ranging
 B. SOft Notes Are Radiated D. Sound Oscillation, Noise, And Reflection
- _____46. The part of your ear that picks up the vibrations of sound waves and mimics them is the
 A. cochlea B. eardrum C. inner ear D. canal E. middle ear
- _____47. Which of the following travels in the same way as a low frequency sound wave?
 A. light waves B. earthquake P-waves C. ocean waves D. waves on a rope
- _____48. When a sound source and a listener are moving relative to each other, the pitch of the sound will be different than if they were not moving relative to each other. This is called the
 A. law of reflection B. law of refraction C. Doppler effect D. destructive interference
- _____49. Musical instruments often use _____ to make their sound louder.
 A. destructive interference B. refraction C. compression D. resonance
- _____50. The bending of waves around an obstacle or through a small opening is called
 A. reflection B. refraction C. diffraction D. none of these is correct
- _____51. What is the name of the part of a standing wave pattern that does not move?
 A. node B. barrier C. echo point D. reflection point E. none of these
- _____52. Why does sound diffract through an open door and around the corner but light does not?
 A. the speed of light is greater than the speed of sound
 B. the intensity of sound is greater than the intensity of light
 C. the wavelength of light is very small compared to the doorway
 D. light is incapable of diffracting under any circumstances
 E. none of these