Name _____ Class _____ Date _____

Chapter 26 Test Sound

True or False Questions

Circle the correct answer.

T **F** **1.** Sound can travel through solids, liquids, gases, and even a vacuum.

T **F** **2.** In order for sound from a speaker to reach a listener, air near the speaker must move to the listener.

T **F** **3.** Almost everything that exists has a natural frequency.

T **F** **4.** Even a steel bridge can collapse because of resonance.

T **F** **5.** When an object is forced to vibrate at its natural frequency, its vibration amplitude increases.

Multiple Choice Questions

Choose the best answer to each question and write the appropriate letter in the space provided.

_____ **6.** Compared to the speed of light, sound travels
- **a.** faster.
- **b.** slower.
- **c.** about the same.

_____ **7.** Sound waves cannot travel in
- **a.** air.
- **b.** water.
- **c.** steel.
- **d.** a vacuum.

_____ **8.** Sound waves in air are a series of
- **a.** high- and low-pressure regions.
- **b.** periodic disturbances.
- **c.** periodic condensations and rarefactions.
- **d.** all of the above
- **e.** none of the above

_____ **9.** Which of the following would be most likely to transmit sound the best?
- **a.** Water in a swimming pool
- **b.** Water in the ocean
- **c.** Air in your classroom
- **d.** Steel in a bridge

_____ **10.** The speed of sound in dry air at 20 degrees Celsius is 340 m/s. How far away is a jet plane when you notice a 2-second delay between seeing the plane and hearing it?
- **a.** 6800 m
- **b.** 680 m
- **c.** 340 m
- **d.** 40 m

_____ **11.** If the sounding board were left out of a music box, the music box would
- **a.** sound the same as usual.
- **b.** not sound at all.
- **c.** make little "plinks" that you could hardly hear.

_____ **12.** Resonance occurs when
- **a.** sound makes multiple reflections.
- **b.** sound changes speed going from one medium to another.
- **c.** the amplitude of a wave is amplified.
- **d.** an object is forced to vibrate at its natural frequency.

_____ **13.** Beats can be heard when two tuning forks
- **a.** are sounded together.
- **b.** have the same frequency and are sounded together.
- **c.** have almost the same frequency and are sounded together.
- **d.** all of the above
- **e.** none of the above

Math Problems

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

14. You note a 2-second delay for an echo in a canyon. What is the distance to the wall of the canyon?

15. Ten violins produce a sound intensity level of 50 dB in a concert hall. How many violins are needed to produce a level of 60 dB?

Essay Question

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

16. What is resonance and what conditions cause it? Give examples.