

Chapter Test**Sound and Light**

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. The pitch of a sound is most closely related to the
 - a. frequency of vibrations.
 - b. distance from the sound source.
 - c. medium through which the sound travels.
 - d. intensity of the sound.

- _____ 2. The unique sound quality of a clarinet or a violin is caused by the
 - a. forced vibrations that occur at natural frequencies.
 - b. length of standing waves in the fundamental frequency.
 - c. relative intensity of different harmonics in each note.
 - d. relative number of harmonics.

- _____ 3. Which property of light is *not* explained by the wave model of light?
 - a. Light produces interference patterns.
 - b. Light is diffracted when it passes through a narrow opening.
 - c. Blue light can knock electrons off a plate but red light cannot.
 - d. Light reflects when it meets a mirror, but it refracts when it passes through a lens.

- _____ 4. The rate at which light energy flows through a given area of space is referred to as its
 - a. speed.
 - b. wavelength.
 - c. intensity.
 - d. energy.

- _____ 5. The law of reflection states that when light rays reflect off a surface the angle of incidence
 - a. is one-half the angle of reflection.
 - b. equals the angle of reflection.
 - c. is twice the angle of reflection.
 - d. equals the angle of refraction.

- _____ 6. An image that results from light rays that only appear to be at a certain location is called
 - a. an apparent image.
 - b. a real image.
 - c. an objective image.
 - d. a virtual image.

Chapter Test *continued*

7. You look at a red tulip, with green leaves, under green light. What would you see?
- a green flower with green leaves
 - a black flower with green leaves
 - a yellow flower with black leaves
 - a black flower with black leaves
8. A virtual image caused by reflection of light in the atmosphere is called
- a prism.
 - a lens.
 - a mirror.
 - a mirage.
9. Which statement about a diverging lens is correct?
- It bends light inward and can create either a virtual or a real image.
 - It bends light inward and can only create a real image.
 - It bends light outward and can create either a virtual or a real image.
 - It bends light outward and can only create a virtual image.
10. The effect in which white light separates into different colors is called
- magnification.
 - refraction.
 - reflection.
 - dispersion.

Read each statement and write in the blank the word or words that best completes the statement.

11. In a gas, such as air, an increase in temperature results in a(n) _____ in the speed of sound.
12. In your inner ear, different parts of the _____ vibrate at different natural frequencies.
13. Sound waves with frequencies higher than 20 000 Hz are referred to as _____ waves.
14. The two most common models of light describe it as a wave or as a stream of _____.
15. All possible kinds of light, at all energies, frequencies, and wavelengths, make up the _____.
16. Reflection of light in random directions is called _____ reflection.

Chapter Test *continued*

- 17.** The image that you see in a mirror that results from the apparent path of light rays is called a(n) _____ image.
- 18.** An object looks red if it _____ red light and _____ all other colors.
- 19.** Light may bend when it changes mediums because _____ is different in each medium.

Read the statement, and write your response in the space provided.

- 20.** Describe two different forms of electromagnetic radiation and explain their use in technology.
