

**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. a green flower with green leaves
  - b. a black flower with green leaves
  - c. a yellow flower with black leaves
  - d. a black flower with black leaves
8. A virtual image caused by reflection of light in the atmosphere is called
  - a. a prism.
  - b. a lens.
  - c. a mirror.
  - d. a mirage.
9. Which statement about a diverging lens is correct?
  - a. It bends light inward and can create either a virtual or a real image.
  - b. It bends light inward and can only create a real image.
  - c. It bends light outward and can create either a virtual or a real image.
  - d. It bends light outward and can only create a virtual image.
10. The effect in which white light separates into different colors is called
  - a. magnification.
  - b. refraction.
  - c. reflection.
  - d. 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.

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