

## PS CH 10 practice

### Modified True/False

Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.

- \_\_\_ 1. A transparent material absorbs light.
- \_\_\_ 2. A virtual image is formed where light rays meet at a point.
- \_\_\_ 3. A mirage is caused by reflection as light passes through layers of air at different temperatures.
- \_\_\_ 4. A convex lens is thicker in the center than at its edges.
- \_\_\_ 5. A white carpet will appear red when viewed through a red filter because the filter absorbs red light only.
- \_\_\_ 6. A secondary color of light is produced by mixing three primary colors together.
- \_\_\_ 7. To focus light, muscles in the eye change the length and thickness of the retina.
- \_\_\_ 8. Nearby objects appear blurry to a person who is farsighted.
- \_\_\_ 9. The eyepiece of a telescope or microscope magnifies an image.
- \_\_\_ 10. Light waves that are in step, or have crests aligned with crests, are said to be focused.

### Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- \_\_\_ 11. A material that reflects or absorbs any light that strikes it is  
a. opaque. b. transparent. c. translucent. d. concave.
- \_\_\_ 12. Frosted glass and wax paper are  
a. transparent. b. translucent. c. clear. d. opaque.
- \_\_\_ 13. What happens when parallel rays of light hit a smooth surface?  
a. diffuse reflection b. diffraction c. refraction d. regular reflection
- \_\_\_ 14. When the surface of a mirror curves inward, like the inside of a bowl, it is called a  
a. plane mirror. b. convex mirror. c. concave mirror. d. diffuse mirror.
- \_\_\_ 15. The bending of light rays as they enter a new medium is called  
a. diffuse reflection. b. regular reflection. c. refraction. d. diffraction.
- \_\_\_ 16. What happens when light passes from air into water?  
a. The light speeds up. b. The light continues at the same speed. c. The light slows down. d. The light forms a mirage.
- \_\_\_ 17. A curved piece of glass or other transparent material that is used to refract light is called a(n)  
a. mirror. b. lens. c. reflector. d. optical fiber.
- \_\_\_ 18. Because the light rays never meet, a concave lens can produce  
a. no image. b. both real and virtual images. c. only a real image. d. only a virtual image.
- \_\_\_ 19. What happens when white light strikes a black object?  
a. Blue light is reflected. b. Red light is reflected. c. No light is reflected. d. All of the light is reflected.
- \_\_\_ 20. How would a tomato look under blue light?  
a. The tomato would seem to disappear. b. The tomato would still appear red. c. The tomato would appear black. d. The tomato would appear white.
- \_\_\_ 21. The primary colors of light are  
a. red, yellow, and blue. b. yellow, cyan, and magenta. c. red, green, and blue. d. red, orange, yellow, green, blue, and violet.
- \_\_\_ 22. Opaque substances that are used to color other materials are called  
a. pigments. b. lenses. c. mirages. d. filters.
- \_\_\_ 23. The colored ring of muscle that controls the size of the pupil is called the  
a. cornea. b. iris. c. lens. d. retina.
- \_\_\_ 24. The signals generated by the rods and cones are carried to your brain by the  
a. cornea. b. pupil. c. optic nerve. d. lens.
- \_\_\_ 25. A person is nearsighted if he or she  
a. can see far away things very well. b. has eyeballs that are a little too short. c. has eyeballs that are a little too long. d. sees nearby objects as blurry.

- \_\_\_ 26. Farsightedness can usually be corrected using  
a. convex mirrors. b. concave mirrors. c. convex lenses. d. concave lenses.
- \_\_\_ 27. What instruments use lenses or mirrors to collect and focus light from distant objects?  
a. microscopes b. optical fibers c. telescopes d. lasers
- \_\_\_ 28. Which device uses lenses to focus light rays and record an image of an object on photographic film?  
a. microscope b. reflecting telescope c. refracting telescope d. camera
- \_\_\_ 29. A laser produces light that  
a. is incoherent. b. has many different colors. c. is coherent. d. has many different wavelengths.
- \_\_\_ 30. What instrument is used in holography?  
a. telescope b. microscope c. laser d. camera
- \_\_\_ 31. Long, thin strands of glass or plastic that carry light for long distances without allowing the light to fade are called  
a. lasers. b. holograms. c. optical fibers. d. compact discs.
- \_\_\_ 32. A laser beam can travel through a curled-up optical fiber because of  
a. diffuse reflection. b. holography. c. total internal reflection. d. regular reflection.
- \_\_\_ 33. Clear glass, water, and air are examples of what kind of material?  
a. opaque b. fluid c. translucent d. transparent
- \_\_\_ 34. What occurs when parallel rays of light hit a rough or bumpy surface?  
a. regular reflection b. diffuse reflection c. refraction d. diffraction
- \_\_\_ 35. An image of a distant object caused by refraction of light is called a  
a. prism. b. mirage. c. rainbow. d. hologram.
- \_\_\_ 36. A photographic slide is an example of a(n)  
a. color filter. b. opaque material. c. transparent material. d. reflecting material.
- \_\_\_ 37. Why are lasers useful in surgery?  
a. They increase the amount of blood loss from an incision. b. Laser incisions usually heal faster than scalpel cuts. c. They add light to the operating room. d. The beam of light is very weak.
- \_\_\_ 38. Any two primary colors of light combined in equal amounts produce  
a. a complementary color. b. a secondary color. c. a fluorescent color. d. the third primary color.
- \_\_\_ 39. The transparent front surface of the eye is called the  
a. cornea. b. iris. c. pupil. d. retina.
- \_\_\_ 40. Rods and cones are the light-sensitive cells on the  
a. cornea. b. iris. c. pupil. d. retina.

### Completion

Complete each sentence or statement.

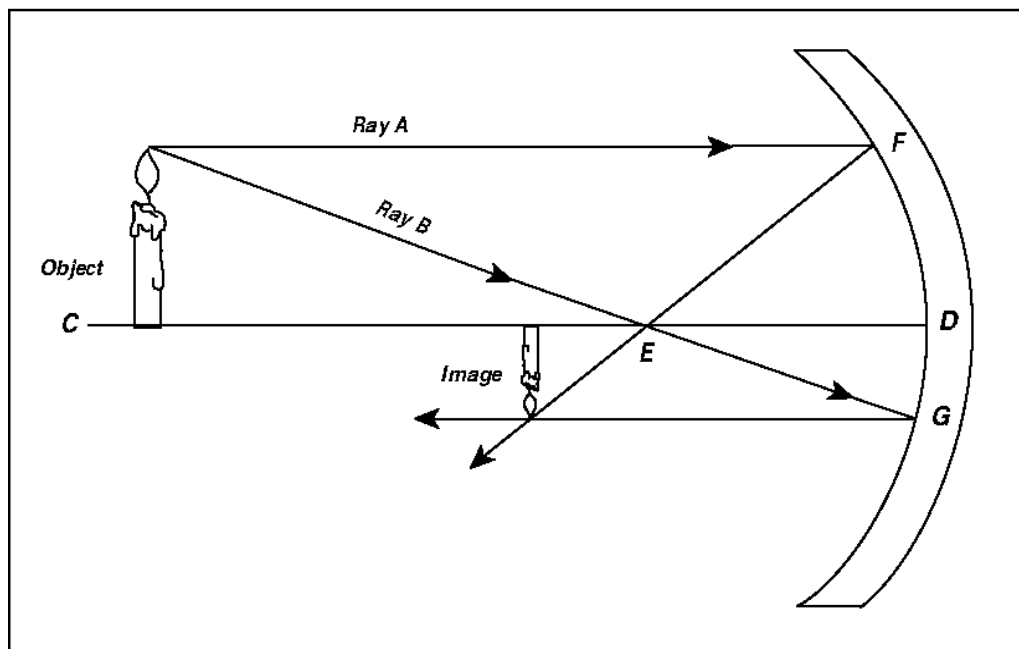
41. A \_\_\_\_\_ material is one that allows light to pass through it, but not very well.
42. Glare from a glass window pane is an example of light that has been \_\_\_\_\_ from a transparent material.
43. Diffuse \_\_\_\_\_ occurs when parallel rays of light hit a bumpy, or uneven, surface.
44. A material's index of refraction is a measure of how much a ray of light \_\_\_\_\_ when it enters that material at an angle.
45. Because of refraction, glass prisms separate white light into a visible \_\_\_\_\_ of colors.
46. As parallel rays of light pass through a(n) \_\_\_\_\_ lens, they are bent toward the center of the lens.
47. A(n) \_\_\_\_\_ image formed by a lens is always on the side of the lens opposite the object.
48. An opaque object has a particular color because it reflects some wavelengths of light and \_\_\_\_\_ the rest.

49. A red tomato will appear \_\_\_\_\_ when viewed under blue light.
50. When the three primary pigments are mixed, the resulting color is \_\_\_\_\_.
51. Any two colors that combine to form \_\_\_\_\_ light are called complementary colors.
52. The \_\_\_\_\_ is the transparent front surface of the eye.
53. When you focus on a \_\_\_\_\_ object, the lens in your eye becomes longer and thinner.
54. The vision of a nearsighted person can be improved if the person wears \_\_\_\_\_ lenses.
55. In a(n) \_\_\_\_\_ person, the lens of the eye focuses an image in front of the retina.
56. A(n) \_\_\_\_\_ uses a combination of lenses to magnify images of very small objects.
57. The type of image formed by the lens of a camera is a(n) \_\_\_\_\_ image.
58. A(n) \_\_\_\_\_ is a three-dimensional photograph created by using a laser.
59. To send signals through optical fibers, lasers convert electrical signals into pulses of \_\_\_\_\_.
60. A convex mirror reflects incoming parallel rays of light as though they came from \_\_\_\_\_ the mirror.

### Short Answer

Use the diagram to answer each question.

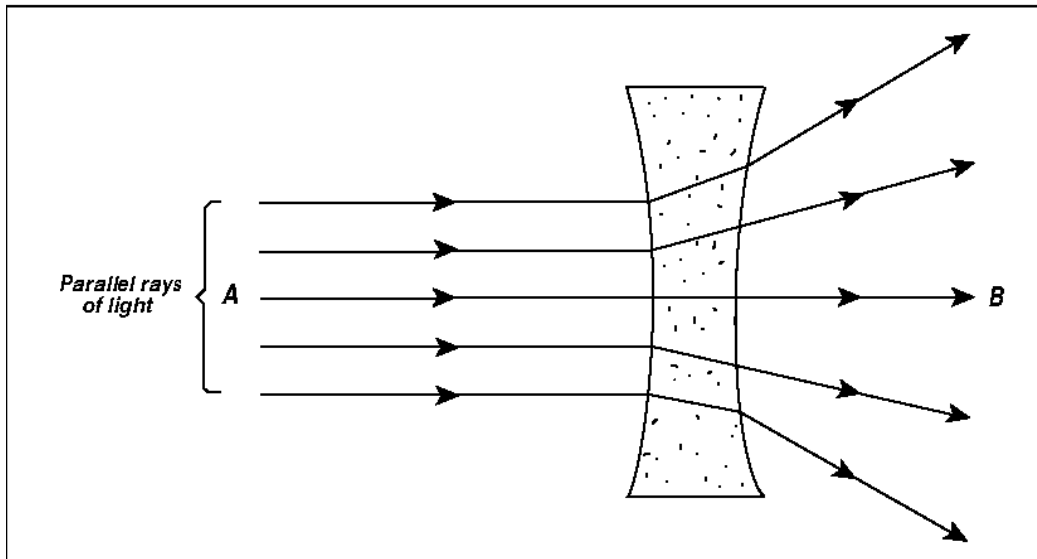
**Mirror**



61. What type of mirror is shown?
62. Name and define point E.
63. What type of image does this mirror form?
64. Relate the size and orientation of the image formed by the mirror to the size and orientation of the original object.
65. What type of image will form if the candle is placed between E and D?
66. What will happen to the reflected light if the candle is placed at point E?

Use the diagram to answer each question.

## Lens



67. What type of lens is shown?
68. What effect does the lens have on parallel light rays passing through it?
69. On which side of the lens—left or right—would the focal point appear to be?
70. What type of image does this lens form?
71. How does the shape of the lens compare to the shape of the lens in your eye?
72. Which condition could this lens correct—nearsightedness or farsightedness? Explain your answer.