1. Which of the following is the correct formula for focal point calculation?

A. F= I + O

B. 1/F = I x 1/O

C. F = 1 x 1/O

D. 1/F = 1/I + 1/O

2. Which of the following is the correct formula for lens power (P)?

A. P = 1/f + 1/O

B. P = 1/f

C. P = f x O

D. P = O/f

3. The absolute index of refraction for a substance is 2.0 for light having a wavelength of 5.9 x 10-7 meter. In this substance what is the critical angle for light incident on a boundary with air?

A. 25 Degrees

B. 30 Degrees

C. 35 Degrees

D. 40 Degrees

4. Which phenomenon can occur with light, but not with sound?

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A. Doppler effect

B. Interference

C. Polarization

D. Refraction

5. The threshold frequency of a photo emissive surface is 7.0 x 1014 hertz. Which electromagnetic radiation, incident upon the surface, will produce the greatest amount of current?

A. Low intensity infrared radiation

B. High intensity infrared radiation

C. Low intensity UV radiation

D. High intensity UV radiation

6. A spherical mirror that forms only virtual images has a radius of curvature of .5 meters. The focal length of this mirror is?

A. -.125 m

B. -.25 m

C. 2.5 m

D. 2.75 m

7. A spherical concave mirror is used in the back of a car headlight. Where must the bulb of the headlight be located to produce a parallel beam of reflected light?

A. Between the principal focus and the mirror

B. Beyond the center of curvature of the mirror

C. At the principal focus of the mirror

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D. At the center of the curvature of the mirror

8. An object .080 meter high is placed .20 meter from a converging (convex) lens. If the distance from the image of the lens is .40 meter, the height of the image is?

A. .08 m

B. .16 m

C. .24 m

D. .33 m

9. A diverging (concave) lens can form images that are?

A. Virtual, only

B. Inverted, only

C. Either virtual or real

D. Either inverted or erect

10. A ray of light strikes a plane mirror at an angle of incidence equal to 35 degrees. The angle between the incidence ray and the reflected ray is ___.

A. 45 degrees

B. 60 degrees

C. 70 degrees

D. 80 degrees

11. Compared to the wavelengths of visible light the wavelengths of UV light are

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A. Shorter

B. Longer

C. The Same

12. What is the energy of a quantum of light having a frequency of 6.0 x 1014 hertz?

A. 1.6 x 10

B. 4.0 x 10

C. 1.3 x 10

D. 5.0 x 10-7 J

13. Experiments performed with light indicate that light exhibits

A. Particle properties, only

B. Wave properties, only

C. Both particle and wave properties

D. Neither particle or wave properties

14. What is the speed of light in a medium having an absolute index of refraction of 2.3?

A. .77 x 10

B. 1.3 x 10

C. 1.5 x 10

D. 2.3 x 108 m/s

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Answer Key

1. D

2. B

3. B

4. C

5. D

6. B

7. C

8. B

9. A

10. C

11. A

12. B

13. C

14. B

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