Possible Assessment Questions for HS Physics

Light Rays

_____ 1. Light is a form of energy produced by a ______.
   a. luminous object  
   b. transparent object  
   c. non-luminous object  
   d. opaque object

   Answer: A

_____ 2. An example for non-luminous object is __________.
   a. a candle  
   b. the sun  
   c. an electric bulb  
   d. the moon

   Answer: D

_____ 3. Objects that let all the light through are called
   A) transparent  
   B) translucent  
   C) opaque  
   D) refraction

Reflection

_____ 1. The phenomenon by which the incident light falling on a surface is sent back into the same medium is known as ______.
   a. polarization  
   b. reflection  
   c. refraction  
   d. absorption

   Answer: B

_____ 2. 1. A laser beam strikes a plane's reflecting surface with an angle of incidence of 37°. What is the angle between the incident ray and the reflected ray?
   a. 37°  
   b. 74°  
   c. 45°  
   d. 90°

   Answer: A

_____ 3. When light reflects, everything is the same except
   A) the object is smaller  
   B) the object is larger  
   C) the object is not changed at all  
   D) right and left are reversed
Mirrors

1. The image formed by a plane mirror is always ______.
   a. real and erect
   b. virtual and erect
   c. real and inverted
   d. virtual and inverted
   Answer: B

2. An object is 14 cm in front of a convex mirror. The image is 5.8 cm behind the mirror. What is the focal length of the mirror?
   a. -4.1 cm  b. -8.2 cm  c. -9.9 cm  d. -20 cm
   Answer: A

3. If the radius of curvature of the concave mirror is r, the focal length is
   a. 2r  b. r  c. r/2  d. Cannot be determined from the information given.
   Answer: C

4. Dentists use a _____________ to focus light on the tooth of a patient.
   a. concave mirror
   b. convex mirror
   c. plane mirror
   d. cylindrical mirror
   Answer: A

Refraction

1. The colors on an oil slick are caused by reflection and
   a. diffraction. b. interference. c. refraction. d. polarization.
   Answer: C

2. Light traveling at an angle into a denser medium is refracted
   a. toward the normal. b. away from the normal. c. parallel to the normal. d. equally.
   Answer: A

3. A survivor from a ship wreck sees an image of a fish in the water. To catch it with her spear, she must
   A. aim above the image of the fish
   B. aim below the image of the fish
   C. aim at the image of the fish
   D. aim behind the fish
   E. put away the spear and use a fishing rod
Images

1. Is it possible to see a virtual image?
   a. No, since the rays that seem to emanate from a virtual image do not in fact emanate from the image.
   b. No, since virtual images do not really exist.
   c. Yes, the rays that appear to emanate from a virtual image can be focused on the retina just like those from an illuminated object.
   d. Yes, since almost everything we see is virtual because most things do not themselves give off light, but only reflect light coming from some other source.
   e. Yes, but only indirectly in the sense that if the virtual image is formed on a sheet of photographic film, one could later look at the picture formed.

Answer: D

2. Name the type of image that can be obtained on a screen.
   a. Virtual
   b. Real
   c. Diverging
   d. Converging

Answer: b

Lens

1. For a converging lens, a light ray that is travelling parallel to the principal axis refracts
   A. through the principal focus
   B. through the secondary focus
   C. through the optical center
   D. parallel to the principal axis
   E. in line with the principal focus

2. A object is placed between f and 2f for a diverging lens. The image will be located
   A. between f and 2f
   B. between the lens and f
   C. farther than 2f
   D. A or B
   E. There is insufficient information to answer the question.

3. Light that travels into the eye passes through several parts to get to the retina. The correct order is
   A. cornea, vitreous humour, lens, pupil
   B. lens, cornea, pupil, vitreous humour
   C. cornea, lens, pupil, vitreous humour
   D. pupil, cornea, lens, vitreous humour
   E. cornea, pupil, lens, vitreous humour

4. Lenses are used in all the following, except
   A) microscopes
   B) binoculars
   C) periscopes
   D) cameras
Shadows

1. What is the name of the darkest, cone-shaped part of a shadow?
   A. penumbra
   B. umbra
   C. pentagram
   D. waining

2. Which type of material will produce a shadow?
   A. transparent
   B. translucent
   C. opaque
   D. umbra

Color

1. The correct colors of the rainbow are
   A) red, orange, green, yellow, blue, indigo, violet
   B) red, orange, yellow, blue, green, indigo, violet
   C) red, orange, yellow, green, blue, indigo, violet
   D) red, green, blue, violet, indigo, orange, yellow

2. Red and blue light make
   A) pink (magenta)
   B) yellow
   C) blue
   D) green

3. Red, blue and green light mixed together will make
   A) pink light
   B) white light
   C) yellow light
   D) black light

4. On a summer day, a black shirt will
   A) make you look cool
   B) make you feel cooler
   C) make you feel hotter
   D) make you look taller

5. The color of an object is the color of light it
   A) reflects
   B) refracts
   C) absorbs
   D) likes