"Lighting System" Assessment

1. On which of the objects will the light be BRIGHTEST?
   - The truck
   - The books
   - The apple
   - They will all be the same

2. On which of the objects will the light be LEAST BRIGHT?
   - The truck
   - The books
   - The apple
   - They will all be the same

3. In which diagram will light from the flashlight be BRIGHTEST in the corner marked by the X?
   - It is not possible to light the corner marked by the X.
4. A student is trying to design a way to use a spotlight to light up two paintings. What should the student think about?

- The size of the paintings
- The angle between the spotlight and the paintings
- How far from the paintings she should put the spotlight
- All of the above

5. At work an optical engineer is MOST LIKELY to:

- Construct bridges.
- Improve lenses for a telescope.
- Repair TV screens when they break.
- Design an obstacle course for race cars.

6. A flashlight is turned on. What happens?

- Light stays in the flashlight.
- Light moves from the flashlight and goes through any objects in its path.
- Light moves from the flashlight in straight lines until it hits another object.
- Light does not move from the flashlight unless there is something for it to hit.

7. Which of the following objects reflects light?

- Blue teapot
- White wall
- Black wall
- All of the above

8. At work, an optical engineer might:

- Design tunnels.
- Improve cameras.
- Install wiring in houses.
- Fix headlights on trucks.

9. A student is trying to use a spotlight to light up a flag. The light is not bright enough. What can she do to make the light on the flag brighter?

- Move the spotlight closer to the flag.
- Move the spotlight to the left of the flag.
- Move the spotlight farther away from the flag.
- You can't make the light on the flag any brighter.

10. Which of the following would an optical engineer MOST LIKELY work on?

- Something that helps you see things better
- Something that helps you go places quickly
- Something that makes computers run faster
- An optical engineer would not work on any of these things

11. Which of the following will transmit light?

- White wall
- Aluminum foil
- Wood block
- Glass window

12. What would be BEST to use to get light to shine around a corner?

- Black paper
- Aluminum foil
- White paper
- Grey plastic bag
13. Which picture BEST shows what happens to light when it shines on a mirror?

- [A]
- [B]
- [C]
- [D]

14. Someone is improving a lighting system for a playground. If he makes the streetlights taller, what will happen to the light on the playground?

- [A] The streetlights will get brighter.
- [B] The light on the playground will be less bright.
- [C] Less of the playground will be covered with light.
- [D] Nothing will happen to the light on the playground.

16. What happens if you shine light on a window?

- [A] All of the light goes through the window.
- [B] All of the light bounces off of the window.
- [C] Light fills the air on one side of the window.
- [D] Some of the light goes through the window and some bounces off of the window.

17. What happens when someone turns on a light bulb in a room?

- [A] Light stays just around the bulb.
- [B] Light fills all parts of the room equally.
- [C] Light travels in straight lines from the light bulb out in all directions.
- [D] Light travels around things in the room to shine on all parts of the room.

18. What might an optical engineer think about for his or her job?

- [A] Where to put traffic lights
- [B] Where lightning comes from
- [C] How to package eyeglasses
- [D] How light gets from one place to another

19. What is an optical engineer LEAST likely to work on for her job?

- [A] Video cameras
- [B] Lights on vehicles
- [C] CD and DVD players
- [D] An optical engineer would not work on any of these things
20. Where should you hold a flashlight so that it shines on the mirror and then on Position A?
- Position B  • Position D
- Position C  • Position E

21. If you shine a flashlight into the mirror from Position D, where would the reflected light appear?
- Position A  • Position C
- Position B  • Position E

22. A student is designing a way to light a dark corner of her bedroom. The light is on the opposite side of the room from the dark corner. What could she do to light up the dark corner?
- Cover the walls with shiny wallpaper.
- Move the light closer to the middle of the room.
- Paint the walls white to reflect more light to all parts of the room.
- All of these ideas would work.

23. If an object reflects light:
- It must be a mirror.  • It must be a solid object.
- It can NOT refract light.  • It must also absorb light.

24. Which of these items will absorb light?
- A mirror
- A clear block of plastic
- A sheet of metal painted black
- All of these items absorb some light

25. You use some mirrors and a flashlight to light up a painting in a room. Which of these set-ups will make the light on the painting the brightest?

The light on the painting will be the same brightness in each of these set-ups.