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Continuing Education Course #173
Interior Lighting Design
The Fundamentals

1. Maxwell's theory states that light travels in the form of what type of waves?
 - a. kinetic
 - b. solar
 - c. electromagnetic
 - d. electromechanical
2. What are the primary colors of light?
 - a. white, red, blue
 - b. red, green, blue
 - c. black, red, yellow
 - d. orange, green, blue
3. The red region of the Electromagnetic Spectrum ranges from what value to 750 nanometers?
 - a. 680
 - b. 580
 - c. 555
 - d. 380
4. What is the innermost layer at the back of the eye?
 - a. sclera
 - b. choroid
 - c. ciliary body
 - d. retina
5. What are the types of photoreceptors in the retina?
 - a. rods and cones
 - b. fovea
 - c. macula
 - d. both a and c
6. The rods are responsible for what?
 - a. night vision
 - b. motion detection
 - c. peripheral vision
 - d. all the above
7. In what region of the Electromagnetic Spectrum is the maximum efficacy of the cones located?
 - a. red/orange
 - b. yellow/green

- c. yellow/orange
- d. none of the above

8. The secondary colors appear to be darker than the primary colors because the blending of these colors results in black. (True or False)

- a. T
- b. F

9. What type of vision is sometimes called rod vision?

- a. acute
- b. photopic
- c. scotopic
- d. isotopic

10. The ultimate goal for a Lighting Designer is:

- a. select a lamp with an appropriate color temperature
- b. select a fixture that is aesthetically pleasing
- c. select carpet with a 20% reflectance
- d. none of the above

11. A 6500K lamp is classified as what type of lamp?

- a. warm
- b. neutral
- c. cool
- d. daylight

12. Lamps with high CRI's provide better color rendering than lamps with low CRI's. (True or False)

- a. T
- b. F

13. Which of the following statements is incorrect?

- a. Fluorescent lamps are gaseous discharge lamps.
- b. Electrons from the arc collide with electrons in the mercury atoms.
- c. The electrons from the mercury atoms stimulate the phosphors in the tube
- d. The color of the emitted light is dependent on the composition of the phosphors.

14. To achieve the best possible color rendering, a lamp should have a full spectrum of light with all wavelengths present. (True or False)

- a. T
- b. F

15. Scotopically enhanced lighting has been shown to be brighter than photopic lighting, even though lighting levels were measured to be what?

- a. 10% higher
- b. same
- c. 30% lower
- d. 50% lower

16. Which of the following is the best answer for lamps with high scotopic to photopic ratios (S/P)?

- a. faster reading time
- b. reduced visual fatigue

- c. reduced glare
 - d. all the above
17. A lamp description is given as “F28T8”. What is the definition of the number “28”?
- a. 28 inches in length
 - b. 28 watts
 - c. 28 mm in diameter
 - d. 2800K color temperature
18. “ECO” for a lamp description indicates what?
- a. the lamp has passed toxicity tests
 - b. the lamp was manufactured at a green manufacturing plant
 - c. the lamp is an economical, or energy saving lamp
 - d. none of the above
19. What is the lamp failure after 13,000 starts for instant start ballasts?
- a. 25%
 - b. 30%
 - c. 40%
 - d. 50%
20. What is the cathode temperature when a program start ballast applies the starting voltage?
- a. 250 degrees C
 - b. 250 degrees F
 - c. 700 degrees C
 - d. 700 degrees F
21. A footcandle is defined as what?
- a. lumens per square foot
 - b. lumens per square meter
 - c. candelas per square foot
 - d. candelas per square meter
22. A room with a low percentage of its total surface area in walls will have a lower CU. (True or False)
- a. T
 - b. F
23. The RCR represents a modified ratio of what kind of area to the horizontal surface area in a room?
- a. workplane area
 - b. wall area
 - c. floor area
 - d. ceiling area
24. The Zonal Cavity Method of lighting calculations main goal is to determine what?
- a. reflectance of the ceiling cavity
 - b. reflectance of the wall cavity
 - c. reflectance of the floor cavity
 - d. both A and C
25. If the workplane is on the floor, then the floor cavity height will equal what?

- a. the distance from the floor to the desktop
- b. zero
- c. the distance from the floor to the ceiling
- d. none of the above

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