

Arch 464
ECS
Midterm I
Spring 2015

30 Multiple Choice Questions



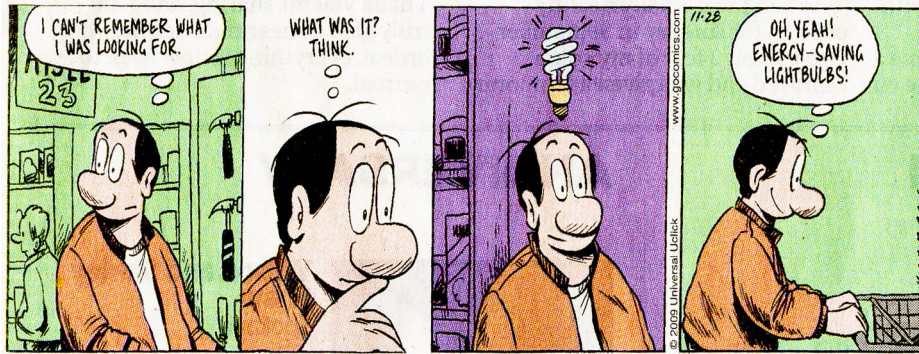
1. Mary Guzowski's *Daylighting for Sustainable Design* is organized around
 - A. Environmental Considerations
 - B. Architectonic Considerations
 - C. Human Considerations
 - D. all of the above
2. In Mario Botta's SF MOMA the form that is most successful in guiding quality daylight into the building is
 - A. the ocular skylight over the stair tower
 - B. the gabled skylights over the galleries
 - C. both are successful
 - D. neither is successful
3. The fritted glass used in Helmut Jahn's United Airlines terminals at O'Hare Field is appropriate technology for enhancing the effectiveness of
 - A. daylighting
 - B. indirect electric lighting
 - C. both of the above
 - D. none of the above
4. Richard Meier's Jubilee Chapel in Rome pays homage to
 - A. Steven Holl's St. Ignatius Chapel
 - B. Alvar Aalto's Riola Church
 - C. both of the above
 - D. none of the above
5. Bernard Maybeck was able to achieve the effect of stained glass windows by using
 - A. clear specularly transmitting glass
 - B. diffuse translucent glass
 - C. semi-diffuse transmitting glass
 - D. colored Plexiglas

6. Which of these transmitters or reflectors can pose a glare problem?
- A. a diffuse transmitter
 - B. a specular reflector
 - C. a specular transmitter
 - D. all of the above
7. Weber's Law is closely related to
- A. lighting design
 - B. daylighting design
 - C. perception
 - D. measurement of footcandles
8. Given equal luminance, our eyes would be most sensitive to a surface painted
- A. red
 - B. yellow
 - C. blue
 - D. all of the above
9. Color temperature is an example of
- A. a subjective measurement of light
 - B. an objective measurement of light
 - C. a subjective measurement of heat
 - D. an objective measurement of heat
10. A 50% reflective surface that is 4 feet away from a 4 candela light source is illuminated by
- A. 1 footcandle
 - B. 0.5 footcandles
 - C. 0.25 footcandles
 - D. 0.125 footcandles
11. In theory, under a perfectly cloudy sky as the sun progresses from its noon position to mid-afternoon
- A. the daylight factor of a skylighted room will decrease
 - B. the daylight factor of a side-lighted room will decrease
 - C. both of the above
 - D. the daylight factor will remain constant
12. High quality daylight is best added to a room by
- A. the sun component
 - B. the sky component
 - C. a low IRC
 - D. all of the above
13. Daylight from the sky contrasts in quantity and quality with
- A. electric lighting
 - B. sunlight
 - C. both of the above
 - D. none of the above

14. If Room 2 in Kit Cuttle's thought experiment were improved to have all 50% reflective surfaces, 80% reflective Room 1
- A. would still be 16 times brighter
 - B. would be 12.5 times brighter
 - C. would be 4 times brighter
 - D. would be 1.6 times brighter
15. The Anderson Collection in Quiz 1 followed which age-old adage?
- A. Openings high in the space distribute light deeply
 - B. Workplaces should be close to windows
 - C. Sidelighting is best for tasks
 - D. all of the above
16. Which rule-of-thumb strategy can help mitigate glare
- A. apertures in two surfaces
 - B. splayed apertures
 - C. high IRC
 - D. all of the above
17. Sketching daylighting scenes on brown paper can increase intuition because
- A. light sources show up better
 - B. about 50% is the average reflectance of rooms
 - C. both light and dark area must be rendered
 - D. none of the above
18. The most reliable method to "see" the effect of a daylighting scheme in a proposed room is
- A. by using the GDDM
 - B. by using AGi-32
 - C. by photographing a physical daylighting model
 - D. all of the above
19. Useful information from a hand, computer, or physical lighting model includes
- A. surface luminance
 - B. distribution of light in space
 - C. daylight factors
 - D. all of the above
20. Artificial skies are used to test daylight models because
- A. a suitable, perfectly overcast real sky condition is rare
 - B. they are easier and less expensive to use than the real sky
 - C. the real sky varies in brightness during the day
 - D. all of the above
21. The success of a daylighting scheme can be assessed by
- A. using illuminance meters to determine light distribution
 - B. using a luminance meter to measure surface brightness
 - C. comparing photographs of a daylight model's interior
 - D. all of the above

Adam

Brian Basset



22. For most office tasks the point of diminishing returns for illumination levels will be about
- A. 2 footcandles
 - B. 20 footcandles
 - C. 75 footcandles
 - D. 125 footcandles
23. In real time (vs. operational hours) fluorescent lamps will last longer if
- A. they are never turned off
 - B. only on from 9 to 5 each day
 - C. they are on during the work day for only a short time before and/or after daylight is sufficient
 - D. a photosensor switches them on and off throughout the work day based on the availability of daylight
24. Which of the following lamps is not an HID
- A. fluorescent
 - B. low-pressure sodium
 - C. metal halide
 - D. MR-16
25. The CRI of fluorescent lamps is most dependent on
- A. color temperature
 - B. efficacy
 - C. the phosphors used in their manufacture
 - D. tube diameter
26. LED lamps run on AC electricity save money over CFLs in the long term because
- A. they have a much greater efficacy
 - B. they have a much longer operating life
 - C. they improve worker productivity
 - D. all of the above
27. The dining room at the Royal Academy of Art in London clearly demonstrates LED's ability to
- A. integrate with daylighting
 - B. set moods by changing color
 - C. save money through increased efficacy
 - D. all of the above

28. A direct fixture is most efficient at illuminating a task when

- A. its beam width is sized to the task area
- B. it delivers an appropriate number of footcandles
- C. it is placed to avoid reflective glare
- D. all of the above

29. Fixtures with an indirect component are most efficient

- A. in rooms with a low IRC
- B. when T-8 fluorescent tubes are used
- C. in rooms with a high IRC
- D. when integrated into coffered ceilings

30. The aim of the new lighting scheme in the Sistine Chapel is to

- A. complement the daylighting
- B. illuminate all surfaces evenly
- C. enhance the mood of the space
- D. all of the above

In closing...maybe not needed this year!

