Arch 464
ECS
Midterm I
Spring 2004

30 Multiple Choice Questions

1. According to Mary Guzowski, daylighting is linked to sustainability through
   A. environmental considerations
   B. architectonic considerations
   C. human considerations
   D. all of the above

2. The Musee d'Orsay in Paris was originally designed as
   A. an architecture school
   B. a parking garage
   C. a train station and hotel
   D. none of the above

3. Daylight in the San Francisco MOMA galleries is
   A. admitted with direct sun through the central atrium
   B. diffused by complex, deep-welled skylights
   C. never eliminated
   D. all of the above

4. Daylighting design for a library reading room is accomplished by manipulating the
   A. senders
   B. interveners
   C. receivers
   D. perceivers

5. During the day, an electric light near a window wall contributes little noticeable illumination, but makes a large contribution at night. This is an example of

A. an effective dimming strategy
B. Weber's Law of just noticeable stimuli
C. glare
D. all of the above

6. Fire departments have begun painting their trucks a bright yellow-green instead of red because

A. our eyes are more sensitive to yellow-green
B. yellow-green has a higher color temperature
C. yellow-green reads truer under high-pressure sodium street lamps
D. all of the above

7. The light emitted by 5 ordinary candles can be described as

A. having a luminous intensity of 5 candela
B. having a luminous flux of 5 footcandles at five feet away
C. merely romantic
D. none of the above

8. A perfectly cloudy sky

A. is brighter at the zenith than at the horizon
B. is considered the worst case scenario in daylighting design
C. can be simulated in a mirror-box artificial sky
D. all of the above

9. The most effective way to toplight a library reading room in a clear-sky climate is to use

A. skylights with clear glass
B. well-shaded south- and north-facing clerestory windows
C. diffusing skylights that total half the floor area
D. none of the above

10. In an office space with window head height of 12 feet, the windows can provide effective task light

A. to those near the window
B. to a depth of 15 feet from the window
C. to a depth of 24 feet from the window
D. only on sunny days

11. A rule-of-thumb predicts that for a 600 square foot room with 60 square feet of glazing in north-facing sawtooth toplights, the average daylight factor will be about

A. 10%
B. 5%
C. 3%
D. 2%

12. In a daylighted room, glare can be reduced or eliminated by
    A. using off-white paint, finishes, and furnishing
    B. bringing light in from one wall and the ceiling
    C. designing splayed apertures
    D. all of the above

13. For a curvilinear space with both windows and skylights, predicted daylight distribution can be hand-calculated by using
    A. the lumen method
    B. the graphic daylight design method
    C. the LBL nomographs
    D. any of the above

14. The value of computer-based daylight prediction tools is that they
    A. calculate precise daylight levels
    B. help visualize the spatial effects of daylighting schemes
    C. can all handle complex geometries
    D. all of the above

15. Artificial skies are used with daylighting models because
    A. they provide consistent sky illumination for comparing design options
    B. the real sky is never useful
    C. they are energy efficient
    D. all of the above

16. The best daylighting models
    A. model interiors and exteriors accurately
    B. model interiors accurately
    C. model apertures and interiors accurately
    D. must be at a scale no smaller than 1:10

17. The most efficient electric lamps are
    A. also the longest lasting and best color renderers
    B. also long lasting, but poor color renderers
    C. both short lived and poor color renderers
    D. also good color renderers, but short lived

18. Incandescent lamps are best used for
    A. ambient lighting
    B. task lighting
    C. both of the above
    D. none of the above

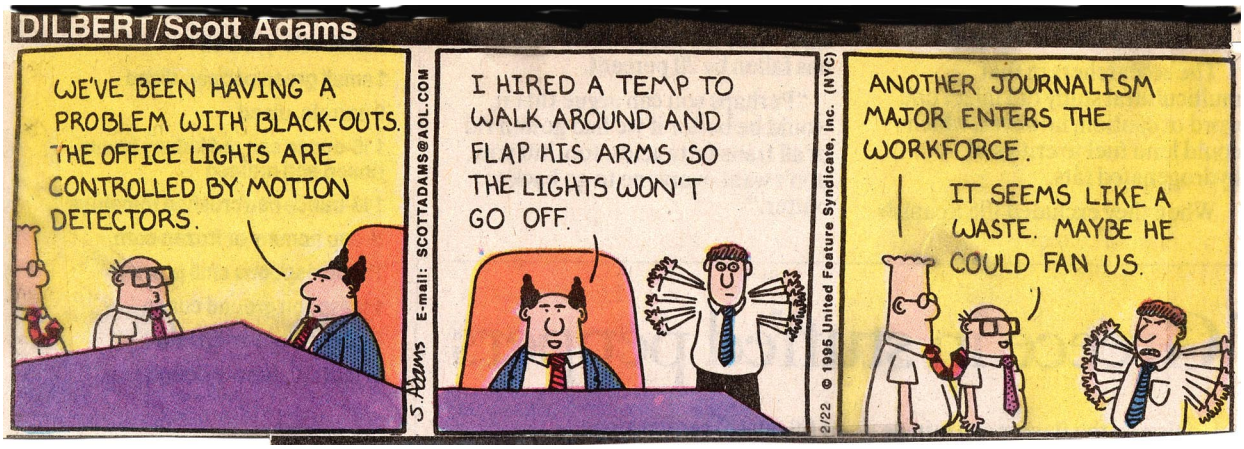
19. Illumination from a cool white T-12 fluorescent lamp with a magnetic ballast can be improved by
    A. replacing it with a tri-phosphor lamp
    B. replacing the ballast with an electronic ballast
    C. replacing it with a T-8 lamp
    D. all of the above

20. The problem with compact fluorescent lamps is
    A. poor quality light
    B. flickering
    C. initial cost doesn't compensate for reduced energy use
    D. none of the above

21. Metal halides are considered the best HID lamps because of their
    A. high efficacy
    B. long life
    C. good color rendering
    D. none of the above

22. Lighting design is connected to health because
    A. some lamps' color rendering make your skin look healthy, others make it appear sickly
    B. light affects circadian rhythms
    C. electronic ballasts cause headaches
    D. all of the above

23. A lamp and fixture combination's photometric curve describes
    A. its efficiency over time
    B. how it distributes light in space
    C. its spectral light distribution
    D. all of the above



24. The type of fixture whose efficiency is most affected by a room's IRC is
    A. direct
    B. direct/indirect
    C. indirect
    D. general diffuse

25. For effective integration of daylighting and electric lighting
    A. use indirect fixtures
    B. design a control scheme that adjusts electric lighting to dim as daylight increases
    C. use lamps with a high CRI
    D. all of the above

26. The office lighting levels suggested in the 1936 edition of MEEB
    A. is above the point of diminishing returns for accomplishing simple office tasks
    B. is still considered adequate
    C. is much lower than 1965 recommendations
    D. all of the above

27. A fluorescent lamp will last longer (in real years) if it's
    A. left on continuously
    B. turned on each day for a ten-hour stint
    C. turned on each day for a three-hour stint
    D. left on continuously, but dimmed during daylight hours

28. To calculate the direct illumination from two can lights, two feet apart, that falls on a work plane about 10 feet away, use
    A. the point source method for each, then add the results
    B. the line source method
    C. the lumen method
    D. the footlambert method

29. In the lumen method, the IRC of the room is accounted for by the

A. room cavity ratio
B. coefficient of utilization
C. light loss factor
D. none of the above

30. In a room with raked seating (like McClure 209) and a luminous ceiling, lumen method theory predicts that desks at the back of the room receive

A. the same illumination as desks near the front
B. more illumination than desks near the front
C. less illumination than desks near the front
D. an indeterminate amount of light, since raked floors aren't calculable