

Arch 464
ECS
Midterm I
Spring 2002

30 Multiple Choice Questions

1. In the last decade Richard Meier has designed some buildings that are "greener" than his previous buildings. These feature

- A. shading and daylighting
- B. site-generated energy sources
- C. on-site stormwater treatment
- D. all of the above

2. The Center for Regenerative Studies at Cal Poly Pomona should be classified as

- A. code compliant
- B. green architecture
- C. sustainable architecture
- D. regenerative architecture

3. Green architecture in Europe

- A. is limited to single family residential
- B. includes single and multi-family residential
- C. is limited to five-story walk-up residences and offices
- D. includes skyscrapers such as the CommerzBank in Germany

4. A green architect can use the Green Building Council's LEED certification process

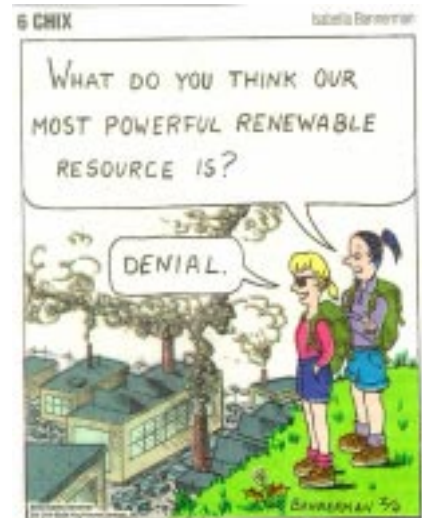
- A. confirm the greenness of a building project
- B. leverage the building owner for inclusion of additional green features
- C. provide favorable grist for the public relations mill for a building
- D. all of the above

5. Rating a building using the SBSE revised version of Malcolm Wells' Wilderness-Based Checklist for Design and Construction

- A. gives an absolute ranking of its greenness
- B. can lead to a valuable discussion on the issues a regenerative building must address
- C. doesn't discriminate between building and site issues
- D. all of the above

6. If an Arch 464 class consensus SBSE Checklist ranking of the Logan House was -25, the class had essentially agreed that the house is

- A. an environmental parasite
- B. pretty much sustainable
- C. tends toward regenerative
- D. an icon for the apocalypse



7. The Green Building Advisor is a CD-ROM based program that
- A. includes case studies of green architecture epitomes
 - B. suggests green building strategies applicable to the project at hand
 - C. has a data base of green building products
 - D. all of the above
8. In her book Mary Guzowski proposes that daylighting is endemic to sustainability in nine principal ways including
- A. Principle Two: Do More with Less
 - B. Principle Five: Use Light from Two Orientations
 - C. Principle Seven: Analyze Daylight with Computer Software
 - D. all of the above
9. By definition a one candle power illumination source emits
- A. one lumen
 - B. 12.57 foot candles
 - C. one foot lambert
 - D. none of the above
10. In order to bring daylight into a building through a side light for task lighting without glare, it would be best to use
- A. a diffuse reflector
 - B. a diffuse transmitter
 - C. a specular reflector
 - D. a specular transmitter
11. When seen from the Palouse wheat fields at midnight in mid-winter, stars seem brighter than those seen from downtown Moscow on the same night because
- A. of Einstein's special theory of relativity
 - B. of air pollution
 - C. there is less "background illumination" to compete with the stars
 - D. all of the above
12. If your lighting design for an office specifies 2.1 watts/square foot,
- A. it meets the energy code requirements
 - B. it may meet the energy code requirements, depending on the local code
 - C. it won't meet the energy code requirements
 - D. it must use daylight and/or occupancy sensor controls to meet the energy code requirements
13. If a surface has a reflectivity of 0.50, when
- A. its illuminance is 40 footcandles, its luminance is 60 foot lamberts
 - B. its luminance is 40 foot lamberts, its illuminance is 60 footcandles
 - C. its illuminance is 40 footcandles, its luminance is 80 foot lamberts
 - D. its luminance is 40 foot lamberts, its illuminance is 80 footcandles

14. Daylighting predictions are not based on a partly cloudy sky because
- A. cloudy and clear skies are more consistent
 - B. they only predict average conditions
 - C. total solar penetration is required for daylighting
 - D. none of the above
15. In a daylighting scheme that attains the goal of even diffuse light, the most important component is the
- A. sun component
 - B. sky component
 - C. externally reflected component
 - D. internally reflected component
16. An adequately daylighted space with a high IRC would seem
- A. bright and evenly lighted
 - B. bright near the apertures
 - C. to have areas of high contrast and glare
 - D. dim, but evenly lighted
17. A perfectly overcast sky is typified by
- A. a zenith that's 3 times brighter than the horizon
 - B. an inability to determine the exact location of the sun
 - C. both of the above
 - D. none of the above
18. In order to mitigate glare, your daylighting scheme could
- A. introduce light from two or more directions
 - B. use splayed window surrounds
 - C. provide dark to middling views through clear apertures
 - D. all of the above
19. The rule-of-thumb sets the maximum percentage of floor area to skylight area ratio as
- A. 1 : 1
 - B. 2 : 1
 - C. 4 : 1
 - D. 10 : 1
20. Prediction methods that give the designer a sense of how daylight is distributed throughout a space include
- A. the Graphic Daylight Design Method
 - B. *Lumen-Micro*
 - C. *Lightscape*
 - D. all of the above

21. A daylight prediction method that is restricted to rectilinear spaces is
- the Graphic Daylight Design Method
 - Lumen-Micro*
 - Lightscape*
 - all of the above
22. When designing a lightshelf to help daylight an office in your building, you should expect it to
- brighten the workspace
 - reduce the illuminance difference between areas near to and remote from the windows
 - integrate direct electrical lighting fixtures into its design
 - all of the above

23. The lamp with the lowest efficacy is
- a cool white fluorescent
 - an incandescent
 - a mercury HID
 - neon

24. The expense of a fluorescent lamp is dictated by
- its wattage
 - the phosphors used
 - its ballast type
 - none of the above



25. Fluorescent lamps that cause a visible flicker must have
- poor CRI ratings
 - magnetic ballasts
 - low efficacy
 - all of the above
26. A lamp with a high CRI
- is a Low pressure sodium lamp
 - distributes its output evenly throughout the visible spectrum
 - is an expensive lamp
 - has a low color temperature
27. The type of lighting fixture that is most easily integrated with daylight is
- direct with photosensors
 - diffuse
 - indirect
 - illusionary light with colored lenses
28. The photometric curve for a diffusing pendant fixture is shaped most like
- a bell
 - a Bunsen burner flame
 - a circle
 - a starburst

