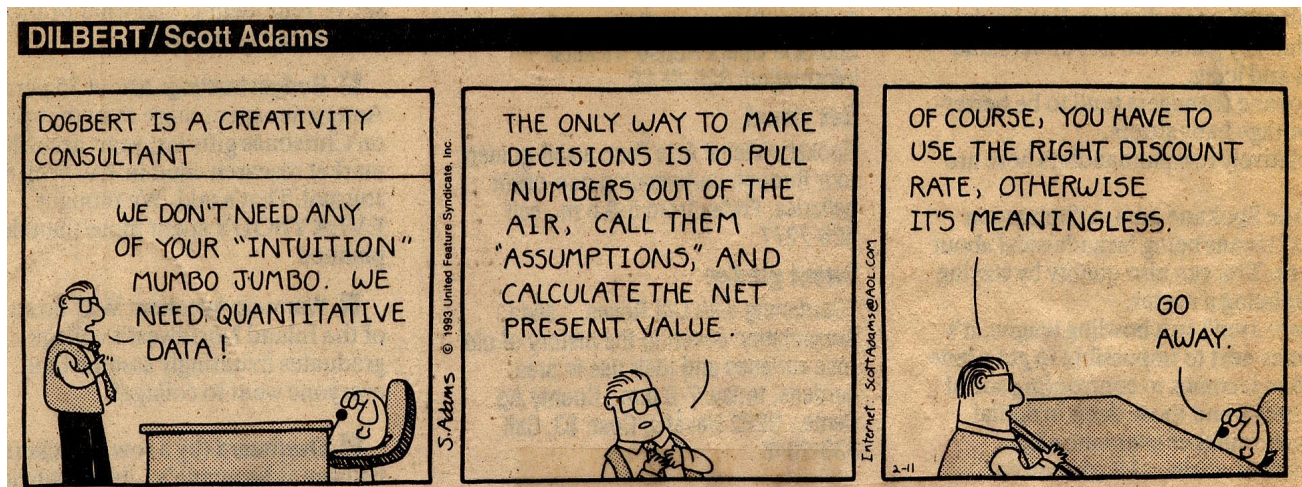


40 Multiple Choice Questions—Select the best answer for each one.



New Questions

1. What's the best device for space heating?
 - A. One that has a first law efficiency of 100%.
 - B. One that has a first law efficiency of 300%.
 - C. One that has a second law efficiency of 100%.
 - D. One that uses renewable resources.
2. Life Cycle Costing (LCC) considers all of the following except
 - A. initial building cost
 - B. employee costs
 - C. replacement parts costs
 - D. costs of fuel and maintenance
3. Holistically, the most cost-effective building is one that
 - A. is energy-efficient
 - B. increases productivity
 - C. is sustainable and increases productivity
 - D. has the lowest construction cost and architectural fee

4. High performance in a green building can be assured by
- interdisciplinary integrated design process
 - building commissioning
 - periodic post occupancy evaluation
 - all of the above
5. The speed of sound in air is about 1130 feet per second. The wave length of a 200 Hz tone is about
- 2"
 - 5.65"
 - 2'- 2"
 - 67.8"

6. The roar of your neighbor's chain saw is 80 dB as you attempt to relax in your hammock 30' away. When his sons Luke and Bubba fire up their matching saws to help to turn the felled cherry tree into logs, you hear a sound that is

- 240 dB
- 85 dB
- 83 dB
- 80 dB

7. In order to reduce the threesome's sound level by about one half, you must

- move to 60' away
- move to 90' away
- move to 120' away
- go indoors

8. An example of a design where the acoustic strategy of masking is used is

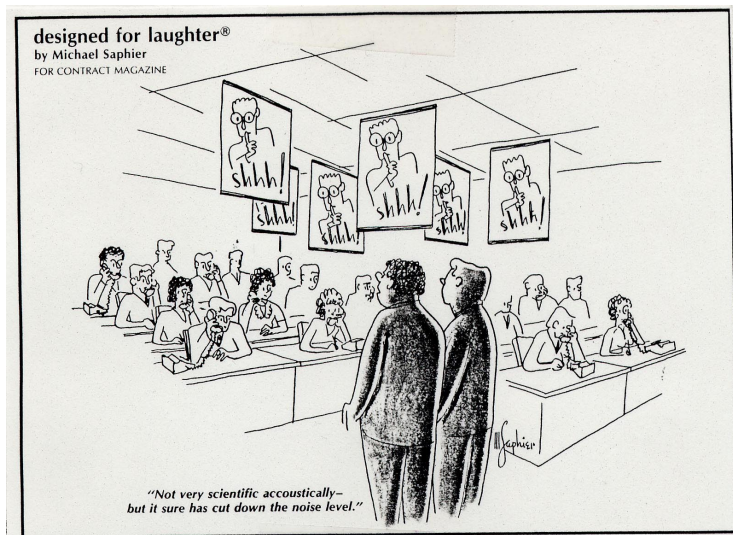
- Predock's Albuquerque Heart Clinic
- Koolhaus' IIT Campus Center
- Paley Park New York
- all of the above

9. To assure privacy in the Marin County Courthouse's courtrooms, Frank Lloyd Wright used

- a concave ceiling to focus sound
- a convex ceiling to disperse sound
- ceiling baffles to absorb sound
- a Sonex ceiling treatment to resist fire and absorb sound

10. The structure-borne noise from a compressor can be reduced by

- using isolating mounting devices
- using sound baffles in the duct work
- absorbing sound with concrete sound blocks
- all of the above



11. The main reading room of the Boston Public Library

- A. has silence as the acoustical goal
- B. employed Wallace Sabine as acoustician
- C. should be a very live space acoustically
- D. none of the above

12. A small hole (<1%) in an acoustic barrier wall between two spaces

- A. has no effect
- B. limits the effectiveness of the barrier
- C. reduces the STC rating to 20
- D. is a problem only when in the sight line between source and receiver

13. To best match the sensitivity of our ears to sounds in the bearable range of intensities we measure decibels

- A. on the dBA scale
- B. on the dBB scale
- C. on the dBC scale
- D. as raw dBs

14. The reverberation time for your yodeling at 2000 Hz in a 4'x4'x8' reflective glass ($\alpha=0.02$) public toilet (pictured to right) on a concrete sidewalk ($\alpha=0.02$) is

- A. 0.2 sec
- B. 1.96 sec
- C. 4.9 sec
- D. 30.625 sec



15. Dependent on the room's size and reverberation time the sound pressure level of a copy machine will translate to a sound power level that is

- A. is more intense when measured in dBs
- B. is less intense when measured in dBs
- C. can be either more or less intense when measured in dBs
- D. always within 3 dB of the sound pressure level

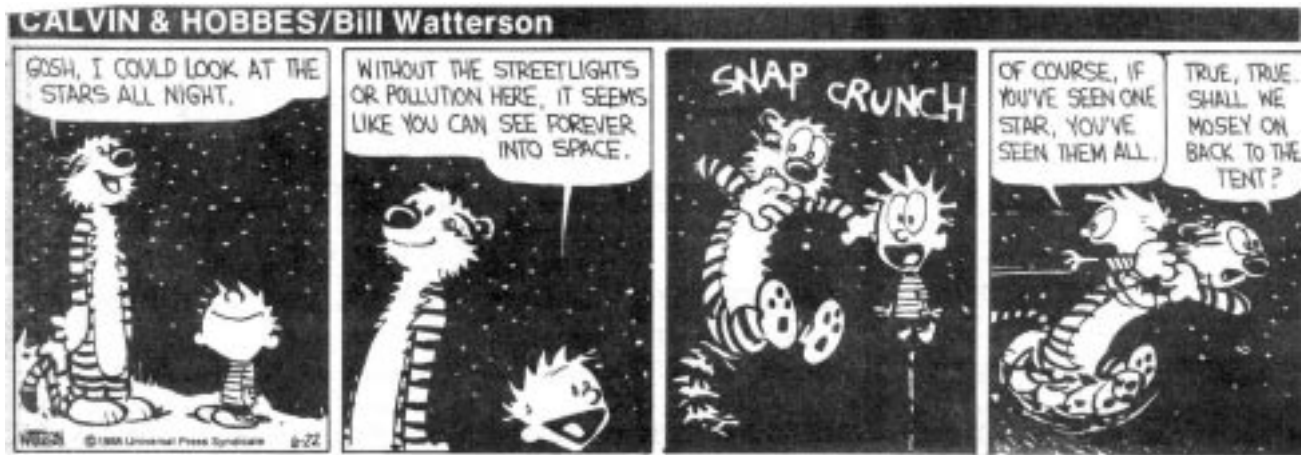
16. For a sound made in a room with acoustically reflective parallel walls, the impulse response diagram will show

- A. early reflections for all occupants
- B. the direct sound followed by pairs of evenly spaced, but gradually less intense reflections
- C. smooth and gradual degradation of intensity over time
- D. a direct sound and two reflections

17. An effective acoustic model, be it physical or virtual, demonstrates
- direct sound rays
 - reflected sound
 - spatial effects of sound
 - all of the above
18. The single-purpose auditorium form least likely to require electronic enhancement of sound is a
- 'shoebox'
 - wide hall
 - surround hall
 - mechanically changeable hall
19. An example of a concert hall where form follows function is
- Sydney Opera House
 - Walt Disney Concert Hall
 - Seigi Ozawa Hall
 - none of the above
20. The Music + Architecture piece that does not demonstrate a reliance on reverberation is associated with
- Taj Mahal
 - Santiago de Compostella Cathedral
 - Santa Maria del Fiore
 - Speyer Cathedral

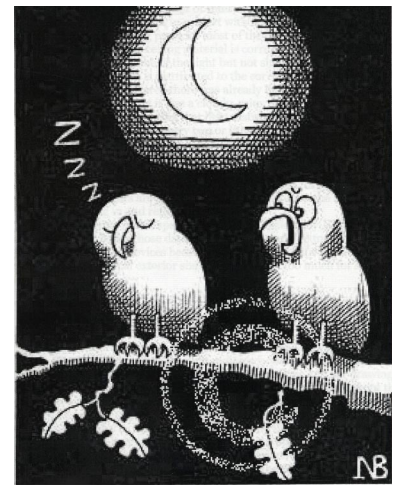
Review Questions

21. Effectively daylighted spaces are related to
- energy-efficiency
 - sustainability
 - productivity
 - all of the above



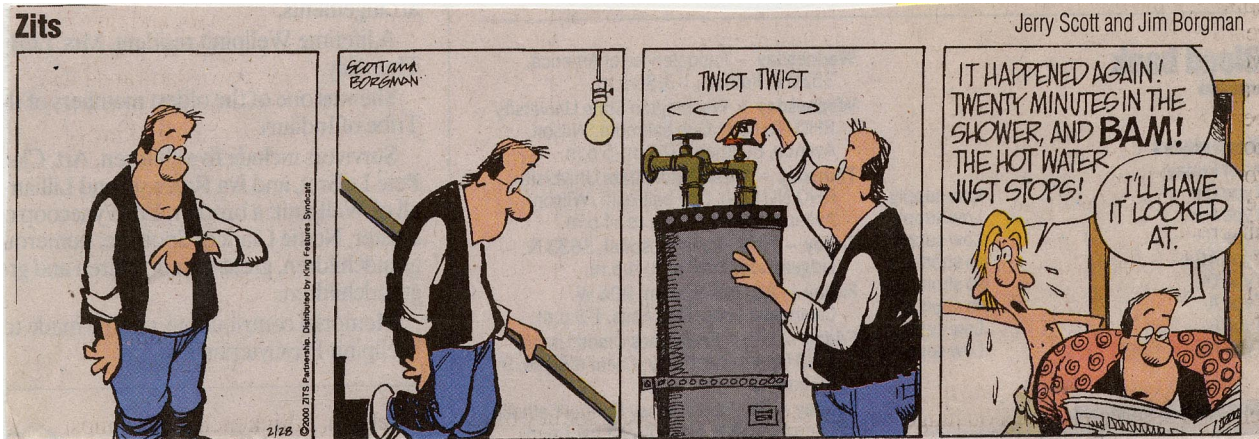
22. A building that exhibits effective daylighting design features
- A. glass curtain walls
 - B. big skylights
 - C. well-shaded apertures
 - D. none of the above

23. When is glare a problem?
- A. When a bright source is in the field of view.
 - B. When a specular surface reflects a bright source.
 - C. When adjacent surfaces have a luminance ratio exceeding 100:1.
 - D. all of the above



24. Light shelves are effective because they
- A. increase the amount of light that penetrates deeply into a room
 - B. reduce the amount of light near the window
 - C. reduce the amount of light near the window more than they reduce the amount of light far from the window
 - D. increase the total amount of light in the space
25. Most crucial to accurate results, when using a physical daylighting model, is that
- A. all exterior surface materials are modeled accurately
 - B. all interior surface materials are modeled accurately
 - C. apertures are fitted with samples of the appropriate glazing
 - D. all of the above
26. GDDM "footprints" render a valuable model of daylighting because
- A. they are extremely accurate
 - B. they show light distribution in the space
 - C. they deal with complex window geometries accurately
 - D. all of the above
27. In a climate that is dominated by partly cloudy skies it's advisable to model
- A. partly cloudy skies
 - B. cloudy skies
 - C. clear skies
 - D. clear and cloudy skies
28. A compact fluorescent lamp is superior to an incandescent lamp because it
- A. has a lower CRI
 - B. gives off about 4 times more lumens per watt
 - C. has a magnetic ballast
 - D. all of the above

29. The photometric curve will tell you how a lamp and fixture
- distribute light in space
 - deliver specific wavelengths to a surface
 - function as the lamp degenerates over time
 - combine to eliminate glare
30. When using the zonal cavity method to predict illumination from a luminous ceiling, it is assumed that
- light is evenly distributed to the work plane
 - light is diminished in proportion to the inverse of the distance squared
 - all fixtures are 100% efficient
 - all of the above
31. A good roof material for a rainwater harvesting system is
- cedar shingles
 - asphalt shingles
 - photovoltaic panels
 - all of the above
32. The environmental impact of a large parking lot can be reduced by draining water to
- bio-swales
 - stormwater sewers
 - city streets
 - all of the above
33. The primary value of green roof systems is
- to slow and reduce stormwater run-off
 - to treat gray water on site
 - intensify the building's microclimate
 - all of the above
34. The living machine at BedZED provides
- potable water
 - tinted flushing water for the toilets
 - irrigation water for the football pitch
 - all of the above



35. To save water in a new slab-on-grade home, you should specify
- A. a low-flush toilet
 - B. an ultra low-flush toilet
 - C. a Clivus Multrum composting toilet
 - D. any of the above
36. A strength of the SBSE checklist is that it
- A. separates site and building issues
 - B. penalizes degenerative design features
 - C. is subjective
 - D. all of the above
37. The best source for site energy generation on an urban site is
- A. low head hydro power from the creek at the site's edge
 - B. vertical axis wind generators atop the building
 - C. sun powered PVs forming an arcade at street level
 - D. all of the above
38. The best place to get free consulting in green building practices is
- A. your local/regional energy lab (e.g. IDL Boise)
 - B. U.S. Green Building Council
 - C. *Environmental Building News*
 - D. none of the above
39. The U.S. energy spaghetti charts reveal that from 1960 to 1999
- A. energy use per capital declined slightly
 - B. total energy use more than doubled
 - C. the percentage of energy wasted decreased
 - D. all of the above
40. When powered by hydrogen fuel, fuel cells
- A. produce electricity, heat, and water
 - B. present a serious explosive threat
 - C. generate ammonia gas pollution
 - D. all of the above

Catch some rays, catch some Zzzzzzzzzs!
Come back with new energy next fall!

