Arch 463
Fall 2016 Name_____

Midterm II

30 Multiple Choice Questions

1. Natural ventilation schemes that pass air over the occupants' bodies
    A. provide comfort at temperatures above the comfort zone
    B. remove heat from the top of the room
    C. are known as stack ventilators
    D. all of the above

2. A clerestory window is most effective at removing heat from a building if
    A. it faces the wind
    B. it faces away from the wind
    C. it faces the wind obliquely
    D. it faces away from the wind obliquely

3. If a room has apertures on only one wall, it can
    A. not be naturally ventilated
    B. be best ventilated by double hung windows
    C. be best ventilated by casement windows
    D. be best ventilated by sliding glass windows

4. In a glass curtain wall high-rise adjacent rooms with similar thermal needs can be in the same thermal zone if
    A. they are on the same floor
    B. they have the same orientation
    C. they are on different floors
    D. all of the above

5. Spokane's high-rise Wells Fargo Bank is thermally elegant because
    A. its cores buffer the interior from east and west sun
    B. the south facade is appropriately shaded
    C. typical floor plans are thermally zoned
    D. all of the above

6. A building's balance point temperature occurs when
    A. outdoor air temperature is in the comfort zone
    B. the building needs neither heating nor cooling to maintain comfort
    C. passive systems are effective
    D. all of the above

7. The first high profile architect to consider double skin glazed walls was
    A. Frank Lloyd Wright
    B. Le Corbusier
    C. Sir Norman Foster
    D. none of the above

8. The cavity between glazed walls in a double skin high-rise usually
    A. contains weather-protected movable shading devices
    B. has walkway grates for maintenance access
    C. is open to the outside at top and bottom
    D. all of the above

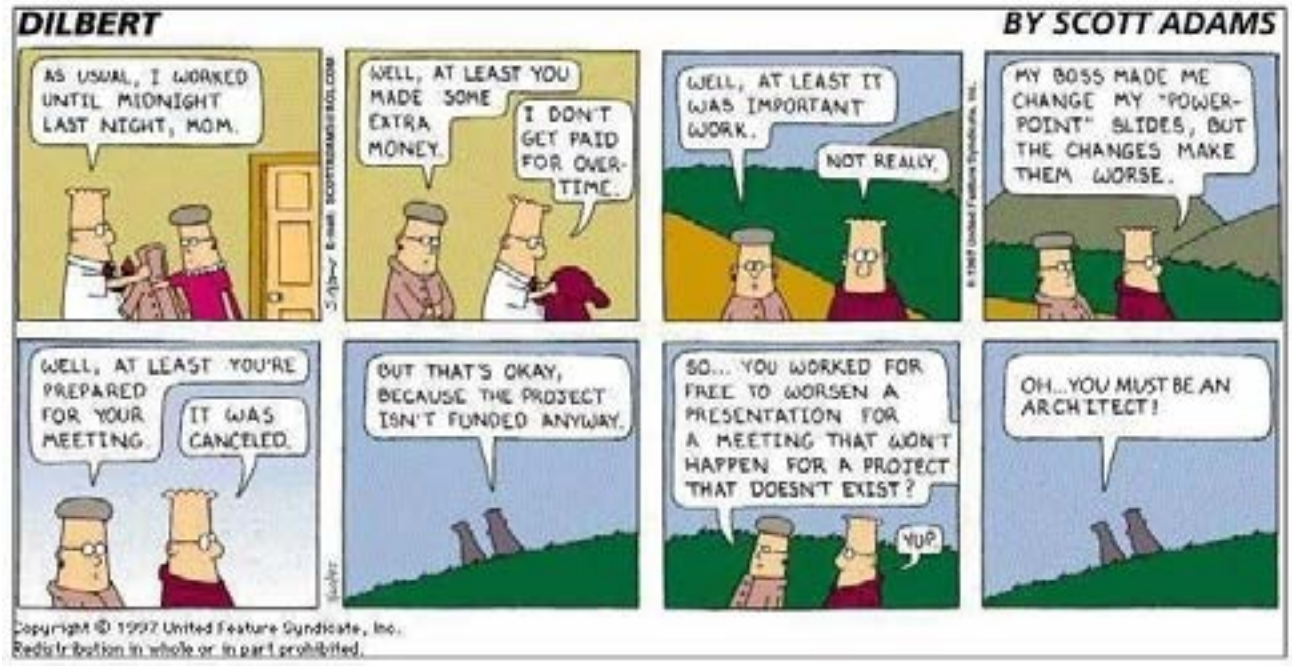
9. Sir Norman Foster's "Gherkin" in London is naturally ventilated
    A. by cross ventilation
    B. by stack ventilation
    C. through vegetated spiraling light wells
    D. all of the above

10. Dynamic facades give a building the ability to
    A. react to sun conditions on a partly cloudy day
    B. maximize solar gain
    C. provide cross ventilation while shading
    D. none of the above

11. If you want a courtyard to most effectively trap a pool of cool air overnight, you would
    A. put a fountain and lots of bushes and vines in it
    B. grow a large shade tree in it
    C. leave it rather barren
    D. cover it with toldos at night

12. You could say that Kahn's Kimbell Museum
    A. is elegantly illuminated by a "little big" skylight
    B. lets light in through the cracks
    C. out-performs the barrel vaulted spaces in Momentum Place
    D. all of the above

13. The Brillhart House in Miami has potential for good passive performance because
    A. it is raised off the ground
    B. it was wide overhangs
    C. it has operable exterior shading devices
    D. all of the above



14. Balance point temperature analysis of the Brillhart House showed rotating the house 90º
    A. reduced the cooling load in December
    B. reduced the cooling load in June
    C. increased the cooling load in March and September
    D. all of the above

15. HEED modeling of the Brillhart House showed passive mode
    A. daytime summer temperatures in the 70s and 80s
    B. daytime winter temperatures below the comfort zone
    C. cooling performance greatly enhanced by rotating the axis by 90º
    D. all of the above

16. Modeling the Brillhart house with a Miami 2080 climate file proved
    A. that its passive strategies will continue to be effective
    B. that indoor temperatures could reach 100ºF
    C. that winter heating would still be required
    D. none of the above

17. Earthships are
    A. passively heated and cooled
    B. constructed with some reused materials
    C. gather and treat all their water on site
    D. all of the above

18. Ed Mazria's Rio Grande Botanic Garden Conservatory in Albuquerque
    A. is passively heated and cooled
    B. is larger than planned because of reduced equipment expense
    C. contains desert and Mediterranean biomes
    D. all of the above

19. Village Homes in Davis, CA, is over 40 years old and still successful because
    A. it deals with storm water on site
    B. it emphasizes community
    C. it separates pedestrian and auto traffic on site
    D. all of the above

20. Pittsburgh's naturally lighted and ventilated convention center
    A. saves millions of kWh of electricity for ventilation annually
    B. saves millions of kWh of electricity for lighting annually
    C. both of the above
    D. none of the above

21. Richard Rogers' Chiswick Park development is analogous to Village Homes in that
    A. it features passive solar building strategies
    B. it separates vehicular and pedestrian traffic
    C. it provides community space and activities
    D. all of the above

22. Shading strategies used at the Chiswick Park development include
    A. horizontal shading devices
    B. operable awnings
    C. perforated metal lovers
    D. all of the above

23. The Clearwater Times building features a solar roof for
    A. space cooling
    B. space heating only
    C. electricity generation
    D. all of the above

24. The Harare International School by Mick Pearce features
    A. wind cowls for ventilation
    B. rock bed thermal storage
    C. daylighted classrooms
    D. all of the above

25. An active solar space heating system can
    A. run in the passive mode
    B. store summer heat for winter use
    C. not use thermal mass
    D. none of the above

26. The most trouble-free active solar collectors are
    A. concentrating collectors
    B. fixed flat plate collectors
    C. evacuated tube collectors
    D. all of the above are equally trouble free

27. The prime difference between the active systems in the Mayhew house and the Bevans house is

A. water vs. air collectors
B. massive heat storage vs. low mass storage
C. radiant heating vs. forced air heating
D. all of the above

28. The Illinois Center by Helmut Jahn in Chicago is a successful energy conserving building because

A. it has a 17-story atrium space for solar gain
B. it is effectively daylighted
C. it has well designed external shading devices
D. none of the above

29. Photovoltaic systems can be effective if integrated with

A. the south-facing pitched roof
B. the south facade
C. the west facade
D. all of the above

30. PVs are used as exterior shading devices at

A. the Crystal in London
B. NASA Sustainability Base
C. the California Academy of Sciences
D. all of the above

Damn contemporary B.S. architecture!