Final Exam
Continuing Education Course #189 A
Guide to Low Impact Development

1. Which of the following is not a typical detrimental impact of land development?
- ○ a. An increase in stormwater rate & volume.
- ○ b. An increase in runoff velocity.
- ○ c. An increase in downstream pollutant load.
- ○ d. An increase in the downstream water quality.

2. Low impact development techniques consist solely of non-structural measures.
- ○ a. True.
- ○ b. False.

3. Which of the following are ways that rainfall can be utilized as a resource?
- ○ a. It can be caught in rain barrels and used for irrigation.
- ○ b. It can be collected from rooftops and used for non-potable water within a building.
- ○ c. It can be directed into small rain gardens.
- ○ d. All of the above.

4. The terms "Low Impact Development", "Green Infrastructure", and "Better Site Design" all describe a similar suite of techniques.
- ○ a. True.
- ○ b. False.

5. Which of the following will contribute to maximizing both land development potential and preservation of natural areas.
- ○ a. Cluster subdivisions.
- ○ b. Underground parking.
- ○ c. The use of multi-story buildings.
- ○ d. All of the above.

6. In a low impact development the amount of lawn should be which of the following?
- ○ a. Minimizing lawn area.
- ○ b. Maximizing lawn area.
- ○ c. Replacing lawn area with macadam.

7. In order to be effective a vegetated filter strip should have which parameters?
- ○ a. A minimum slope of 8% and a minimum length of 25 feet.
- ○ b. A maximum slope of 8% and a minimum length of 25 feet.
- ○ c. A minimum slope of 8% and a maximum length of 25 feet.
- ○ d. A maximum slope of 8% and a maximum length of 25 feet.

8. Karst topography is a geologic formation underlain by soluble bedrock.

a. True.
b. False.

9. Reducing impervious surfaces can have which of the following beneficial effects:
   a. Provide for better traffic flow around a site.
   b. Reduce the peak rate and volume of runoff.
   c. Increase the parking efficiency on a site.
   d. Increase the overall site development potential.

10. Curbs tend to concentrate runoff.
    a. True.
    b. False.

11. Sidewalks can be eliminated if the following is true.
    a. They are not needed for safety.
    b. They will increase the runoff.
    c. They will cause a concentration of the runoff.
    d. They will be constructed of wood chips.

12. Banked parking refers to what?
    a. Parking provided for a bank building.
    b. An area set aside for parking if needed in the future.
    c. The edge of the parking area.
    d. Parking which is constructed of porous pavement.

13. Shared parking represents what?
    a. Parking spaces that are used at different times of the day by different uses.
    b. Parking which is shared between two different lots.
    c. Parking which is constructed of more than one material.

14. What is the void ratio of the sand in porous pavement?
    a. 10-25%.
    b. <10%.
    c. >25%.
    d. 25-50%.

15. Using the Rational Method calculate the peak rate of runoff given the following:
Area = 1.5 acres
Runoff coefficient = 0.5
Rainfall intensity = 4"/hour
    a. 6 CFS.
    b. 9 CFS.
    c. 3 CFS.
    d. 12 CFS.

16. Which of the following is a good location for grass pavers?
    a. An interstate highway.
    b. An overflow parking area.
    c. A trucking yard.
    d. A heavily-used parking area.

17. The actual volume of runoff stored on a "green roof" depends on which of the following?

a. The size & porosity of the planting bed.
b. The size and number of the plantings.
c. The types of plants utilized.
d. All of the above.

18. What is the time of concentration?
a. The amount of time runoff is stored within a detention facility.
b. The time for runoff to travel from the most hydraulically distant point of the watershed to the point of interest within the watershed.
c. The time it takes for runoff to recharge into the ground.
d. The time required for evapotranspiration.

19. Reducing the slope of an area will generally affect the time of concentration (Tc) in what way?
a. It will increase the Tc.
b. It will decrease the Tc.
c. It will not affect the Tc in any way.

20. Using the Mannings Equation find the flow through a channel with the following parameters.
n=0.03
Area = 5 SF
Wetted Perimeter =10 Feet
Slope = 0.01
a. 10CFS.
b. 42CFS.
c. 3CFS.
d. 16CFS.

21. If rainwater caught on the rooftop is used for non-potable water within a building, which of the following must be done?
a. It must be dyed to show that it is non-potable.
b. It must be recharged into ground.
c. It must be used for outdoor purposes only.
d. It must not be flushed into the public wastewater system.

22. Why are deed restrictions necessary for on-lot stormwater management systems?
a. They increase the value of the property.
b. They ensure that the stormwater facility will continue to be operational in the long-term.
c. They warn potential buyers not to purchase the property.

23. Calculate the value of S given a CN value of 65.
a. 5.3846.
b. 15.3846.
c. 0.53846.
d. 3.9333.

24. Which Hydrologic Soil group yields the most runoff?
a. Group A.
b. Group B.
c. Group C.
d. Group D.

25. Low impact development techniques can be used in a wide variety of geographic regions.

○ a. True.
○ b. False.