

**2012 FINAL CEI – AREA 2 Envirothon Questions – Answer KEY**  
**CEI = Nonpoint Source Pollution/Low Impact Development (LID)**

1. Disconnecting impervious area increases the time of concentration, which reduces the peak runoff flow rate. Which of the following is an example of disconnecting impervious area?

- A. Installing downspouts to the curb and gutter system.
- B. Connecting the front door to the driveway with a concrete sidewalk.
- C. Constructing a pervious paver driveway.**
- D. Rock lining an intermittent flow channel.

2. Conservation or Cluster Development is a method of concentrating development in a small area, thus limiting the impact on the entire parcel. Which of following is the primary goal of Conservation Development?

- A. Preserve existing vegetation.**
- B. Maximize the number of housing units.
- C. Build a sense of community.
- D. Confine runoff to a small area.

3. Vegetation surrounding the perimeter of a pond that is growing freely serves as an important management effort to decrease the presence of this once-endangered species. This wild animal is now often considered a nuisance in much of Ohio.

- A. Eastern wild turkey
- B. Grass carp
- C. Canada goose**
- D. Coyote

4. Bioretention facilities or rain gardens detain storm water; they also treat the pollutants within. A bioretention practice or rain garden provides all of the following physical and biological treatment processes except:

- A. Filtration of solids.
- B. Decomposition of nutrients.
- C. Creation of soil pore space.**
- D. Adsorption of heavy metals.

5. Over 400 species of birds have been reported in the state of Ohio. About 300 are recorded annually and 33 have only been spotted once. There are four species of birds that are common and widespread, but not native. These birds include the rock pigeon, European starling, and house sparrow. Which is the fourth? This particular species is commonly spotted while eating thistle at commercial bird feeding stations.

- A. American crow
- B. House finch**
- C. Connecticut warbler
- D. Yellow-billed cuckoo

6. Regulations and ordinances can affect storm water runoff by requiring developers to construct buildings and developments in a specific way. Which of the following regulations and ordinances can reduce storm water runoff?

- A. Require vegetated center islands in cul-de-sacs.**
- B. Require that downspouts be connected directly to the storm sewer system.
- C. Require houses be setback further from the street.
- D. Set a minimum street width.

7. "X" marks the species of this member of the tree frog family. A prominent dark "X" is identified on the back of this amphibian which can easily be found in this area and like most amphibians, is an important indicator of a healthy ecosystem:

- A. African croaking frog.
- B. Gray treefrog.
- C. Mountain chorus frog.
- D. Spring peeper.**

8. Bioretention practices achieve a certain amount of pollutant removal. In which layer of the bioretention cell does most of the pollutant removal occur?

- A. Hardwood mulch.
- B. Soil.**
- C. Gravel.
- D. Underdrain.

9. Shredded hardwood mulch is installed to a minimum depth of 3 inches on the surface of a bioretention practice. The mulch serves all of the following functions except:

- A. Protect from erosion.
- B. Provide avian habitat.**
- C. Promote biological growth.
- D. Create organic atmosphere.

10. Poorly managed construction sites contribute significantly to surface runoff and water pollution. Which type of pollution describes storm water leaving an unprotected construction site carrying away soil particles?

- A. Wet point source.
- B. Point source pollution.
- C. Sediment source pollution.
- D. Non-point source pollution.**

11. The wet extended detention pond on site is not considered a Low Impact Development storm water practice. What function does the pond perform that is in-line with the goals of a LID practice?

- A. Promotes infiltration.
- B. Increases water temperature.
- C. Provides mosquito habitat.
- D. Removes pollutants.**

12. A green roof may be used in ultra-urban areas. Which one of the following is not a benefit of installing a green roof?

- A. Reducing heating and cooling bills.
- B. Extending the life of the roof.
- C. Creating city putting greens.**
- D. Reducing combined sewer overflows.

13. Seventy-five percent of the earth is covered with water; however, only fresh (non-salty) water can be used for drinking and irrigation. What percentage of the earth's water is salt water?

- A. 90%
- B. 97%**
- C. 75%
- D. 66%

14. Ruby-throated hummingbirds are very common in Ohio and across the Midwest. Hummingbird enthusiasts often disagree on whether to continue feeding through late fall and winter. What selection is the correct answer to feeding hummingbirds during the winter?

- A. Feeding in the winter will not confuse hummingbirds and cause them to miss migration. They leave based on the changing length of daylight. Some birds choose to stay and feed longer into winter than others which choose to migrate to warmer climates.**
- B. Feeding in the winter is not recommended. The birds will become dependent on artificial feeding and miss migration.
- C. Feeding is okay as long as feeders are taken down every few days to encourage the hummingbirds to migrate.
- D. It doesn't matter. All hummingbirds migrate south as soon as the weather gets colder.

15. The soil properties, construction design, as well as, construction methods are factors in determining the Curve Number (CN), which is used to calculate storm water runoff. Which of the following is not used to determine the Curve Number for a developed parcel of land?

- A. Percent impervious area.
- B. Storm sewer pipe type.**
- C. Compaction during construction.
- D. Soil type.

16. Suppose you are planning to construct a rain garden at this sub-division location. The least important factor to consider when designing a rain garden is:

- A. Drainage area.
- B. Soil type.
- C. Exposure to sun.
- D. Species of plants.**

17. Rooting depth varies among tree species. Select the most correct statement describing reasons for shallow root development in wetter soils.

- A. With water near or at the surface deep root growth is not needed to reach available moisture.
- B. The excess wetness in poorer drained soils causes natural compaction which inhibits root growth.
- C. With the soil filled with water there is little available oxygen and most roots cannot grow in this type of environment.**
- D. The wetter the soil the less available minerals for plant growth therefore the roots cannot develop.

18. Many Ohio farms are no longer productive sites for grassland dependent species. Which list below represents wildlife less plentiful today than they were 50 years ago?

- A. Fox squirrel, White-tailed deer, Bobcat
- B. Canada geese, Red-tailed hawk, Bobwhite quail
- C. Ring-necked pheasant, Bobolink, Meadowlark**
- D. Coyote, Cottontail rabbit, Bald eagle

19. The Cation Exchange Capacity (CEC) is the measure of a soil's ability to adsorb pollutant particles. Over time, a storm water filters through a Bioretention Area, the soil's CEC will:

- A. Increase.
- B. Decrease.**
- C. Remain the same.
- D. Become irrelevant.

20. Nonpoint pollution sources are diffuse and normally caused by rainfall or snowmelt. Which of the following situations is an example of point source pollution?

- A. A parking lot.
- B. Fertilizer from a farm field.
- C. Pet feces.
- D. Wastewater treatment plant overflow.**

21. Habitat is the key to wildlife survival. What is the term for the number of animals a habitat can support through the year?

- A. carrying capacity.**
- B. density.
- C. population dynamics.
- D. stocking rate.

22. As topography and site conditions allow, a grassed swale may be used to convey runoff instead of a storm sewer piping system. Which of the following is an advantage of using a grassed swale over a storm sewer piping system?

- A. Conveys storm water away from the structure faster.
- B. Increases construction costs.
- C. Decreases peak storm water flow.**
- D. Creates a more uniform/flatter surface profile.

23. Storm water runoff can influence a stream dramatically, especially in an urban environment where there is little or no buffering capacity. One of the most exciting new trends in managing stormwater runoff is the increased use of Low Impact Developments (LID) to help restore and maintain water quality in aquatic environments. Which one of these approaches below is NOT considered to be good example of a LID?

- A. Rain barrels collecting rain off of a homeowner's roof.
- B. A rain garden outside an office.
- C. Diversion of stormwater into a local creek.**
- D. Managing a stormwater retention pond to increase the buffer zone and associated wetlands around it.

24. Soil texture is the percentage (by weight) of sand, silt, and clay. Which soil particle is most easily carried by surface runoff?

- A. Sand
- B. Silt
- C. Clay**
- D. Loam

25. Ohio has many state symbols. The State Bird is the Cardinal, the State Animal is the White-tailed deer, and the State Insect is the Ladybug. What is the State Fish?

- A. Walleye
- B. Smallmouth Bass
- C. Largemouth Bass
- D. None of the above**