

## CEI Station: 2017 Area IV Envirothon

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- 1) Erosion is a process of detachment and transport of soil particles by erosive forces. What are the main erosive forces taken into consideration by (RUSLE)
  - a. Mass wasting (landslides)
  - b. stream bank erosion
  - c. gully erosion
  - d. Sheet and Rill erosion
  - e. All of the above
  
- 2) Which of the following conservation practices **will** result in an available water capacity that is favorable to soil?
  - a. Conservation Crop Rotation
  - b. Cover Crop
  - c. Prescribed Grazing
  - d. Residue and Tillage Management
  - e. All of the above
  
- 3) **Cover Crop:** A small grain or legume crop planted in the fall to recover unused plant nutrients from the root zone, control soil erosion and improve the soil. Which of the following statement about cover crops is **not** true?
  - a. Cover crops need 30 to 40 days of good growth before the first hard frost. Plant fall cover crops from early August until mid-October for best results.
  - b. Cover crops are often recommended when low residue producing crops such as soybeans or corn silage are grown.
  - c. Cover crops may be aerial seeded prior to harvesting summer crops or seeded using no till, vertical tillage, or conventional methods after harvest.
  - d. Cover crops, such as corn and soybeans add nutrients to the soils. They also reduce compaction and protect from soil erosion.
  
- 4) Grasses and legumes are established in areas where there is excessive soil erosion, often in places where there is bare ground or steep slopes. The vegetation provides surface cover to stop raindrop splash and slow water flow. Which of the following statements are true?
  - a. Vegetation provides nesting cover for birds and small animals.
  - b. Protects areas such as dams or gullied areas where vegetation may be difficult to establish.
  - c. A vegetated area improves water quality by reducing the amount of sediment, nutrients and pesticides running off farmland.
  - d. All of the above
  
- 5) Which of the following statements most accurately describes **Wind or Water Erosion**?
  - a. Obvious soil deposition, large gullies, obvious soil drifting.
  - b. Water is evenly drained through field and soil profile, no evidence of root disease.
  - c. No visible soil movement, no gullies, clear or no runoff, no obvious soil drifting.
  - d. Water on surface for long period of time after rain or irrigation.
  
- 6) Which of the following is a type of erosion?
  - a. Impact Erosion
  - b. Wind Erosion
  - c. Gully Erosion
  - d. Channel Erosion
  - e. All of the above

- 7) Which of the following statements most accurately describes mass wasting?
- As the amount and velocity of water increases water is now able to both detach and transport soil particles.
  - Physical detachment of soil particles as a result of raindrop impact.
  - Thin, uniform wearing away of the uppermost surface layers in the soil profile. Seldom the detaching agent, but just merely transporting soil particles detached by raindrop impact.
  - Large failures usually as a result of gravitational forces. Landslides, pot-slides, slumps, debris torrents.
- 8) What is the **primary** use of Revised Universal Soil Loss Equation (RUSLE)?
- its main use is as a predictive tool to evaluate land use options.
  - a simplified approach that assumes static conditions.
  - a linear formula so its easy to work with, and somewhat easy to remember.
  - a formula that predicts wind erosion.
- 9) Which of the following **is not** a 2014 Farm Bill Program
- Agricultural Management Assistance Program (AMA)
  - Environmental Quality Incentives Program (EQIP)
  - Conservation Stewardship Program (CSP)
  - Voluntary Watershed Protection Program (VWPP)
- 10) What does the acronym CRP stand for?
- Conservation Reserve Program
  - Conservation Restoration Program
  - Cooperative Research Program
  - None of the above.
- 11) Planting grass or other vegetation to protect a severely eroding area from soil erosion. This sentence best describes which one of the following conservation practices.
- Pollinator Habitat
  - Windbreaks for Poultry Houses
  - Critical Area Planting
  - Heavy Use Area
- 12) In this particular program, different enhancements work together to provide increased conservation benefits when they are implemented as a group. Producers may consider adopting these enhancement groups or “bundles” on their operation. Which conservation program supports the bundling of enhancements to increase conservation benefits?
- EQIP
  - CRP
  - CSP
  - WHIP
- 13) Which of the following is true?
- Soil pH- Soil pH is a measure of the acidity or alkalinity of a soil
  - Soil Nitrogen- Nitrogen is the most abundant element in the atmosphere and is usually the most limiting crop nutrient.
  - Soil Phosphorus- Phosphorus’ primary role in a plant is to store and transfer energy produced by photosynthesis for use in growth and reproductive processes.
  - Soil Infiltration- Infiltration refers to the soil’s ability to allow water movement into and through the soil profile.
  - All of the above

- 14) Structural soil crusts are relatively thin, dense, somewhat continuous layers of non-aggregated soil particles on the surface of tilled and exposed soils. Which one of the following statements about soil crust are true?
- Structural crusts develop when a sealed-over soil surface dries out after rainfall or irrigation.
  - Fine soil particles wash, settle into and block surface pores causing the soil surface to seal over and preventing water from soaking into the soil.
  - A surface crust is much more compact, hard and brittle when dry than the soil immediately beneath it, which may be loose and friable.
  - Surface crusts are more common on fine-textured soils, such as silts, loams and clays.
  - All of the above
- 15) Soil texture is a measure of the relative amounts of which three particle sizes?
- Sand, silt, gravel
  - Sand, silt, clay
  - Organic matter, clay, sand
  - Cobbles, gravel, sand
- 16) What conservation practice enhances water quality and prevents gully erosion from occurring on crop land?
- Riparian Buffer
  - Grassed Waterway
  - Heavy Use Protection Area
  - Grade Stabilization Structure
- 17) What Farm Bill Program stimulates the development and adoption of innovative approaches and technologies for conservation on agricultural lands?
- Agricultural Conservation Easement Program (ACEP)
  - Conservation Reserve Program (CRP)
  - Environmental Quality Incentives Program (EQIP)
  - Conservation Innovation Grants (CIG)
- 18) Which of the following practices does not boost earthworm populations in the soil?
- Manure & Organic by-product application
  - Tillage Management (No-till, Strip-Till)
  - Plowing the fields (soil)
  - Crop Rotation w/Cover Crops
- 19) What plant is native to Northeastern Asia, but was introduced to the United States as a plant to help control streambank erosion?
- Bush Honeysuckle
  - Multiflora Rose
  - Autumn Olive
  - Johnson Grass
- 20) How many steps are there when providing good Conservation Planning?
- 10
  - 9
  - 12
  - 7

- 21) Which Soil Biology Primer (species) is primarily what a mushroom is made of?
- Nematodes
  - Bacteria
  - Fungi
  - Protozoa
- 22) At what level on the pH scale does crops grow the best?
- 1
  - 10
  - 4
  - 7
- 23) Urban soils are often different from agricultural soils because\_\_\_\_\_.
- There is little natural soil profile left due to urban cut and fill activity.
  - There may be more contaminants in urban soil.
  - Urban soil temperatures are usually higher.
  - All of the above.
- 24) Which soil component has a higher Cation-Exchange Capacity (CEC)? \_\_\_\_\_
- Clay
  - Sand
  - Silt
  - Gravel
- 25) What material might you test for in urban soils that you probably wouldn't test for in agricultural soils?
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- Soap
  - Metals
  - Pesticides
  - Garbage