

## 2023 Envirothon Forestry

- 1) In terms of volume, which of the following statements is true about the relationship between the annual net growth (total growth minus mortality) and removals of trees in Ohio over the last twenty years?
  - A. The annual net growth of Ohio's trees is twice as much as volume removed.
  - B. The annual net growth of Ohio's trees is slightly higher than volume removed.
  - C. The annual net growth of Ohio's trees is about the same as volume removed
  - D. The annual net growth of Ohio's trees is slightly lower than volume removed.
  
- 2) Ohio has close to 8 million acres of forest land, which roughly amounts to 30% of the entire state being forested. Looking at those 8 million acres, what percentage are owned by private landowners and by public landowners (Local, State, and Federal governments), respectively?
  - A. 65% private: 35% public
  - B. 75% private: 25% public
  - C. 85% private: 15% public
  - D. 95% private: 5% public
  
- 3) Ailanthus, also known as tree-of-heaven, is a highly invasive tree species that is not native to the United States. There are many methods used to control this species in our native woodlands. Which of the following control methods is not recommended due to the hundreds of sprouts that come up afterward?
  - A. Basal bark herbicide application - spraying an oil-based herbicide around the bottom of the trunk.
  - B. Foliar herbicide application - spraying the leaves with herbicide.
  - C. Hack and squirt herbicide application (herbicide injection) – make cuts around the trunk and inject or spray herbicide into the cuts.
  - D. Mechanical control methods - cutting down large trees or mowing over small seedlings.
  
- 4) Stand density in a forest is a measurement of the crowding of trees in a stand, and those measurements are often used to come up with management prescriptions for a forest. Which of the following is not a measurement directly used in determining stand density.
  - A. Average tree height per acre
  - B. Basal area per acre
  - C. Trees per acre
  - D. Volume per acre
  
- 5) Asian longhorn beetle is an invasive forest pest that was first discovered in the United States in 1996. Since then, small populations have appeared in various places around the country including in southwestern Ohio. One of the biggest problems with this insect is that it feeds on a wide variety of trees. Which of the following groups of trees does it prefer to feed on?
  - A. Buckeye
  - B. Elm
  - C. Maple
  - D. Willow

- 6) Merchantable height of a tree is typically measured in logs from the ground up to the point where the trunk is about 10 inches in diameter or where heavy branching, or defects are encountered. Volume is then calculated using various rules based on height and diameter. In Ohio, how many feet are in one log? Which rule is most commonly used to calculate volume?
- A. One log is 12 feet. Volume is calculated with the Doyle Rule.
  - B. One log is 12 feet. Volume is calculated with the International Rule.
  - C. One log is 16 feet. Volume is calculated with the Doyle Rule.
  - D. One log is 16 feet. Volume is calculated with the International Rule.
- 7) In Ohio, prescribed burning is sometimes used in forests to promote regeneration of specific species such as oaks over other species such as red maple. Which of the following features of oaks is true and allows them to survive fire that would kill other competing species?
- A. Acorns are relatively fire resistant and will persist when other tree seeds are consumed by fire.
  - B. Fallen oak leaves burn at a specific temperature that kills other species, but oaks are well-suited for.
  - C. Heavy root production of oak seedlings allows for root survival even if the above ground portion of the seedlings are killed.
  - D. Oaks produce more acorns during the season following a fire.
- 8) A tree with alternate leaf arrangement, pinnately compound leaves with 7 leaflets, and serrate leaf margins, can be narrowed down to which genus?
- A. *Carya* (hickory)
  - B. *Fraxinus* (ash)
  - C. *Juglans* (walnut)
  - D. *Quercus* (oak)
- 9) Ash were a very important group of tree species in Ohio and were estimated to have made up around 12 percent of our entire forest canopy in the state. In the last 20+ years Emerald Ash Borer (EAB), an invasive insect from Asia, has decimated our ash populations and can now be found in every county in Ohio. Which of the following methods were not used in the attempted control of EAB?
- A. Biological control - the introduction of potential predators to EAB
  - B. Chemical treatment – insecticide
  - C. Laws to prohibit movement of firewood between certain areas
  - D. Prescribed fire to reduce EAB populations
- 10) A board foot is a common unit of measurement used for volume of timber. What is a board foot equal to in cubic inches.
- A. 64 in<sup>3</sup>
  - B. 144 in<sup>3</sup>
  - C. 256 in<sup>3</sup>
  - D. 512 in<sup>3</sup>

- 11) Mast is a term that refers to the food produced by woody plant species. If someone managing a forest wants to increase mast production for all types of wildlife, which of these management activities would be the least helpful to their goals?
- A. Control invasive plants. They decrease the diversity of plant species in sites where they have taken over.
  - B. Plant and promote white oaks wherever possible. White oak acorns are the preferred hard mast to almost all wildlife species.
  - C. Thin out overstory trees in certain areas. This increases both shrub and seedling regeneration while increasing crown size of remaining overstory trees.
  - D. Maintain a couple grapevines per acre while cutting the rest. Grapevines can be damaging to trees they grow in but provide valuable soft mast for wildlife.
- 12) Crop tree management is a widely used management practice that allows a forest owner to choose specific trees that will meet their goals and give these trees space to grow and remain healthy for years to come. Goals used to determine crop trees can include, but are not limited to, wildlife habitat, timber production, aesthetics, and water quality improvement. No matter what the goal is, what is an example of good criteria for selecting a potential crop tree?
- A. A crown that is large, healthy, and in/above the main canopy
  - B. A species that is tolerant to flooding
  - C. A trunk that is tall and straight with very few little visible defects
  - D. A tree that produces hard mast
- 13) Riparian forest buffers are strips of forestland that lay between waterways and other land uses such as agriculture or residential areas. These riparian areas are incredibly important to maintaining and improving streams. Which of the following is not a benefit of riparian forest buffers to the stream ecosystems they are next to?
- A. Filtration and removal of pollutants
  - B. Increased stream temperatures
  - C. Providing detritus (leaves and woody debris)
  - D. Reduction of streambank erosion.
- 14) Invasive plant species are a huge threat to our forests. They threaten the biodiversity of woodlands by covering the understory and preventing native plant regeneration and limiting or removing the food sources for the wildlife. Which of the following statements is true about invasive species?
- A. After invasive shrubs are introduced, they are mostly spread by people replanting them because of their attractive qualities such as flowers.
  - B. Chemical control methods are preferred over mechanical control when dealing with invasives due to their tendency to resprout heavily.
  - C. Harvesting or overstory thinning should occur in stands with invasives present to provide light to our native species so they can compete with non-native species.
  - D. Most Invasive species in Ohio forests are shade intolerant, and therefore can be prevented by maintaining a healthy overstory of trees.

- 15) Any diameter measurement in forestry is taken at 4.5 feet and is known as diameter at breast height (DBH). This allows consistency in the measuring of trees. Why was 4.5 feet chosen for this measurement?
- A. Anything above this point is considered above the deer browsing range.
  - B. Any tree below this height is considered a seedling and not counted.
  - C. This is the point at which most loggers will cut a tree.
  - D. This is a comfortable height for most people to reach.
- 16) Identify this tree Species:
- A. Lombardy Poplar
  - B. Eastern Cottonwood
  - C. Bigtooth Aspen
  - D. Quaking Aspen
- 17) Identify this non-native species?
- A. Stiltgrass
  - B. Multiflora Rose
  - C. Autumn Olive
  - D. Honeysuckle
- 18) This species is considered:
- A. Shade Tolerant
  - B. Shade Intolerant
  - C. Shade Neutral
  - D. Shade Positive
- 19) Identify the crown class of this tree?
- A. Dominant
  - B. Codominant
  - C. Intermediate
  - D. Suppressed
- 20) This species of maple is referred to in the timber Industry as:
- A. Hard
  - B. Soft
  - C. Medium
  - D. Spongy

## ANSWER KEY – FORESTRY

- 1) A
- 2) C
- 3) D
- 4) A
- 5) C
- 6) C
- 7) C
- 8) A
- 9) D
- 10) B
- 11) B
- 12) A
- 13) B
- 14) B
- 15) D
- 16)
- 17)
- 18)
- 19)
- 20)