2023 Iowa Envirothon State Forestry Exam Team_____
Each Question is worth three points – 75 points possible

Outdoor Questions 1-6:
Trees, plants and locations marked here, will be the basis for these questions.

1. Which of the four marked trees are susceptible to damage by the emerald ash borer?
A. Tree "1A"
B. Tree "1B"
C. Tree "1C"
D. Tree "1D"
E. All of these
F. None of these

2. Use the "10 factor wedge prism" provided to determine the basal area of plot #2. The plot center for plot #2 is marked with flag #2.

_____ sq. feet per acre

3. Use the biltmore stick provided, to determine the following information for the tree marked #3. A flag has also been located 66' uphill from this tree to assist your team. (One point for each correct answer)

Diameter breast height - _____ inches

Number of 16' logs - _____ (*Record the maximum whole logs that can be harvested*)

Merchantable board volume - _____ board feet

4. Use the Tree ID reference to identify the following information for the tree marked #4. (One point for each correct answer)

Common name - _____

Genus - _____

Is this tree a conifer or deciduous? _____

5. The plant marked #5 is which of the following woodland invasive species?
A. burning bush
B. common buckthorn
C. honeysuckle
D. stinging nettle
E. white mulberry

6. Identify the spring ephemeral marked with flag #6.
A. Bloodroot
B. Dutchman's breeches
C. Hepatica
D. Mayapple
E. Jack-In-pulpit

7. This tree harvesting method is most frequently used in pine forests, which require full sunlight to grow, and in hardwood forests with yellow poplar, sweetgum, cherry, maple and other species that require full sunlight.
A. Clearcut Harvest
B. Seed Tree Harvest
C. Single-Tree Selection Harvest
D. Thinning Harvest

8. What is the benefit for maintaining a forested or prairie buffer along a creek, stream or river?
A. improves water quality by removing sediment and chemicals before they reach the surface water
B. helps to moderate flooding and recharge underground water supplies
C. prevents soil erosion and preserves wildlife habitat
D. all of these are correct

9. Which of the following is a recommendation for developing an effective riparian buffer strip?
A. a wide strip of annual grasses and nettles should be located right beside the water's edge
B. all trees planted in a riparian buffer strip should be of the same species
C. a combination of trees, shrubs, and grasses should be planted
D. all of these are correct

10. _____ is the best defense from any storm related challenge that a tree may face in its lifetime.
A. Maintaining a healthy tree
B. Tree topping
C. Having more than 30 percent of the tree roots exposed at the ground level
D. All of these are correct

11. The _____ is a forest bird that is remarkable for its haunting nighttime song but is also known for its tendency to lay eggs directly onto the leaf litter on the ground, without constructing a recognizable nest.
A. American Robin
B. Baltimore oriole
C. Eastern whip-poor-will
D. Red-tailed hawk

12. Post-planting tree growth is more rapid, and trees will establish sooner if pruning at planting time _____.
A. removes all branches on the entire tree to establish a single, central dominant leader
B. removes all branches on the lower 2/3 of the tree
C. is not done
D. is limited to removing only weak, dead, diseased, rubbing, or injured branches

13. Extreme _____Iowa is home to ten of Iowa's native oaks, five native hickories, and three ash species.
A. northwest
B. northeast
C. southeast
D. southwest

14. _____ were once common in Iowa, but now are one of the rarest and most threatened ecosystems in our state.
A. Forests
B. Prairies
C. Savannas
D. Wetlands

15. Early spring flowers, called _____, bloom quickly in great numbers and create a beautiful display in wooded areas before shrubs and vines leaf out.
A. common buckthorn
B. ephemerals
C. polyphemus
D. shelterbelts

16. The forest food web starts with plants that are called _____because they convert sunlight into energy through photosynthesis.
A. detritivores/decomposers
B. primary consumers
C. producers
D. secondary consumers
E. tertiary consumers

17. Which of these is a non-native health threat in Iowa forests?
A. Dutch elm disease
B. emerald ash borer
C. gypsy moth
D. all of these

18. Which statement is true regarding invasive plants in Iowa forests?
A. Most invasive plants originate from Central and South America
B. The food that wildlife needs the most has been increased by the invasive plants.
C. Invasive plants shade out native understory plants and prevent natural regeneration.
D. all of these

19. Red-headed woodpeckers need what forest habitat type?
A. the interior of mature forests
B. open forest edges or savanna-like woodlands
C. dead or dying trees
D. all of these

20. The final form of a mature tree is determined by the dominant growth of some buds and shoots at the expense of others which is known as _____.
A. apical dominance
B. cambium
C. mycorrhizal association
D. polyphemus

21. If a landowner has approximately 4,800 trees growing on a 24-acre forested area, what is the approximate average number of trees per acre for this parcel?
A. 20
B. 200
C. 220
D. 2,000

22. What hardwood tree species is recommended for a riparian buffer area that has good drainage? (see Table 1)
A. Cottonwood
B. Green Ash
C. White Ash
D. White pine

Table 1. Suggested tree species for riparian buffers

Species	Rapid growth (nearest stream)	Biomass production	Timber (good drainage)	Timber (poor drainage)	Conifer (wildlife habitat)
Hybrid poplar	X	X			
Cottonwood	X	X		X	
Hybrid willow	X	X			
Black willow	X	X			
Silver maple	X	X		X	
Box elder	X	X			
Basswood			X		
Black walnut			X		
Red oak			X		
White oak			X		
White ash			X		
Green ash	X	X		X	
Black ash			X	X	
River birch	X			X	
Shellbark hickory			X	X	
Hackberry			X	X	
Ohio buckeye			X	X	
Sycamore	X	X		X	
Swamp white oak			X	X	
Eastern white pine			X		X
Eastern red cedar					X

Source: Iowa State University

23. In vascular plants, there are two distinct pathways inside the stem called _____, which transports water and nutrients upward from the roots, and _____, which transports sugar downward from the leaves.
A. chlorophyll, stomata
B. gymnosperms, mycorrhizae
C. phloem, xylem
D. xylem, phloem

24. Which of the following is true regarding the "Bur Oak" tree?
A. It has a fringe of bristles around the acorn cap that nearly encompasses the nutshell.
B. The large acorns of this oak give them their scientific name of "macrocarpa" or "large fruit."
C. The bark of bur oaks is thicker and corkier than that of other oaks, allowing more protection against prairie fires.
D. It is the only oak species that is found in every Iowa county.
E. All of these are true

25. Of the 30 million acres of prairie that covered Iowa at the time of European settlement, approximately _____ remains.
A. .1%
B. 1%
C. 10%
D. 25%