

**State FFA Forestry 2017 Contest  
Written Examination (150 points)**

This exam consists of 38 multiple choice and 12 true or false questions, each worth 3 points. Mark your answers on your scantron bubble sheet. DO NOT mark on this exam.

**Multiple choice questions**

1. You planted 691 trees per acre. What was your average spacing?
  - a) 7 feet x 7 feet.
  - b) 7 feet x 9 feet
  - c) 9 feet x 9 feet
  - d) 9 feet x 12 feet
  
2. The northern long-eared bat is listed as a threatened species under the Endangered Species Act due to the white-nose syndrome. How can forest management impact bat habitat?
  - a) By changing species composition.
  - b) Through noise during active operations.
  - c) By temporarily removing or degrading roosting and foraging habitat.
  - d) By shaking trees, causing bats to fall to the ground.
  
3. Wood quality, or the suitability of wood for a given use, considers many different factors. Which of the following is NOT one of the factors commonly considered?
  - a) Rate at which photosynthesis occurs.
  - b) Wood density.
  - c) Uniformity of growth rings.
  - d) Presence of juvenile and reaction wood.
  
4. Which of the following forest products is manufactured by gluing together thin layers of wood veneer?
  - a) Oriented strandboard
  - b) Particleboard
  - c) Lumber
  - d) Plywood
  
5. Which of the following is NOT a current use of drone technology in forest management?
  - a) Assessing the extent of insect damage in an area.
  - b) Assessing the severity and extent of a windstorm.
  - c) Evaluating seedling survival after planting.
  - d) Assessing tree diameter and the number of merchantable logs in trees.
  
6. Which of the following soils is most susceptible to compaction from equipment?
  - a) Clay
  - b) Sand
  - c) Loam
  - d) Silt

7. You are given a metric ruler and measure the distance between two points as being 11 centimeters. About how far is that distance in inches?
  - a) 2.5
  - b) 4
  - c) 5.5
  - d) 44
  
8. You want to determine the average volume per acre on a tract that has 20 cords/acre on 10 acres, 23 cords/acre on 15 acres and 30 cords/acre on 25 acres. What is the average volume/acre, rounded to the closest integer?
  - a) 22
  - b) 24
  - c) 26
  - d) 28
  
9. Which of the following tree species has a compound leaf?
  - a) Black walnut.
  - b) Sugar maple.
  - c) Quaking aspen.
  - d) White birch.
  
10. Which of the following tree species has opposite branching?
  - a) Black walnut.
  - b) Sugar maple.
  - c) Quaking aspen
  - d) White birch.
  
11. Most site index values in Minnesota are based on which of the following tree ages?
  - a) 10 years
  - b) 25 years
  - c) 50 years
  - d) 75 years
  
12. What is the process called where sections of a felled tree are carried to a central landing on the back of a machine?
  - a) Bucking
  - b) Yarding
  - c) Skidding
  - d) Forwarding
  
13. How many chains are in a mile?
  - a) 66
  - b) 75
  - c) 80
  - d) 100

14. If a cord of firewood costs \$200, how much would a stack of wood measuring 2' x 4' x 12' cost?
- a) \$100
  - b) \$150
  - c) \$200
  - d) \$250
15. If you are traveling at an azimuth reading of 135, in what direction are you heading?
- a) Northwest
  - b) Northeast
  - c) Southwest
  - d) Southeast
16. Which of the following tools would you use to roll logs?
- a) Cant hook
  - b) Relaskop
  - c) Mattock
  - d) Hookeroon
17. How many acres are in a half-section of land?
- a) 40
  - b) 160
  - c) 320
  - d) 640
18. A plot of land measures 900 feet x 900 feet. How many acres are in the plot?
- a) 9.93
  - b) 11.17
  - c) 15.56
  - d) 18.59
19. You are using a clinometer to determine tree height on level ground from a distance of 50'. Your reading to the top of the tree is +100; the bottom reading is -16. What is the height of the tree?
- a) 58 feet
  - b) 84 feet
  - c) 100 feet
  - d) 116 feet
20. On a USGS map with a scale of 1:10,000?
- a) 1 centimeter equals 10,000 meters
  - b) 1 inch equals 10,000 feet
  - c) 1 decimeter equals 10,000 centimeters
  - d) 1 centimeter equals 10,000 centimeters

21. Which of the following is used by the Minnesota Department of Agriculture as a regulatory approach to stop the spread of an insect pest?
- Build a wall
  - Set up traps to catch the insect
  - Create a quarantine
  - Outlaw the insect
22. Aspen has been used for paper, structural panels, and furniture. Why isn't it used for flooring?
- The white color is not considered desirable by most homeowners.
  - Aspen is low density and would dent easily and wear down quickly if used for flooring.
  - The demand for corn dog sticks has driven up the cost of aspen lumber too much.
  - Aspen is an endangered species and there are concerns about its loss from the forest.
23. What is the purpose of a log scale?
- Estimate the weight of a log
  - Determine usable firewood available
  - Estimate the board feet of lumber in a tree
  - Calculate the green volume of a log
24. How many sections are there in a township?
- 1
  - 36
  - 640
  - 43,560
25. How long is a chain, in feet?
- 66 feet
  - 100 feet
  - 1,000 feet
  - 5,280 feet
26. While white pine is a low density species, it is not typically used for beams or joists. Why?
- Low density species are weaker and beams need to be strong to support the floor or roof.
  - Most of the white pine logs go to make firewood because they burn hot and long.
  - White pine trees are too small to make into joists.
  - It is difficult to dry white pine without soaking the lumber in caustic chemicals.
27. Which of the following regeneration systems is depicted by the image below?
- Clearcutting
  - Group selection method
  - Shelterwood method
  - Seed tree method



28. Wood that is used outside may rot if it gets wet. Preservatives stop the wood from rotting. How do they do that?
- Preservatives prevent water from being taken-up by the wood.
  - Preservatives bind to water molecules and keep the wood dry.
  - Preservatives poison the fungi that decay the wood.
  - As oxygen in the wood is taken up by the preservative, the fungi cannot breathe and therefore suffocate.
29. What is the name of the payment method in which payment is based on the appraised value of the tract?
- Weight scale
  - Selective cut
  - Consumer scale
  - Lump sum
30. When designing a farmstead windbreak, what is the recommended minimum distance between the trees and any buildings?
- 10 feet
  - 50 feet
  - 66 feet
  - 100 feet
31. Which of the following is a preferred species for beaver?
- Pine
  - Oak
  - Aspen
  - Spruce
32. Why is it very easy to see the growth rings on ring porous hardwoods (oak, ash, elm)?
- The pigment color in the wood changes drastically from the spring to the late summer
  - The earlywood (springwood) has many large vessels (or pores) that absorb light, rather than reflecting light
  - All of the above
  - None of the above
33. When building a deck, the decking boards that you walk on may be a species such as western red cedar. The columns and joists that support the deck will probably be treated lumber. Why do we build this way?
- Cedar has greater strength and can withstand all of the foot traffic on the deck
  - The preservative in treated wood helps to bolster the strength properties of the wood by filling in the void cavities inside the lumber
  - Cedar is considered to be more attractive and is preferred for the decking while the more dense and stronger treated lumber is used for the portion of the deck that we really do not see
  - B and C

34. Assume that your normal pace is 5.5 feet long. How many paces would you need to walk 10 chains?
- a) 60
  - b) 80
  - c) 120
  - d) 150
35. A wedge prism is used to count trees in a:
- a) Variable radius plot
  - b) Circular plot
  - c) Fixed radius plot
  - d) Square plot
36. Within a township map, what is the number of the section which is due south of section 13?
- a) 12
  - b) 14
  - c) 19
  - d) 24
37. Why is sugar maple used as flooring in bowling alleys?
- a) The higher sugar content in the wood makes the surface wear better over time.
  - b) Sugar maple is a very strong wood and thus well-suited for the wear and tear of a bowling alley
  - c) With more sugar in the wood, the sounds are more muffled.
  - d) Sugar maple is softer and better able to withstand heavy bowling balls being dropped or thrown down the alley.
38. Which of the following is the most important commercial tree species in Minnesota?
- a) Red pine because it is used for corn dog sticks
  - b) Red oak used to make windows
  - c) White elm because it splits easily for firewood
  - d) Aspen because it can be used to make structural panels and paper

Over

### **True-False questions**

For the following twelve true or false questions, mark A on the scantron bubble sheet if the statement is true and B if the statement is false.

- |     | <u>True</u> | <u>False</u> |   |
|-----|-------------|--------------|---|
| 39. | A           | B            | Green ash, white ash, black ash and mountain ash are all susceptible to the emerald ash borer.                                |
| 40. | A           | B            | Contour lines which are close together on a topographic map indicate an area which is relatively flat.                        |
| 41. | A           | B            | One rod is equal to 16.5 feet.  |
| 42. | A           | B            | Syrup can be made from both boxelder and sugar maple trees.   |
| 43. | A           | B            | Tamarack is a deciduous conifer.  |
| 44. | A           | B            | Grazing within a woodland is beneficial for tree growth because it keeps brush under control.                                 |
| 45. | A           | B            | Firewood should be cut, split and well-seasoned because this removes the water in the wood and helps the wood to burn better. |
| 46. | A           | B            | The purpose of tree pruning is to increase the height of the tree.  |
| 47. | A           | B            | Sugar maple prefers moist, well-drained, loamy soils.   |
| 48. | A           | B            | After trees have been thinned, you are hoping to see an increase in the growth rate of the remaining trees.                   |
| 49. | A           | B            | A stereoscope can be used to measure tree DBH.  |
| 50. | A           | B            | Lumber is first cut to a larger dimension to account for shrinkage during drying and planing after drying.                    |

**2017**  
**State FFA Forestry Contest – Forestry Written Exam**  
**ANSWER KEY**

- |       |       |
|-------|-------|
| 1. B  | 29. D |
| 2. C  | 30. D |
| 3. A  | 31. C |
| 4. D  | 32. B |
| 5. D  | 33. C |
| 6. A  | 34. C |
| 7. B  | 35. A |
| 8. C  | 36. D |
| 9. A  | 37. B |
| 10. B | 38. D |
| 11. C | 39. B |
| 12. D | 40. B |
| 13. C | 41. A |
| 14. B | 42. A |
| 15. D | 43. A |
| 16. A | 44. B |
| 17. C | 45. A |
| 18. D | 46. B |
| 19. A | 47. A |
| 20. D | 48. A |
| 21. C | 49. B |
| 22. B | 50. A |
| 23. C |       |
| 24. B |       |
| 25. A |       |
| 26. A |       |
| 27. B |       |
| 28. C |       |