

**State FFA Forestry 2016 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. Wood that is less dense will not shrink and swell as much. This can be important for siding, because shrinking and swelling cause paint to peel. The specific gravity (Sg) measures how dense a species is such that a higher Sg is more dense and a lower Sg is less dense. Which species would you prefer for exterior siding?
 - a) Sugar maple (Sg = 0.63)
 - b) White oak (Sg = 0.67)
 - c) Redwood (Sg = 0.37)
 - d) White Ash (Sg = 0.60)

2. Some woods are said to be naturally durable. These woods include some cedar species and redwood. What causes this natural durability?
 - a) The cell structure of the wood is very closed and therefore prevents fungus from entering
 - b) These species are very water repellent and fungus needs water to decay wood
 - c) These species have natural chemicals in the heartwood that inhibit decay fungi from growing and destroying the wood
 - d) Naturally durable species excrete a fungicide inside the wood that kills fungus, ants, and termites on contact

3. Wood that is used to make high grade paper may be pulped using pulping chemicals. This type of paper is stronger and stays whiter than newsprint. This is because the chemicals:
 - a) Make the cells flatten out and take out the chemicals in the wood that degrade to cause yellowing
 - b) Serve as a glue that holds the paper together protects the paper from yellowing
 - c) Act as a preservative for the paper and thus keep the yellowing fungus away from it
 - d) a and c

4. Baseball bats are typically made from dense species. Why is higher density preferred?
 - a) High density species are prone to more shrinkage and swelling and the ability of the bat to swell in humid weather helps batters to swell singles into doubles during hot humid days
 - b) Low density species would be prone to breaking and would not provide enough power when the bat made contact with the ball
 - c) The low density species is better able to impart more kinetic energy to the baseball when the bat contacts the ball
 - d) High density species which are used in the green condition (high moisture content) would be more prone to be brittle and chip or split more frequently

5. Which of the following best describes the purpose of a log rule scale?
 - a) Estimate the weight of the log.
 - b) Estimate the number of board feet of lumber in a log.
 - c) Determine usable firewood available.
 - d) Calculate the green volume of the log.

6. Lumber can be air-dried before it is put into a kiln for final drying. Outside conditions can change from hot to cold and from rainy to dry and from windy to calm. What type of species would be least suited for air-drying?
 - a) Recently sawed lumber that is still dripping wet
 - b) Low value boards that will be used to make pallets
 - c) An expensive wood that was particularly prone to degrade
 - d) Lumber that is discolored due to stain fungi

7. When lumber is cut to be used for building a house:
 - a) Knots add to the overall strength of the lumber.
 - b) Splits and checks are preferred because they show that the lumber has been dried.
 - c) If the lumber is soft and mushy from wood decay, it can still be use for building beams and trusses.
 - d) The preferred lumber is straight with no knots or checks.

8. The degree of acidity or alkalinity of a soil is expressed in pH values. Which of the following pH values is most acidic?
 - a) 8.5
 - b) 7.0
 - c) 5.5
 - d) 4.0

9. You tally 12 trees using a 10 factor wedge prism within a plot. What is the basal area in square feet per acre of the trees around that point?
 - a) 1.2
 - b) 10
 - c) 12
 - d) 120

10. Which of the following is determined through use of an increment borer?
 - a) D.B.H.
 - b) Basal area
 - c) Tree age
 - d) Merchantable height

11. Which of the following is a sawyer likely to wear for protection when felling a tree?
 - a) Hookeroon
 - b) Chaps
 - c) Logger's tape
 - d) Peavy

12. Assume that a cord of firewood costs \$150, how much would a stack of wood measuring 4' x 2' x 8' cost?
- a) \$50
 - b) \$75
 - c) \$150
 - d) \$200
13. When planting trees at a spacing of 9 feet x 9 feet, how many trees per acre will you plant?
- a) 81
 - b) 304
 - c) 436
 - d) 538
14. You are doing a regeneration survey in a plot with a radius of 7.4 feet and counted 4 seedlings. How many seedlings would that represent per acre?
- a) 50
 - b) 100
 - c) 500
 - d) 1,000
15. Which of the following tree species has alternate leaves?
- a) Black walnut
 - b) Jack pine
 - c) Sugar maple
 - d) Quaking aspen
16. A plot of land measures 125 feet x 175 feet. About how many acres are in the plot?
- a) 0.5
 - b) 0.75
 - c) 1
 - d) 10
17. 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 +10%. What is the height of the tree?
- a) 10 feet
 - b) 45 feet
 - c) 90 feet
 - d) 110 feet
18. What is the state tree of Minnesota?
- a) Blue spruce
 - b) White pine
 - c) Norway pine
 - d) Norway spruce

19. Which of the following is NOT a way that forests protect water quality?
- a) Filtering pollutants
 - b) Shading water
 - c) Stabilizing banks
 - d) Releasing nutrients
20. A forester interested in habitat management for deer and ruffed grouse would favor which one of the following species?
- a) Sugar maple
 - b) Yellow birch
 - c) Aspen
 - d) Norway pine
21. How many sections are there in a township?
- a) 1
 - b) 36
 - c) 640
 - d) 43,560
22. How long is a chain, in feet?
- a) 66 feet
 - b) 100 feet
 - c) 1,000 feet
 - d) 5,280 feet
23. Blister rust is a serious disease found in:
- a) Bur oak
 - b) White pine
 - c) Red pine
 - d) Balsam fir
24. If a forester says TSI, she would most likely be referring to which of the following?
- a) Tall, straight, injury-free trees
 - b) Totally shade intolerant
 - c) Timber stand improvement
 - d) Tax saving incentive
25. Assume that the typical new home built today uses approximately 13,000 board feet of lumber and that the average price of lumber is \$450 per MBF. What is the total cost for the lumber in the house?
- a) \$585,000
 - b) \$58,500
 - c) \$5,850
 - d) \$585

26. Planting stock with the designation 2-2 indicates that the:
- a) Trees are 2 years old
 - b) Trees are transplants
 - c) Trees are 4 inches long
 - d) Root to shoot ratio is 1
27. Where is the NE 1/4 of a section located?
- a) Top left quarter of the section
 - b) Top right quarter of the section
 - c) Lower left quarter of the section
 - d) Lower right quarter of the section
28. Approximately how many acres of land are in one hectare?
- a) 5.2
 - b) 3
 - c) 2.5
 - d) 0.6
29. Assume that your normal pace is 5 feet long. How many paces would you need to walk around the perimeter of an acre?
- a) 167
 - b) 212
 - c) 243
 - d) 335
30. Which of the following is NOT a common characteristic of invasive plants?
- a) High seed production and good ability of those seeds to germinate
 - b) Seed is dispersed by wind, water and/or animals over great distances
 - c) Predator avoidance and/or deterrence
 - d) Leaf out later in the spring and lose their leaves earlier in the fall
31. Which of the following is NOT a disorder affecting trees in Minnesota?
- a) Kudzu
 - b) Frost crack
 - c) White pine weevil
 - d) Witches broom
32. You notice girdling toward the top of large trees in your woodlot. What likely caused the damage?
- a) Porcupines
 - b) Squirrels
 - c) Birds
 - d) Pocket gophers

33. Which of the following procedures is incorrect for determining the volume of a log on the ground?
- Determine the average diameter inside the bark
 - Determine the average diameter on the large end of the log
 - Measure the log length in feet in two-foot increments (8, 10, 12, 14)
 - Include a 4-inch trim allowance
34. Which of the following factors does NOT have a significant effect on the behavior of a forest fire?
- Relative humidity
 - Topography
 - Temperature
 - Soil texture
35. The local environment in which a plant or animal lives defines which of the following terms?
- Niche
 - Habitat
 - Fragmentation
 - Territory
36. Berry, drupe and pome are types of _____.
- Dry fruit
 - Aggregate fruit
 - Fleshy fruit
 - Multiple fruit
37. _____ is the capacity of a tree to develop and grow in the shade while in competition with other trees.
- Tracheids
 - Reproduction
 - Toughness
 - Tolerance
38. Which of the following is NOT a way that forests protect water quality?
- Shading water
 - Filtering pollutants
 - Releasing nutrients
 - Stabilizing banks

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.

True False

39. A B Lumber is first cut to a larger dimension to account for shrinkage during drying and planing after drying.
40. A B Wood that is soft and light (not heavy for its weight) like white pine will shrink less.
41. A B Quarter-sawn wood is cut parallel to the radius of the log.
42. A B The magnetic declination near Duluth, Minnesota is 4 degrees east. This means that when you are in that vicinity and have a reading of 0 degrees on the compass, the true north line of sight is 4 degrees east.
43. A B Aspen is commonly used in making paper and oriented strand board
44. A B Both the gypsy moth and the emerald ash borer only attack ash trees.
45. A B Sugar maple is an example of a shade tolerant species
46. A B As a sawblade or chainsaw cuts through wood, the space left by the removal of wood is called a kerf
47. A B When managing aspen, the most common silvicultural system is seed tree selection.
48. A B A farmstead shelterbelt should be planted at least 100 feet from any building.
49. A B Before planting, it is important to keep tree seedlings moist and out of the wind and sun.
50. A B Applying a bud cap on the terminal bud of conifer species can help to deter deer browse.

2016 MN FFA Forestry Exam Key

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