

Louisiana Examination of Advanced forestry

7-24-2018 Natchez State Park

Test validated and monitored by Lucas Stamper LSU Agcenter Extension Agent ANR

Name \_\_\_\_\_

School \_\_\_\_\_

Louisiana Ag-Tech Certificate number \_\_\_\_\_

Qualifying CDE date \_\_\_\_\_

**Notes:**

Merchantable heights are estimated to the upper point on a tree where it becomes 10 inches in diameter, OR, where a major fork in a tree stem occurs, OR, where a limb or cluster of limbs have a combined diameter equal to  $\frac{1}{2}$  of the diameter of the tree at that point. These upper limit rules are called “stoppers”.

When figuring tree volumes, all trees are considered sound for the purpose of this exercise (no cull deductions). There is no pulpwood market in this area.

Measure the tree diameters in 1-inch diameter classes  
Measure merchantable tree heights in 16-foot logs (to the nearest  $\frac{1}{2}$  log) Assume no declination ( $0^*$ ) when using compasses

Needed Equipment: Logger tape, clinometer, compass, calculator, and volume table. Use the tree volume table provided.

Each question is worth 1 point unless otherwise noted.

There is 109 points total on this exam.

Maximum number of missed points for passing grade is 33.

Minimum passing score is  $76/109 = 70\%$

### A. Tree Study, Mensuration, Insects/Disorders, Wood Products Manufacturing

- 1) Identify this tree. (2 points) Cherrybark Oak
- 2) What is the diameter of this tree (2 points)? 24"=2 23"=1 25"=1
- 3) What is the merchantable height? 2 logs
- 4) What is the board foot volume? (3 points) 397 exact 356-443=3, 357-315=2, 316-278=1, 444-489=2, 490-540=1
- 5) This tree has two symptoms of disease, name one? Slimeflux/wetwood, canker
- 6) Name a manufactured wood product made from this tree. Cabinets, trim, flooring, veneer, pallets, furniture.

### B. Tree Study, Mensuration, Wood Products Manufacturing

- 7) Identify this tree. (2 points) sweetgum
- 8) What is the diameter of this tree? 13"
- 9) What is the merchantable height? 2 logs
- 10) What is the board foot volume? (3 points) 64 exact, 47-82=3, 48-35=2, 36-23=1, 83-104=2, 105-125=1
- 11) Name a manufactured wood product made from this tree. Veneer, trim, door frames, turned objects, crates, furniture, pulp

### C. Tree Study, Mensuration, Wood Products Manufacturing

- 12) Identify this tree. (2 points) loblolly pine
- 13) What is the diameter of this tree? 25"
- 14) What is the merchantable height? 3 logs
- 15) What is the board foot volume? (3 points) 600 exact, 536-663=3, 537-478=2, 479-420=1, 664-735=2, 736-807=1
- 16) Name 3 wood products made from this tree. Lumber, veneer, plywood, pulp, paper, OSB, poles,
- 17) Name a manufacturer in Louisiana that utilizes this species. IP, Martin, etc.

#### D. Tree Study, Wood Products, Silviculture Practices

- 18) Identify this tree. (2 points) Yellow poplar
- 19) Name a product that is made from this tree? Trim, lumber, pallets, crates, plywood,
- 20) Circle the leaf type that best describes this species leaves. (Two answers accepted)  
A. simple      B. palmately compound      C. pinnately compound      D. lobed
- 21) Is this tree inside a stream management zone? no
- 22) According to Louisiana's BMP guide, how wide should an SMZ be for a perennial stream that is less than 20 feet wide? 50 feet

#### E. Tree Study, Insects/Disorders, Forest ecology

- 23) Identify this tree. (2 points) Winged Elm
- 24) What disorder does this tree have? Canker, burl
- 25) What characteristic allows this species to grow in the understory of this forest?  
Broadleaves are able to capture more sunlight and live in shade

#### F. Tree Study, Wood Products, Insects/Disorders

- 26) Identify this tree. (2 points) Ash (white)
- 27) Name two products made from this tree? Baseball bats, flooring, tool handles
- 28) Circle the type of leaf this tree has. A. Simple    B. Pinnate    C. Palmate
- 29) Which invasive insect currently threatens the future of this tree species? Emerald ash borer

#### G. Tree Study and Mensuration

- 30) Identify this tree. (2 points) loblolly pine
- 31) What is the diameter of this tree? 28"
- 32) What is the merchantable height? 4.5 logs
- 33) What is the board foot volume? (3 points) 1040 exact, 946-1144=3, 947-852=2, 853-764=1, 1145-1240=2, 1241-1346=1

## H. Tree Study, Mensuration, Forest products

- 34) Identify this tree. (2 points) Black cherry
- 35) What is the diameter of this tree? 20"
- 36) What is the merchantable height? 2 logs
- 37) What is the board foot volume? (3 points) 242 exact, 278-210=3, 211-179=2, 178-152=1, 279-315=2, 316-356=1
- 38) Name a manufactured wood product made from this tree. Cabinets, furniture, flooring, veneer, turned objects, spindles, handles

## I. Land Measurement. Use the topo map to answer these questions:

- 39) What is the Scale of this USGS Topography Map? 1:24,000
- 40) What is the Contour Interval of this USGS Topography Map? 10 feet
- 41) A boat ramp is located in what quarter of section 5, Township 19N, Range 9W?  
Northeast or NE
- 42) What is the elevation of the Minden-Airport landing strip in sections 9 and 16, Township 19N, Range 9W? 278'
- 43) What is the elevation of the radio tower in Section 17, Township 19N, Range 9W? 240'

## J. Silviculture practices, Harvesting, Reforestation (stocking)

- 44) A. What is this tool? Wedge prism  
Use the tool to take a reading at the point marked by the stake.
- B. What is the basal area of this plot? (3 points) 110 exact, 100-2, 120-2, 90-1, 80=1, 130-1, 140-1

## K. Wood products, Paper and pulp products

- 45) Identify the tree this wood sample came from red cedar
- 46) Identify the tree this wood sample came from southern yellow pine
- 47) Identify the tree this wood product came from hickory
- 48) Identify the tree this wood product came from baldcypress
- 49) What are the layers of this plywood called? veneer
- 50) Name a finished product made from this brown Kraft paper? Cardboard, bags, etc

## L. Forest Ecology

For question 22, refer to the print out of the Arcgis screen "How to use land cover data as a water quality indicator" from

<http://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=e7eb6e9decb14c17a2fef4d36fee1714>

57-1  
56-1  
55-2  
54-2  
53-3  
52-3  
51-3  
50-3  
49-3  
48-2  
47-2  
46-1  
45-1

- 51) Why do metropolitan areas like Baton Rouge and New Orleans have the highest % of impervious surface? Concrete and development

For question 22, use printout C-CAP Class Name

- 52) Which type of forest are we currently working in? mixed forest

## M. Land Measurement, Silviculture Practices

Refer to the two stakes

- 53) Along what azimuth does the marked "boundary" line extend? (3 points) 114
- 54) How many feet is this leg of the boundary? (3 points) 51' exact

## N. Land Measurement, Silviculture Practices

Refer the two stakes

- 55) Along what azimuth does this line of the boundary extend? (3 points) 99
- 56) How many feet is this leg of the boundary? (3 points) 68'

74-1  
73-1  
72-2  
71-2  
70-3  
69-3  
68-3  
67-3  
66-3  
65-2  
64-2  
63-1  
62-1

120-1  
119-1  
118-2  
117-2  
116-3  
115-3  
114-3  
113-3  
112-3  
111-2  
110-2  
109-1  
108-1

105-1  
104-1  
103-2  
102-2  
101-3  
100-3  
99-3  
98-3  
97-3  
96-2  
95-2  
94-1  
93-1

72-1  
71-1  
70-2  
69-2  
68-3  
67-3  
66-3  
65-3  
64-3  
63-2  
62-2  
61-1  
60-1

20-1  
19-1  
18-2  
17-2  
16-3  
15-3  
14-3  
13-3  
12-3  
11-2  
10-2  
09-1  
08-1

**O. Land Measurement, Silviculture Practices**

*Refer to the line marked by the two stakes*

- 57) Along what azimuth does the marked "boundary" line extend? (3 points) 66
- 58) What % slope is there between the two stakes (3 points) 14 %

**P. Fire in the forest**

- 59) Explain the benefits for using prescribed fire to manage forests? (3 points)

Produces understory species that provide wildlife food (French mulberry), controls disease (brownspot), improves aesthetics, reduces amount of hazardous fuel built up on forest floor, controls competing vegetation, encourages native veg

**Q. Job Seeking Skills**

- 60) About how many forestry related jobs are there in Louisiana? 45,000 - 46,000
- 61) What is the annual economic impact of forestry in Louisiana? \$ 10-11 Billion
- 62) How many primary wood using industries (sawmills, paper mills, plywood plants etc.) are in Louisiana? 180, 150-200 acceptable
- 63) How many secondary wood using industries (cabinet makers, furniture manufacturers etc.) are in Louisiana? 750, 700-800 acceptable
- 64) Name two Universities in Louisiana with degrees in forestry (2 points).  
LSU, LA Tech, Southern University
- 65) Name two characteristics all entry level employees should demonstrate to their employer.  
Ability to communicate, willingness to learn, time management, positive attitude, thinking skills, resilience, ability to get along with team members, honesty, etc.

### Business Problem

Mrs. Jones has 40 acres of timber you would like to purchase. Figure out how much you can offer Mrs. Jones for her timber while making a 20% profit over expenses. This problem does not consider taxes or insurance costs.

| Species       | Total Volume (bd ft) on the 40 acres (not per acre) | Price Delivered to Mill (\$/1,000 bd ft) |
|---------------|---|--|
| Southern Pine | 38,000  | \$250/1000 Board feet                    |
| Red Oak       | 16,000  | \$500/1000 Board feet                    |
| Sweet gum     | 8,000   | \$250/1000 Board feet                    |
| White Oak     | 7,000   | \$600/1000 Board feet                    |
| Cherry        | 2,000   | \$800/1000 Board feet                    |

In this area it costs \$100 per thousand to operate your logging crew (stump to log deck), \$50 per thousand to haul to the mill, and \$25 per acre to retire your roads, trails and landings.

**66)** What is your total logging crew cost you (stump to log deck)? \$7,100

(Thousands of BD ft) = 71

\$100 per thousand

$71 \times \$100 = \$7,100$

**67)** What is your total hauling cost? \$3550

$71 \times \$50 = \$3550$

**68)** What is your total site retirement cost? \$1000

$\$25 \times 40 \text{ acres} = \$1000$

**69)** What will you get at the mill for all 40 acres of timber delivered? \$25,300

$38 \times \$250 = \$9,500$        $8 \times \$250 = \$2,000$        $2 \times \$800 = \$1,600$

$16 \times \$500 = \$8,000$        $7 \times \$600 = \$4,200$       total = \$25,300

**70)** What is your offer to Mrs. Jones (20% over total expenses)? \$13,980

