

Questions for Forestry Portion of 2003 Envirothon Examination – Hopkinton, NH

Tree Biology

1. 1 pt. Fill in the Blank.

_____ are the first leaves to grow from a seed.

2. 1 pt. T or F.

Dicots have 1 seed leaf. _____.

3. 3 pt. Short Answer.

Name three functions of woody roots.

4. 1 pt. T or F.

Meristems are groups of cells that have the ability to divide and produce more cells that differentiate to form all parts of the tree.

5. 1 pt. T or F.

The vascular meristem, also known as the cambial zone, increases the height of the tree.

6. 1 pt. Short Answer.

What is the function of phloem?

7. 2 pt. Short Answer.

Name two functions of apical meristems.

8. 3 pt. Short Answer.

Name three types of buds.

9. 1 pt. Short Answer.

What is the chemical reaction involved in the process of photosynthesis?

10. 1 pt. T or F.

Respiration is a process where the energy of the sun first stored in glucose is released in cells to run the processes of life.

11. 2 pt. Trees use energy in five basic ways. Name two of these.

12. 2 pt. (Matching)

Draw a line connecting the primary mode of seed dispersal with the tree species.

Gravity

Black Cherry

Wind

Sycamore

Water

Yellow Birch

Birds

Red Oak

13. 4 pt. (T or F)

The morphology and physiology of tree leaves varies in relation to the amount of light. For example, tree leaves exposed to light in the upper canopy differ from tree leaves on shaded trees (i.e., shade leaves) in the lower canopy of forests.

The area of an individual leaf is higher in leaves exposed to light in the upper canopy than in shade leaves. _____

The leaf orientation of shade leaves is usually horizontal. _____

The thickness of leaves exposed to light in the upper canopy is less than in shade leaves. _____

The size of the stomates (microscopic openings on underside of leaves) is generally larger in shade leaves than in leaves exposed to light in the upper canopy. _____

Silviculture

14. 1 pt. (T or F)

Crown thinning is a general method of thinning whereby the trees to be cut or retained are chosen on the basis of some predetermined spacing or pattern.

15. 1 pt. (Short answer)

Explain the difference between precommercial and commercial thinning.

16. 1 pt. (Short answer)

In densely stocked red pine plantations that were originally planted in straight rows, removing every third row is a good way to release remaining trees. Why?

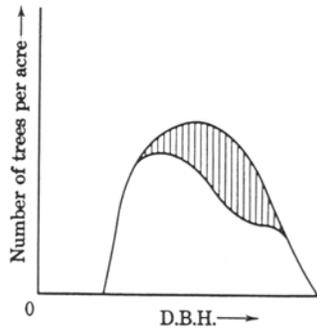
17. 1 pt. (Short answer)

Explain the major difference between “crown thinning” and “thinning from below”

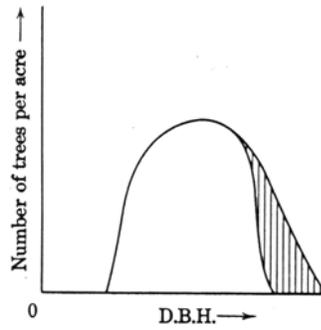
18. 2 pt. (Multiple choice)

Which of the following diameter distributions (a, b, c or d) best describes crown thinning (shaded areas below refer to trees that are cut during thinning).

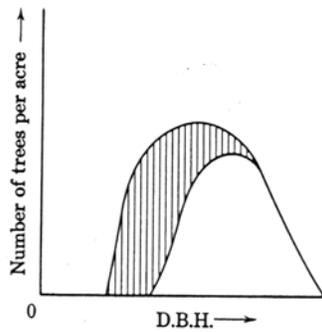
a.



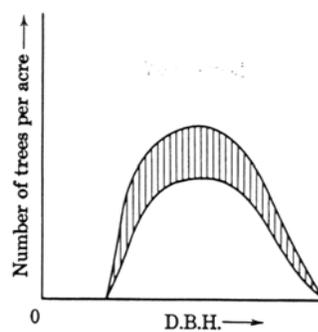
b.



c.



d.



Answer: _____

19. 1 pt. (T or F)

Stand density is a measure of the amount of tree vegetation on a unit of land area.

_____.

20. 1 pt. (T or F)

Basal area is the most commonly used parameter to express stand density.

21. 1 pt. (Short answer)

Pruning to reduce wood defects caused by knots is especially important in softwood stands (e.g., white pine stands). Why?

22. 1 pt (T or F)

Shade tolerant trees in the forest understory, once released by thinning, **generally** commence rapid growth. _____

23. 1 pt. (Short answer)

The percentage of the entire length of a tree stem clothed with living branches is called the “live crown ratio”.

Why is this important in understanding the response of trees to release by thinning?

24. 1 pt. (Fill in the blank)

The primary use of carbohydrates produced by photosynthesis in trees is for _____.

25. 2 pt. (Short answer)

Name the four generally recognized crown classes.

26. 1 pt. (T or F)

Deciduous hardwoods generally produce more wood than evergreen conifers, and a higher proportion of it is deposited in usable boles. _____

27.1 pt. (Fill in the blank)

Mixed stands are _____ (Select either “more” or “less”) effective than pure stands in preventing nutrients from leaching out of the forest system.

Conservation of Forest Land

28. 1 pt. (Multiple choice)

According to the IRS, the donation of a conservation easement on forest land is a tax-deductible charitable gift only if:

- a. the owner has a forest stewardship plan
- b. the easement is perpetual
- c. the easement is donated for recreational purposes
- d. the easement is donated exclusively for “conservation purposes”
- e. a and b
- f. a and c
- g. b and d

Answer: _____

29. 1 pt. (T or F)

The IRS defines “conservation purposes”, in part, to include the preservation of open space – including farmland and forestland – for scenic enjoyment or pursuant to an adopted governmental conservation policy.

Answer: _____

30. 1 pt. (Fill in the blank)

An appraisal is a document appraising the _____ of something such as land.

Answer: _____

31. 1 pt. (T or F)

Preferential taxation is one way to protect forestland.

Answer: _____

32. 1 pt. (T or F)

Fair Market Value is the value of the land sold as Conservation land.

Answer: _____

33. 1 pt. (Fill in the blank)

If a landowner sells his/her property development rights, what type of organization will typically hold these rights _____.

34.1 pt. (T or F) 1 pt. (Short answer)

A family partnership is a good way to carry on a family forest management tradition to future generations. _____

Explain you answer:

35. 2 pt. (Short answer)

Explain the difference between parcelization and fragmentation.

Sugarbush Management

36. 1 pt. (Tor F)

Uneven-aged sugarbushes are normal throughout much of the Northeast.

37. 2 pt (Short answer)

Contrast regeneration of even-aged versus uneven-aged sugarbushes:

38. 1 pt. (T or F)

Sugar maples are shade intolerant species.

Answer: _____

39. 1 pt. (T or F) and 1 pt (Short answer)

Once sugarbushes are established by regeneration cuts, the stand is normally allowed to develop without further cuts. _____

Explain your answer:

40. 2 pt. (Fill in the blank)

Research has shown that the ideal sugarbush has healthy, vigorous, fast-growing maples with _____ crowns and _____ sap sugar content.

41. 1 pt. (Short answer)

How can you determine if there is a Nitrogen deficiency in a sugarbush?

42. 1 pt (Short answer)

Why would liming be considered in the management of sugarbushes?

43. 1 pt. (Short answer)

Name an instrument that can measure sap sugar content of a maple tree.

44. 2 pt. (Short answer)

Name two criteria for selecting crop trees in a sugarbush.

Christmas Tree Plantations and Windbreaks

45. 1 pt. (Short answer)

Taper is an important term in management of Christmas trees and is used to describe _____.

46. 1 pt (T or F)

Crown density refers to the compactness and amount of foliage present. _____ .

47. 3 pt. (T or F)

Characteristics of good Christmas trees are:

Symmetrical crown that approaches a cylindrical shape. _____

Single and straight main stem including a well developed leader. _____

Good overall balance in terms of fullness on 4 sides. _____

48. 3 pt. (Short answer)

Name 3 species of trees grown for Christmas trees in New England

49. 1 pt. (Short answer)

When establishing a Christmas tree plantation, it is important to plant about the same number of trees each year. Why?

50. 1 pt. (T or F)

A major mistake of prospective Christmas tree growers is to underestimate the work required. _____

51. 2 pt. (Short answer)

Name two reasons why minimum spacing considerations are important in Christmas tree plantations.

52. 1 pt. (Short answer)

What is the biggest management task in the initial stages of Christmas tree production?

53. 1 pt (T or F)

Because no two trees are alike, each tree must be studied individually and pruned accordingly. _____

54. 1 pt. (Short answer)

What is the difference between pruning and shearing?

55. 1 pt. (T or F)

Spacing between the whorls is an important consideration in maintaining a sufficiently dense crown in Christmas trees. _____

56. 2 pt (Short answer)

Name two damaging agents that could affect the quality and marketability of an already established Christmas tree plantation.

57. 3 pt (Short answer)

Give three reasons why conifer windbreaks can be valuable to farm owners in the Northeast.

Site Index and Stocking

58. 1 pt. (Multiple choice)

Site index is measured by calculating the average height of dominant trees at a specified age. What is the specified age used in the eastern United States? (1 pt)

- a) 30 yr
- b) 10 yr
- c) 50 yr
- d) 80 yr

Answer: _____

59. 1 pt. (Multiple choice)

What does a site index of 35 mean?

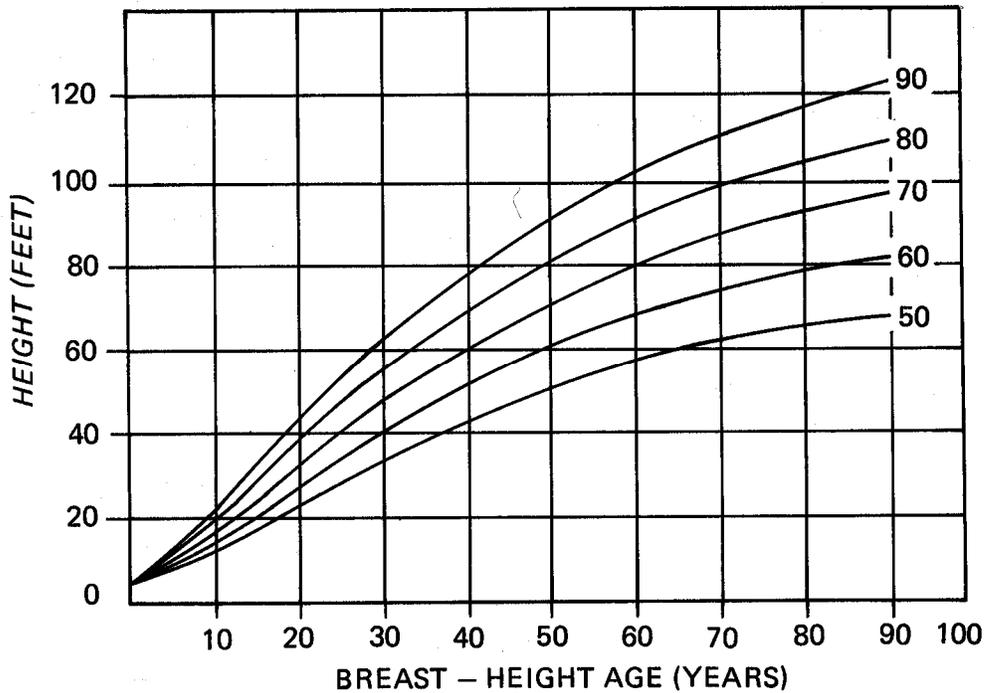
- a) Trees of average age 50 years will be 35 feet tall.
- b) Trees of average age 40 years will be 35 feet tall
- c) Trees of average age 45 years will be 35 feet tall
- d).None of the above.

Answer: _____

60. 1 pt. (Multiple choice)

In the graph below, site index curves are shown for eastern white pine. What is the approximate site index for a tree with an age of 30 years and a height of 40 feet? (1 pt)

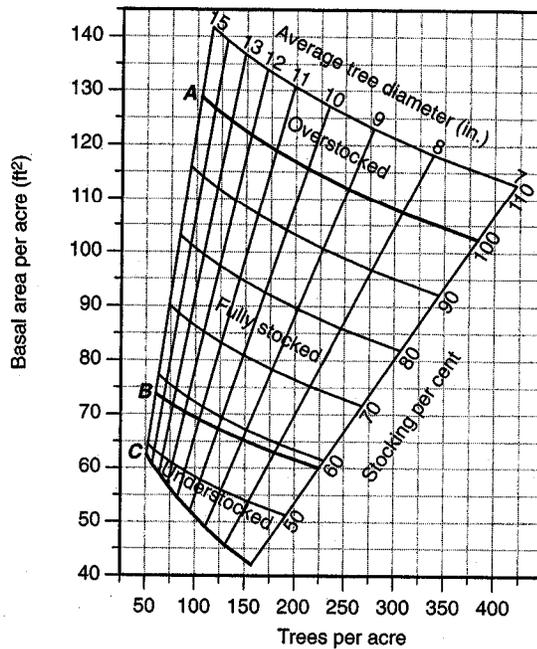
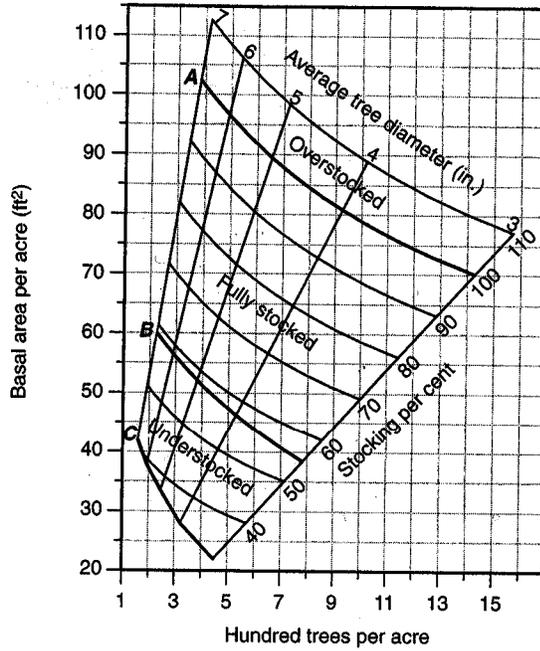
- a. 50
- b. 60
- c. 90
- d. 70
- e. 80



Answer: _____

61. 1 pt. Short Answer.

Stocking charts for upland oak stands in the Central Hardwood Region are presented below. What is the percent stocking (to the nearest 10 percent) for a stand with 900 trees per acre and 60 square feet per acre basal area?



Team No. _____

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School Number: _____ (13 points total)

**New Hampshire Envirothon 2003
Forestry Hands On...**

Tree Species Identification: (10 pts)

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)
- 10)

Tree Measurements (3 pts)

Tree height in 16 ft logs
(to designated height): _____

Tree diameter (in inches): _____

Total merchantable volume
to identified branch or fork
(in board feet): _____