

Oregon Envirothon 2024

Forest Ecology

Team # _____ Forest

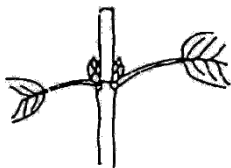
Test Total: _____ / 50 points

Part 1. Tree Identification

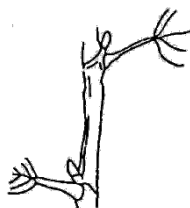
- Using the tree samples on the table, write the correct species of tree/shrub using both the common and scientific names. Spelling and capitalization **MUST** be exact! [6 points, 0.5 points each]

Specimen ID	Common Name	Scientific Name
a.		
b.		
c.		
d.		
e.		
f.		

- Dichotomous keys are essential tools for dendrologists. Please label the following common tree characteristics using the word bank provided. [4 points]



a. _____



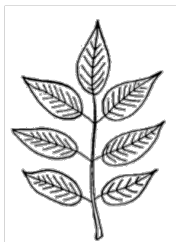
b. _____

WORD BANK

- ☐ compound
- ☐ whirled
- ☐ alternate
- ☐ simple
- ☐ gapped
- ☐ serrated
- ☐ opposite



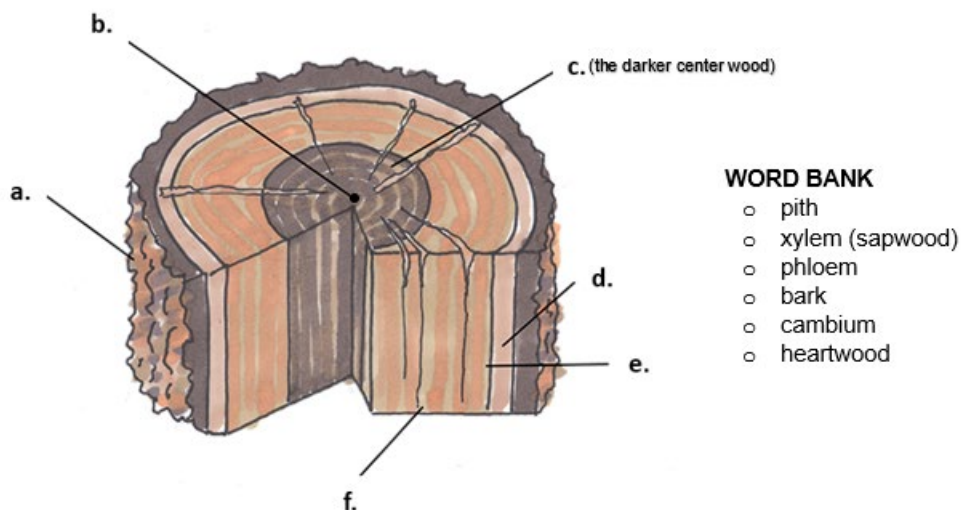
c. _____



d. _____

Part 2. Tree Physiology and Forest Ecology

3. Using the diagram below, label each part of the tree and describe its key function or use? [6 points, 0.5 points each]



Indicator:	Name:	Function:
a.		
b.		
c.		
d.		
e.		
f.		

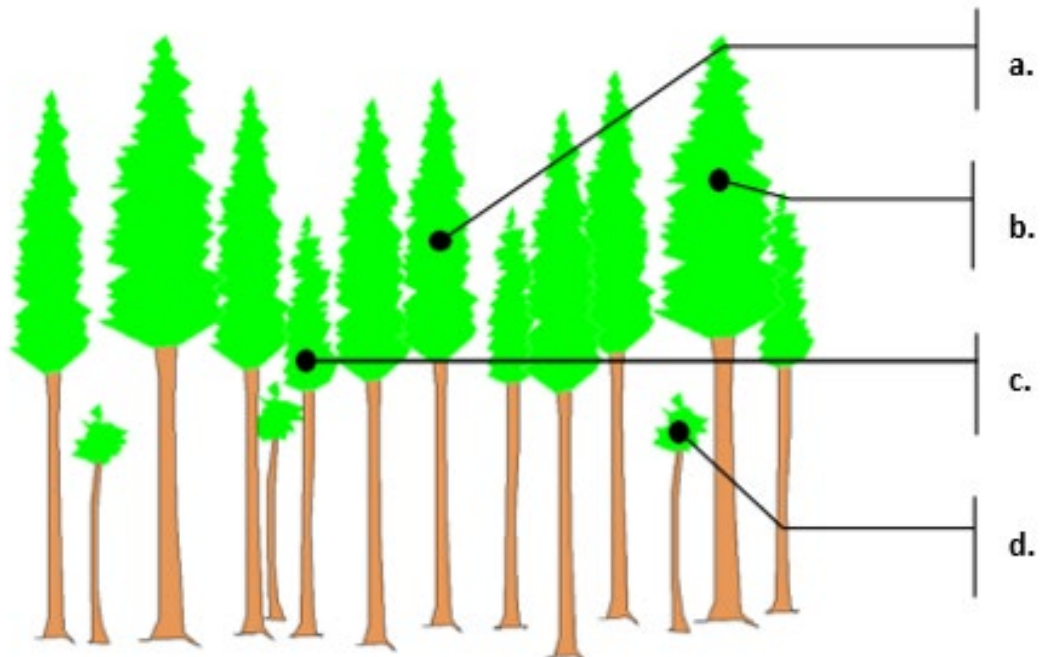
4. What are the two main products of photosynthesis? [1 point]

- a) Oxygen and Carbon Dioxide
- b) Glucose and Oxygen
- c) Water and Carbon Dioxide
- d) Glucose and Water

___ / 7 points

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5. Label each of the trees below as “dominant,” “co-dominant,” “intermediate,” or “suppressed.” [4 points]



- a.
- b.
- c.
- d.

6. The term _____ in forest ecology refers to lower vegetation and debris that enable fires to climb from the forest floor into the canopy, intensifying wildfire behavior. [1 point]
7. What are the three elements of the fire triangle, essential for combustion to occur? [3 points, 1 point each]



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Part 3. Forest Practices Act & Sustainable Forest Management

Using the resources provided please answer questions 8-13.

8. The Forest Protection Act was established in what year? [1 point]

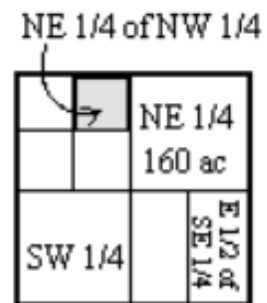
- a. 1965
- b. 1971
- c. 1977
- d. 1989

9. How much of Oregon's forestland is managed by state and county governments?
_____ [1 point]

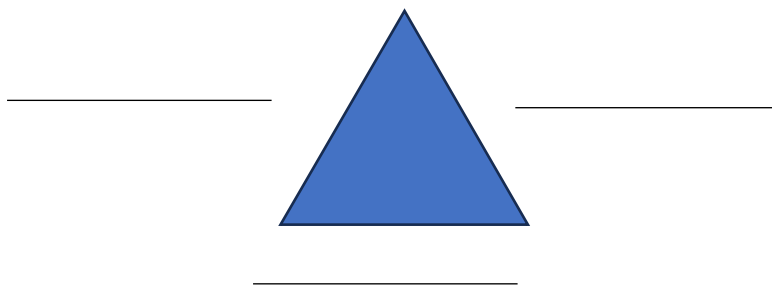
10. A _____ is a standing dead tree. [1 point]

11. The legal description of the forested property shown is NE $\frac{1}{4}$ of NW $\frac{1}{4}$, S. 24, Township 3N, Range 4E. How many acres is the property? [1 point]

- a. 100
- b. 50
- c. 40
- d. 640



12. Label each side of the forest sustainability triangle, below. [3 points]



13. Name the three largest forest certification systems operating in Oregon. [3 points]

- I.
- II.
- III.

___ / 10 points

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Part 4. Biometry & Forest Measurements

There are four trees marked with the letters A, B, C, and D. There are also 2 identical tree cookies provided, labeled "Cookie". Using the tool and information specified below, answer the following questions on biometry and forest measurements.

13. Using the Woodland Stick, what is the diameter (DBH) of Tree A? *[2 points]*

14. Using a Diameter or Logger's Tape, what is the diameter (DBH) of Tree B? *[2 points]*

15. Using the Woodland Stick, what is the total height of Tree C, given you are 100 feet from the base of the trees? *[2 points]*

16. Using a Clinometer, what is the total height of Tree D, given you are 100 feet away from the base of the tree? *[2 points]*

17. What is the age of this cookie specimen? *[1 point]*

18. What instrument can inventory foresters use to accurately determine the age of standing live trees? *(1pt)*

19. What is another way to accurately determine the age of a stand? *[1 point]*

- a. Locating a stump and counting the growth rings
- b. Guesstimating
- c. Looking at planting records
- d. You must cut down a tree

___ / 11 points

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Part 5. Trees as an Important Renewable Resource

20. What is the primary reason that trees are considered a renewable resource?

[1 point]

- a. They can be genetically modified to grow faster.
- b. They produce oxygen through the process of photosynthesis.
- c. They can regenerate from seeds, sprouts, or stump sprouts after being harvested.
- d. They are unaffected by climate change.

21. The concept of “carbon neutrality” for wood products means the CO₂ released when wood products are burned or decompose is _____ to the CO₂ trees absorb while growing, making wood products a sustainable and climate smart choice. *[1 point]*

22. What is the primary benefit of strategically planting and managing trees in urban areas? *[1 point]*

- a. Reduction of the urban heat island effect
- b. Increase in local wildlife biodiversity
- c. Stabilizing soils and improve water filtration
- e. Enhancement of recreational spaces
- f. All of the above

23. What are the benefits described in question 23 collectively referred to as? *[1 point]*