

Team #:
Flagging Color:

2007 CALIFORNIA ENVIROTHON
FORESTRY STATION
TOTAL = 100 POINTS
Time allowed: 35 Minutes

Please write your team number and flagging color on the top of each test page. You may un-staple the test and work on the questions in any order, however, pages should be returned to the correct order before turning them in. You can choose to split your team up and work on multiple questions to expedite finishing the test. Please show all of your work, as you could obtain partial credit. GOOD LUCK!

1. Some trees native to the region are listed below. Please fill in the blank with the appropriate common name, Genus or species. (6 points) (Biology/Life Sciences - Ecology 6.a,b,f)

<u>common name</u>	<u>Genus</u>	<u>species</u>
Coast Redwood _____	_____	sempervirens
_____	Pinus	jeffreyi
Douglas-fir _____	Pseudotsuga	_____
_____	Abies	concolor
Sugar pine	_____	lambertiana
Incense-cedar	Calocedrus	_____

2. Using the attached conifer key (Appendix A), identify the tree samples given on the table at the station check-in. Provide common name, Genus and species for each. (8 points) (Biology/Life Sciences - Ecology 6.a,b,f)

<u>Sample #</u>	<u>common name</u>	<u>Genus</u>	<u>species</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____

3. Using the attached oak tree key (Appendix B), find what kind of tree the orange flagged tree is. Show your steps for possible partial credit. (4 points) (Investigation and Experimentation - 1.a)

Common name: _____ Genus: _____ Species: _____

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4. Using the clinometer and diameter tape, what is the total height and diameter at breast height (DBH) of the tree flagged with yellow and black striped flagging (nearest even two foot increment for height and nearest 1/10 inch for DBH)? (4points) (Investigation and Experimentation - 1.a)

Height: _____ Diameter: _____

5. Using the answers from question 4, and the Scribner Rule volume table provided (Appendix C) obtain the volume, in board feet. If there are 80 trees per acre on 40 acres and you harvest 40 percent of the total volume what is the volume per acre in board feet you will harvest and what is the total volume in board feet you will you harvest? Assume the volume of the tree used for this question is the average board feet per tree. If your answer for # 4 is incorrect, but your methods and calculations are correct you will receive full credit for this question. Show your work. (10 points) (Investigation and Experimentation - 1.a.g)

Tree DBH (nearest even two inch class): _____ Height to the nearest 10 feet: _____

Tree Volume from table: _____

Volume per acre harvested: _____ Total volume harvested: _____

6. Using a 20 BAF (Basal Area Factor) prism, and standing at the designated plot center, mark the appropriate answer for each of the four lettered trees with an "X". (4 points) (Investigation and Experimentation - 1.a)

Tree Letter	In	Out
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____

7. Using the data from question 6, how much basal area per acre (square feet) is represented by your sample? (Hint: BAF X # of in trees= square feet/acre) (2 points) (Investigation and Experimentation - 1.a,i)

8. The local mountains have experienced unprecedented tree mortality over the last few years. List three things that you think have contributed to this mortality. (6 points) (Biology/Life Sciences - Ecology 6.a,b,c,d,e,f; Earth Sciences - Energy in the Earth System 4.a,b,c and 5.a,b; Earth Sciences: Biochemical Cycles: 7a,b)

1. _____
2. _____
3. _____

9. "Urban forestry is a specialized branch of forestry that has as its objective the cultivation and management of trees for their present and potential contribution to the psychological, sociological, and economic well-being of urban society." Urban forests are the trees growing along your streets, at homes and businesses and in your parks. They serve a number of purposes including municipal watershed protection, wildlife habitat, outdoor recreation opportunities, landscape design, and the future production of wood fiber as raw material.

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Given the above definition of Urban Forestry, list four unique challenges to growing trees in an urban environment. All reasonable answers will be considered. (8 points)
(http://www.urbanforestrysouth.org/pubs/Tech_bulletin/tb2.htm)

1. _____
2. _____
3. _____
4. _____

10. What is meant by the terms: even-aged silvicultural system and uneven-aged silvicultural system? (4 points) (Investigation and Experimentation - 1.a)

Even-aged:

Uneven-aged:

11. Briefly explain what the functions of the following tree parts are. (10 points) (Biology/Life Sciences - Structure and Function in Living Systems 9.a; Earth Sciences - Biogeochemical Cycles 7.a,b,c)

xylem _____
phloem _____
leaves _____
roots _____
cambium _____

Using the map provided (Appendix D), answer questions 12 and 13. (Investigation and Experimentation - 1.h)

12. What is the legal description, to the ¼ section, of Marshall Peak? (3 points)

13. You are located at the NW1/4, NE1/4, section 22, T2N, R4W. What is the elevation at this site, and what is the name of the nearest creek? (4 points)

Elevation:

Creek Name:

14. Draw and label the three sides of the fire triangle. (3 points) (Investigation and Experimentation - 1.i)

15. Name four benefits and four detriments of wildfire. All reasonable answers will be considered. (8 points) (Biology/Life Sciences - Ecology 6.a,b) (Investigation and Experimentation - 1.i)

Benefits

1. _____
2. _____
3. _____
4. _____

Detriments

1. _____
2. _____
3. _____
4. _____

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16. Define the forestry terms below: (4 points) (Biology/Life Sciences - Ecology 6.a,b,c,e,f; 8.b,d) (Investigation and Experimentation - 1.a)

suppressed tree:

board foot:

snag:

carbon sequestration:

17. Using the compass, give the bearing and the azimuth from point "A" to point "B" to the nearest degree. (Investigation and Experimentation - 1.h)

bearing (2 points): _____ azimuth (2points): _____

18. Forested land can be classified by its productivity. This classification is based on tree height, growth, and age. Use the attached Site Index Table (Appendix E, Table 1) and Site Classification Table (Appendix E, Table 2) to determine the Site Index and Site Class of a hypothetical pine stand that has an average height of 88 feet at an age of 80 years. (4 points) (Investigation and Experimentation - 1.g)

Site index: _____ Site class: _____

19. Trees in an area that are classified as site class V will grow very slowly, while trees in an area that are classified as site class I will grow very well. Based on your answer to question 18, (a) what would you say about the productivity of the hypothetical pine stand? (b) Is the land that the stand occupies a good place to grow trees for lumber? (4 points) (Investigation and Experimentation - 1.g) (Investigation and Experimentation - 1.a)

a) _____

b) _____

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