

Professional Foresters Registration Examination

OCTOBER 11, 2013

PART I

Instructions: APPLICANTS, PLEASE READ THESE INSTRUCTIONS CAREFULLY. You MAY complete PART I by doing ONE of the following two options:

A) Complete the Short Answer Section (Question 1) and Any Two (2) of the Essay Questions (Questions II through V)

OR

B) Complete Any Three of the Essay Questions (Questions II through V) and OMIT answering the Short Answer Question (Question I).

Question I - Short Answer
Question II - Forest Mensuration
Question III - Forest Ecology
Question IV – Forest Economics
Question V - Forest Protection

Professional Foresters Registration
1416 9th Street, Room 1506-16
Sacramento, CA 95814

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

ACRONYMS AND ABBREVIATIONS USED IN THIS EXAMINATION

The following Acronyms and /or Abbreviations **may be used** in this examination. Technical abbreviations that should be known by a forester are NOT included here (e.g. DBH, MAI, MBF). You may remove this page for reference throughout this examination. **It need not be returned.**

<u>Acronym or Abbreviation</u>	<u>Full Text</u>
BLM	Bureau of Land Management, USDI
BOF	California State Board of Forestry and Fire Protection
CCR	California Code of Regulations
CAL FIRE	California Dept. of Forestry and Fire Protection
CDF&W or CDF&G	California Department of Fish and Wildlife
FPR	California Forest Practice Rules
PRC	California Public Resources Code
RPF	California Registered Professional Forester
THP	California Timber Harvest Plan
TPZ	California Timber Production Zone
USFS	United States Forest Service, USDA

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

QUESTION I - SHORT ANSWERS

4% 1. List 4 types of defects that will result in diameter, volume or length deductions by a scaler:

3% 2. Regional Water Quality Boards and the State Water Resources Control Board in California have the authority to require monitoring and reporting as a condition of any applicable waiver of waste discharge requirements on THPs. What is the legislative basis for this authority?

3% 3. Currently, what is the status of the California's Forest Practice Rules (FPRs) as BMPs under Section 208 of the Federal "Clean Water Act"?

3% 4. Fire behavior is greatly affected by relative humidity. Define relative humidity.

3% 5. A deduction from taxable income allowed, under specified conditions, by US tax laws to the owners of timber for reduction of an original growing stock through cutting is called _____.

3% 6. In performing a stocking survey for a plantation area, you lay out a uniform grid as prescribed in the FPRs and sample 75 plots. What would be the minimum number of stock plots needed to conclude the area is stocked, according to the FPRs?

CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

3% 7. Besides CO₂, list 3 other **predominantly naturally occurring** greenhouse gases that can be found in earth's atmosphere.

3% 8. Purposefully leaving a logging road reasonably impassable to standard production four wheel-drive highway vehicles, and leaving a logging road and landings, in a condition that provides for long-term functioning of erosion controls with little or no continuing maintenance is termed _____, under the FPRs.

3% 9. How do Forest Practice Rules define "economic feasibility"?

4% 10. Briefly describe the distinctions between effectiveness monitoring and implementation monitoring.

4% 11. The Golden Spotted Oak Borer (*Agilus auroguttatus*), an invasive wood-boring beetle recently located in California, is responsible for the mortality of over 80,000 trees in southwestern California. Name two of the three species that are currently experiencing high rates of mortality in California from GSOB infestation. Common or scientific names are acceptable.

CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

- 3% 12. What type of tax is levied per timber unit of value harvested to enable the property owner to postpone the taxes normally due until such time as income is received from the property _____.
- 3% 13. A written analysis of preharvest and postharvest timber stand conditions and a description of the silvicultural practices and systems to be used in lieu of the standard methods is called _____.
- 4% 14. The California Board of Forestry and Fire Protection is appointed from three categories of representation. Briefly describe the basis upon which the members of this Board are selected.
- 4% 15. As the RPF retained by the plan submitter to provide professional advice throughout timber operations, you discover a previously unreported potentially significant historic archaeological site. According to the FPR's, list your responsibilities in this matter.
- 3% 16. Both Oregon and California predominantly use the Scribner Dec. C log rule. Briefly describe the main difference in how the rule is applied in each state.

CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

- 3% 17. On a cable logging system, explain the purpose of the haulback line.
- 3% 18. The total assimilation of energy and nutrients by an organism or a plant community per unit of time is called _____ production.
- 3% 19. An agreement between the Secretary of the Interior and either a private entity or a state, specifying the conservation measures that will be implemented in exchange for a permit that would allow taking of a threatened or endangered species is called a _____.
- 3% 20. What is the coefficient of variation used to measure in mensurational sampling?
- 3% 21. For northern California, list three salmonids that have been placed on the Federally Threatened or Endangered list. Give **either** the common **or** scientific names. (Northern California is commonly defined as that geographic region north of the Tehachapi Mountains.)
- 3% 22. The marking of the most commercially valuable trees for cutting under an individual tree marking regime is normally termed _____.
- 4% 23. Which of the following tree species are **NOT** susceptible to white pine blister rust: *Pinus monticola*, *Pinus lambertiana*, *Pinus ponderosae*, *Pinus sabiniana*, *Pinus attenuata*, *Pinus contorta*?

CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

3% 24. What is the term for a timber sale in which the buyer and seller agree on a total price for marked standing trees or for trees within a defined area before the wood is removed —*note* the timber is usually paid for before harvesting begins?

2% 25. Certification of forestlands to attest that the management of such lands meets approved standards of a designated authority is common today. Give the complete name of two certification programs being widely used in the United States in 2013.

3% 26. On the **next page** are three diagrams of cable logging/yarding systems commonly used in the western U.S. Using the number and configuration of cable-lines, identify each logging system by the most commonly used name in the field. (You may write the answers on the figures.)

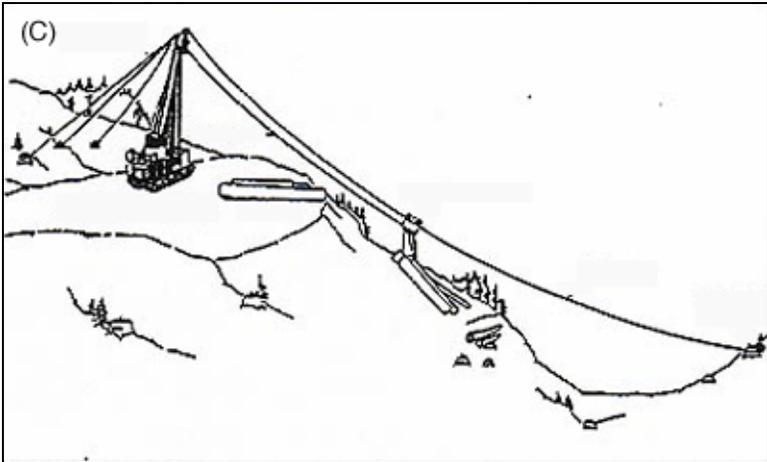
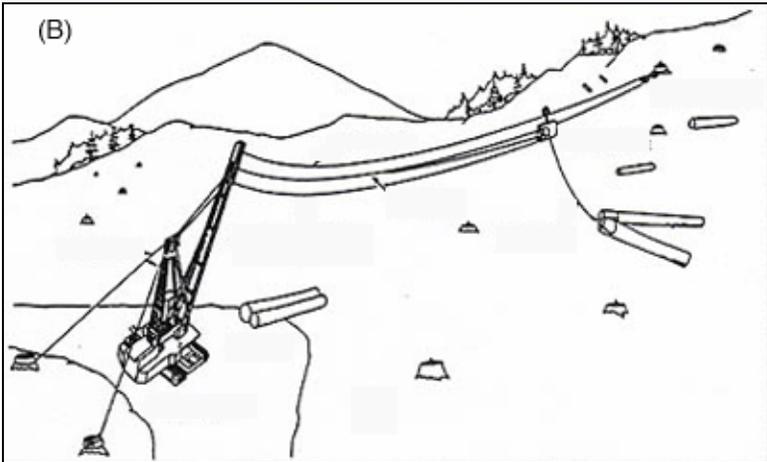
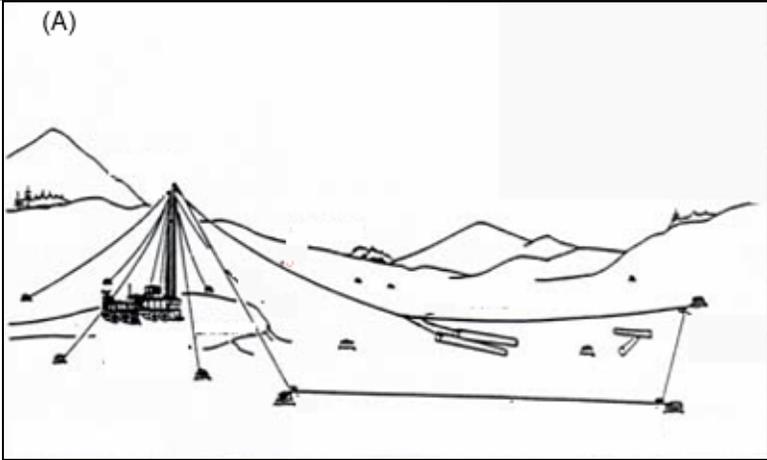
3% 27. When an alien or exotic species can establish, grow, reproduce, and maintain itself in an area where it did not originally grow, it is said to be:

3% 28. Dying Trees, as defined for use in the FPRs, means trees which exhibit one or more of certain conditions. List three (3) of the accepted conditions that would define a dying tree.

3% 29. For THP planning purposes, how would you identify an “Active Nest” of a Peregrine Falcon when you have not seen a Peregrine Falcon occupy the nest in the 12 months you have been doing THP fieldwork?

CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.



CONTINUED NEXT PAGE

Answer on these pages, tear from the booklet and submit with the answer packet if you chose Option A for Part I of this examination.

3% 30. What is the radius of a 1/3-acre inventory plot? Round to the nearest tenth?

5% 31. Briefly define a "blind lead or area" in logging terminology and state the obvious negative environmental result which can occur in that situation.

END OF QUESTION

QUESTION II - FOREST MENSURATION

OBJECTIVE

To determine your ability to understand and utilize basic mensurational data.

SITUATION

A consulting forester is developing a management plan for a 10-acre ownership in Southern California. To generate information about the vegetation on the property, the forester established random sampling plots, the information from two of which is attached. At each location, the forester set the following types of plots and measured the associated variables:

- A variable radius plot (or prism) sample using a basal area factor of 30 (English units, square feet per acre). For each "in" tree on the prism plot over 10-inches DBH, the forester measured:
Dbh in inches to the nearest 1/10th inch, and
Height to the nearest foot
- A 1/250-acre circular plot. For each tree between 2-inches and 10-inches dbh, measure and record in 2-inch dbh classes
- A 66-foot step point transect. For each sample location, % crown cover of manzanita was measured.
- A 0.001-acre square quadrat in which the total number of seedlings was counted.

All trees measured in the inventory were ponderosa pine. For each tree measured, the forester predicted volume (cubic feet to a 4" top) using the formula:

$$v = -1.0454 + 0.002706 (d^2 \times ht)$$

Where:

d = Dbh in inches to the nearest 1/10th inch,
ht = Total height in feet.

COMPUTATIONAL QUESTIONS - Based on the data presented in the attached summary at the end of this question, estimate the following:

(SHOW YOUR WORK)

CONTINUED NEXT PAGE

5% 1. The mean basal area per acre for the property using trees over 10" dbh.

5% 2. The mean volume/acre for the property using trees over 10" dbh.

5% 3. The mean number of trees per acre for the property using trees over 10" dbh.

5% 4. The estimated standard deviation of the basal area per acre among the sample plots. (Equation provided with data summary at end of question)

5% 5. The sampling error around the estimated mean basal area per acre for the property. (Equation provided with data summary at end of question)

5% 6. The total number of 8-inch dbh trees on the property.

5% 7. Cubic foot volume to a 4-inch top of tree #2 at sample location #1.

5% 8. The mean number of seedlings per acre on the property.

5% 9. The estimated square feet of manzanita cover on the 10 acres.

NON-COMPUTATIONAL QUESTIONS-Based on the data presented in the attached summary, Answer the following:

10% 10. Write a formula (do not do calculations) for calculating quadratic mean diameter.

15% 11. Cite three reasons for using strip cruising instead of prism points or fixed-size plots to improve efficiency in the field.

15% 12. It has been suggested that it is permissible (even desirable) to change prism factors from point to point to help equalize the number of trees selected over all the points. Is this a statistically valid procedure? Why?

15% 13. It has been recommended that when cruising on steep ground with a prism, sample trees should be selected only from a 180 degree arc downhill from the center point. If this procedure were followed: a) what change should be made to the basal area factor? and b) what would be the effect of this procedure on the sampling error assuming a homogeneous stand.

CONTINUED NEXT PAGE

DATA SUMMARY

The data obtained from the field measurements are:

PRISM POINTS

<u>Location</u>	<u>Tree #</u>	<u>DBH</u>	<u>HT</u>	<u>BA</u>	<u>V/BA</u>	<u>1/BA</u>
<u>#1</u>	<u>1</u>	<u>22.1</u>	<u>111</u>	<u>2.66</u>	<u>54.76</u>	<u>0.38</u>
	<u>2</u>	<u>14.6</u>	<u>64</u>	<u>1.16</u>	<u>30.92</u>	<u>0.86</u>
	<u>3</u>	<u>32.1</u>	<u>135</u>	<u>5.62</u>	<u>66.79</u>	<u>0.18</u>
	<u>4</u>	<u>18.6</u>	<u>102</u>	<u>1.89</u>	<u>49.97</u>	<u>0.53</u>
	<u>5</u>	<u>20.3</u>	<u>112</u>	<u>2.25</u>	<u>55.04</u>	<u>0.44</u>
	<u>Subtotal</u>			<u>13.58</u>	<u>257.48</u>	<u>2.39</u>

<u>#2</u>	<u>1</u>	<u>12.3</u>	<u>43</u>	<u>0.83</u>	<u>19.95</u>	<u>1.20</u>
	<u>2</u>	<u>28.2</u>	<u>122</u>	<u>4.34</u>	<u>60.25</u>	<u>0.23</u>
	<u>3</u>	<u>14.6</u>	<u>54</u>	<u>1.16</u>	<u>25.95</u>	<u>0.86</u>
	<u>4</u>	<u>31.2</u>	<u>142</u>	<u>5.31</u>	<u>70.24</u>	<u>0.19</u>
		<u>Sub-total</u>			<u>11.64</u>	<u>176.39</u>

1/250-ACRE PLOT

<u>Location</u>	<u>Dbh Class</u>	<u>Number of Trees</u>
<u>#1</u>	<u>10</u>	<u>3</u>
<u>#2</u>	<u>2</u>	<u>2</u>
	<u>4</u>	<u>2</u>
	<u>8</u>	<u>1</u>

66 FT TRANSECT, STEP POINT

Transect

#1 40% cover
 #2 15% cover

DATA SUMMARY (CONTINUED)

October 2013 RPF Examination

1/1000-ACRE QUADRAT

Location

#1	2 seedlings
#2	0 seedlings

STATISTICAL EQUATIONS PROVIDED

Standard Deviation: $SD = \sqrt{\frac{\sum (X - \bar{X})^2}{n - 1}}$

Sampling Error: $SE = \frac{SD}{\sqrt{N}}$

END OF QUESTION

QUESTION III-FOREST ECOLOGY

OBJECTIVE:

To demonstrate your knowledge of Sudden Oak Death disease and its ecological impacts in California's forests.

SITUATION

A relatively new disease to California and Oregon Forests is known as Sudden Oak Death (SOD) disease. SOD is caused by *Phytophthora ramorum*. It was first observed in Marin County, CA, in 1994. The potential for significant damage to California's and Oregon's coastal forests is present, but much is unknown about the disease. Answer the following questions concerning SOD:

QUESTIONS:

- 20% 1. Briefly describe the organism that causes SOD, its history in California and geographic distribution in California.
- 15% 2. Briefly describe the environment and habitat where *P. ramorum* appears to thrive in California's forests.
- 20% 3. List five naturally occurring forest tree species in California and/or Oregon that are known to be attacked by *P. ramorum* and can cause death of the tree. In addition describe the symptoms and signs of *P. ramorum* on these species (e.g. plant parts infected or impacted, lethality).
- 10% 4. As a forester, what control or prevention techniques would you recommend to a landowner who wishes to protect or treat individual trees from *P. ramorum*? (List and briefly describe five.)
- 35% 5. Many lines of evidence suggest that SOD could lead to the eventual extinction of ecologically valuable species from redwood forests. Such a transition will likely result in a wide range of long-term impacts, and current mortality levels will undoubtedly cause many short-term impacts as well, several of which are already apparent. List and discuss five (5) **reasonably possible short and long-term ecological-structural-compositional impacts** that SOD could cause in redwood forests.

END OF QUESTION

QUESTION IV-FOREST ECONOMICS

OBJECTIVE

To determine your ability to understand and utilize forestry volume and log data for economic decisions.

SITUATION:

The management value of a forest is often tied to the log and product values obtained from the ownership. From the time the very first Europeans set foot on American soil, we have tried to develop systems to estimate the board feet of finished lumber we can obtain from a green log. The Forest Service's Forest Products Lab in Madison, Wisconsin reports that over 95 log rules with about 185 different names have been developed in our brief history as a nation. However, only three, Doyle, Scribner, and International, are widely recognized and in current use. Like any other field, it pays to know the rules, Log Rules in this case.

30% 1. Assume you have a log that is 16" in diameter at the small end, and 16' long. The predicted BD FT in this log is shown below for three commonly used log rules in the US.

Briefly describe, compare and contrast these three log rules. Explain why there would be differences the BD FT values using these three log rules. . (Assume that the sawyer, products sawed, sawing equipments and other conditions are the same for each log rule's estimate.) Which log rule estimate of the log's BD FT volume (below) would be closest to actual sawn lumber tally? Explain why.

Log Diameter (in)	Log Rule	Predicted Volume (BD FT)
16	International ¼	180
16	Scribner (Dec. C)	160
16	Doyle	144

2.

20% A. In many instances, the board foot volume of lumber that is produced from a log does not equal the board foot volume expressed by the log scale. The terms "overrun" (expressed as a percentage) is often used. Using the Scribner Log rule as an example, explain why this may occur and how you would compute

CONTINUED NEXT PAGE

20% B. Obviously, a good mill manager will try to maximize and increase the overrun. List and briefly discuss 10 ways that a mill manager can increase his overrun.

15% C. You are a small mill owner who has bought some logs from a stand owned by an RPF. The contract specifies that the total delivered price would be based on \$400/ MBF, Scribner Dec. C log scale (net). The day before you start hauling in the logs, you are approached by the RPF and asked if you and he couldn't just simplify things and determine what you should pay him based on just tallying the board footage after sawmilling and multiply that volume by the \$400/MBF? What would be your answer? Justify and explain whether this might be good or bad (economically speaking) for you.

15% 3. In recent years, there has been an increasing view that the forest industry should switch from BD FT log rules for timber sales to cubic foot (CF) volume estimations, even in saw-log dominated regions. List and discuss 5 valid reasons supporting a case for such a switch.

END OF QUESTION

QUESTION V- FOREST PROTECTION

OBJECTIVE

To determine your ability to assess the criteria needed for a comprehensive fuels management plan.

The Problem. Wildfires continue to be an increasing menace in California, annually destroying lives, property, and natural resources. As a forester for a private timberland owner in the Sierra Nevada mountains of California, you have been instructed by your employer to prepare a fuel management plan for the owner's 50,000 acres of typical mixed conifer forest that is zoned as TPZ.

During the past 75 years, timber harvesting has concentrated on the removal of Ponderosa pine and sugar pine, leaving many mature white fir and incense cedar still standing. As a result of suppressing all wildfires to as small an acreage as possible, the current result on much of the land is a stand of timber that has few maturing pine trees but, rather, has a high density of white fir of all age classes.

In recent years, the prolonged drought in California has weakened the white fir and made them highly susceptible to attacks by insects and diseases. Large white fir have died and are still dying by the hundreds, at an average of 5 to 10 mature trees (over 150 feet in height) per acre. Together with the dense under-story of young white fir (many of which have died) and various brush species, your employer's 50,000 acres of forest is now "a stand replacement wildfire waiting to happen."

Your Objective: Your objective is to prepare a cost-effective plan of fuel management to reduce flammability and to reduce resistance to control of wildland fires for the 50,000 acres while supporting your employer's land-management objectives. Those land-management objectives include providing at least the following items:

- a. A sustainable harvest of timber annually for the foreseeable future.
- b. Establishment of Ponderosa and sugar pine as major components in the forest.
- c. An aggressive salvage program.
- d. Reduced damages by wildfires to life, property, and natural resources, with special concern for the increasing number of residences being built on lands adjacent to your employer's timberlands.

CONTINUED ON NEXT PAGE

QUESTION

10% 1.

a) Prepare a list of ten (10) most important items which you should include in your action plan for fuel management.

50% 1.

b) Discuss five (5) of your listed items in detail .

20% 2. List ten (10) benefits or improvements in the ownership (other than those listed above under objectives) that you would expect to accrue to your employer's 50,000 acres from activating a plan of fuel management. Specify whether each of the 10 is A) a benefit that would arise only to the extent that there is a demonstrated reduction in catastrophic fires or B) an improvement in one or more resources from the implementation of the Fuel Management Plan.

20% 3. List five (5) disadvantages that might accrue to the 50,000 acres because of activating a plan of fuel management. Briefly explain why these disadvantages may exist.

END OF QUESTION

Professional Foresters Registration Examination

OCTOBER 11, 2013

PART II

**Applicant Must Answer Three Of The Remaining
Five Essay Questions In Part II**

Question VI-Forest Engineering
Question VII-Silviculture
Question VIII-Forest Administration
Question IX-Forest Policy
Question X-Forest Management

Professional Foresters Registration
1416 9th Street, Room 1506-16
Sacramento, CA 95814

QUESTION VI-FOREST ENGINEERING

OBJECTIVE:

To demonstrate your ability to design logging road and yarding systems taking into consideration engineering constraints, logging practices, stream and soil protection and silvicultural method.

SITUATION

You are working under the direction of an California Registered Professional Forester (RPF) for the purpose of formulating a Timber Harvest Plan (THP) covering the area outlined on the attached map (see page following this question for map.) Cable, tractor/skidder and shovel systems are the only options for the harvest area. After a brief field review, the RPF has concluded that construction of "Road A" will be necessary and construction of "Road B" is a possibility.

Ground slopes adjacent to the Class III watercourses are 55% for a distance of 100 feet from the channel. Ground slopes adjacent to the Class II watercourses are 75% for a distance of 100 feet from the channel. All other ground slopes within the proposed harvest area range from 30 - 55%. The Class I stream is a productive fish habitat.

The RPF wants you to spend no more than two field days making a preliminary determination on the feasibility of using "Road B" as shown. The stand is well stocked with second-growth conifers. The distribution of timber volume is uniform across the slope except that volumes are heavier on the lower half of the unit.

15% 1 A) From an engineering perspective, discuss the field reconnaissance procedure you would undertake to determine if the proposed Road B layout can be reasonably achieved. Include the equipment and samples of the types of calculations you would have to make.

20% B) Discuss the economic and environmental implications of building Road B.

5% C) Consider the area between Road A and the Class II watercourse. Assume cable logging would be used if only Road A was constructed. Briefly discuss how the construction of Road B would influence the choice of yarding method for this area.

20% D) If "ROAD B" is used, discuss specifically what special provisions might be required in the THP. State your assumptions.

CONTINUED NEXT PAGE

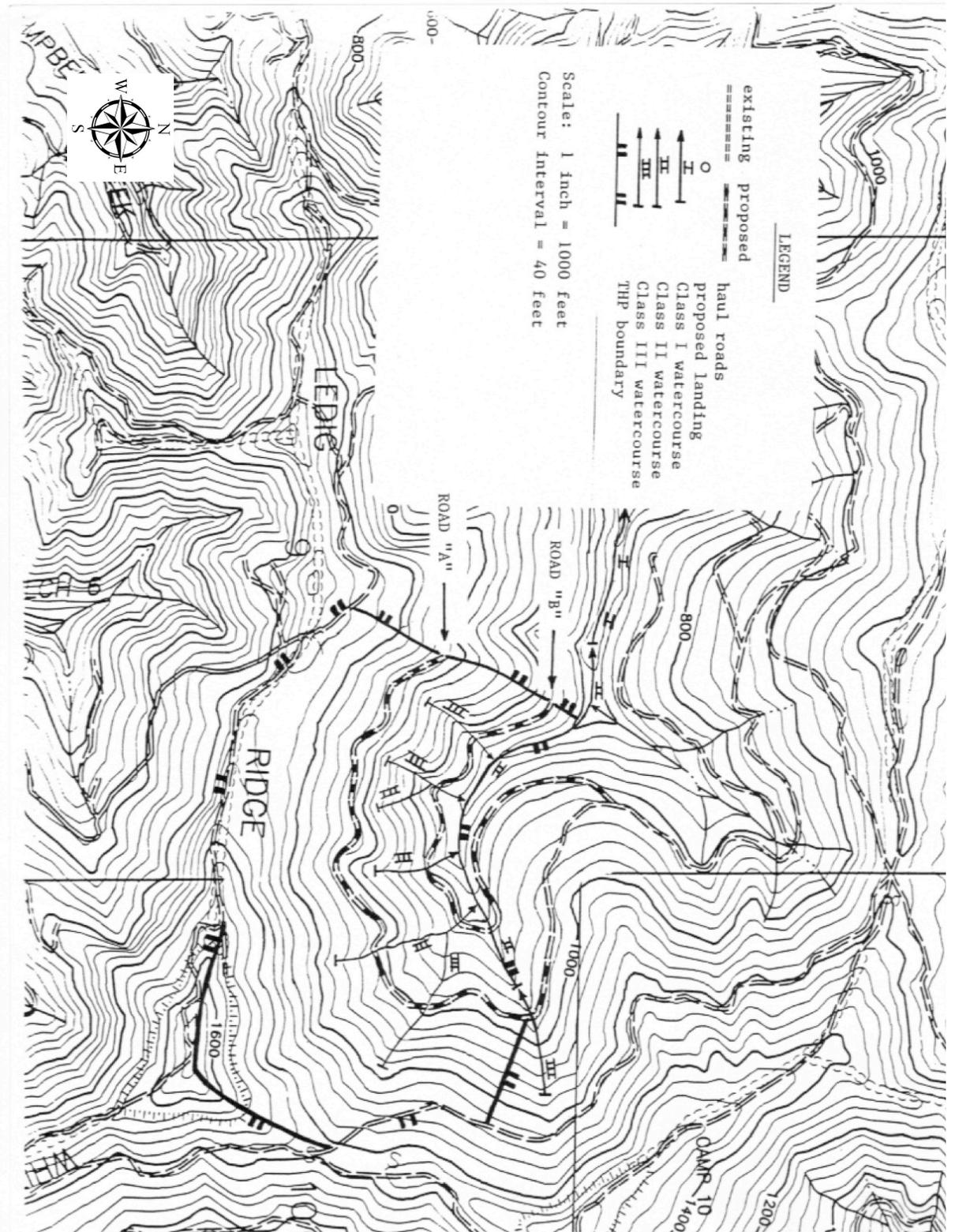
15% E) Briefly describe some of the factors you will consider in deciding whether to use temporary or permanent stream crossings.

10% F) Explain what factors would influence landing locations for Road A and Road B and draw on the attached map the most feasible landing locations along each road.

15% 2. You are evaluating timber types while working on road location and have decided to recommend a commercial thin for the entire THP area. You wish to have a residual stand basal area of 150 square feet. Contrast and compare the elements that you should consider relative to the selection of each yarding system under this intermediate treatment.

(THE MAP ON THE FOLLOWING PAGE COMPLETES THIS QUESTION. BE CERTAIN TO PLACE YOUR APPLICANT'S NUMBER IN THE SPECIFIED LOCATION, REMOVE IT FOR EASE OF USE DURING THE EXAMINATION AND RETURN WITH YOUR WRITTEN ANSWERS)

END OF QUESTION



QUESTION VII-SILVICULTURE

OBJECTIVE

To determine your understanding of the techniques necessary to successfully rehabilitate forest land.

SITUATION

Assume that you are an consulting forester and one of your clients owns a parcel of land which needs to be placed back into a commercially productive state. For **this** parcel consider the given circumstances and answer the questions posed for it.

Parcel Description:

- Comprised of 80 acres of true fir Sierra forest, Site III
- Over-mature true-fir overstory, 180 FT² BA with heavy dwarf mistletoe present,
- Understory of 90-year old suppressed true fir, 20 FT² BA, ~700 stems per acre, 2"-3" in caliper.
- No ground cover as crown closure is complete.
- Aspect is southerly, 60% average slope, leeward side of ridgeline, 6500 ft average elevation
- Soils are of volcanic origin, granular and droughty, similar to decomposed granitics

QUESTIONS:

1. Analyze the following cutting methods as to their suitability (or lack of) in rehabilitating this parcel to a productive forest.
 - 20% A. Overstory removal
 - 20% B. Seed Tree Cut
 - 20% C. Shelterwood, 3 step cutting
 - 20% D. Clearcutting without artificial regeneration
 - 20% E. Clearcutting with artificial regeneration (discuss planting stock selection and concerns, establishment and planting enhancements to be used-if any)

END OF QUESTION

QUESTION VIII- FOREST ADMINISTRATION

OBJECTIVE

To determine your understanding of the application of watershed management principles and their application to forest administration under the California Forest Practices Act.

QUESTION

30% 1. Placing Watercourse And Lake Protection Zones along watercourses, avoiding soil compaction and disturbance, and control of runoff are three key activities that are designed to protect beneficial uses of water. Explain how each activity is important for protecting the beneficial uses of water.

2. An increase in water temperature is one of the five cumulative watershed effects listed in the Forest Practice Rules as potentially resulting from timber harvesting and other activities.

12% A. List the other four cumulative watershed effects listed in the Forest Practice Rules.

40% B. For each watershed effect you listed, in Part 2a, discuss what types of pre-existing conditions that can exist that make the area particularly sensitive to timber harvesting. What control practices should the Registered Professional Forester consider to avoid or mitigate significant impacts?

18% 3. A downstream landowner is concerned that the timber harvest planned upslope will cause a decrease in summer low flows for his grazing pasture. You intend to prepare an informal letter of response. In outline form identify and briefly discuss the elements you would include in the letter which describe watershed processes relative to his site and respond to his concerns. You can assume a location with which you are familiar.

END OF QUESTION

QUESTION IX- FOREST POLICY

OBJECTIVE:

To demonstrate your knowledge of the policies, privileges and responsibilities granted under the California Professional Foresters Law, Forest Practice Rules and Forest Practice Act.

SITUATION

Assume that you are a California Registered Professional Forester (RPF):

QUESTION

6% 1. A. Briefly describe the three qualifications an applicant must meet to qualify for application and licensing as a Registered Professional Forester in California.

4% B. Under the Professional Foresters Law, name two actions that are declared unlawful for any person who is NOT a RPF?

5% C. As a RPF what is your legal responsibility relating to the contents and implementation of a Timber Harvesting Plan written by you?

10% 2A. A Licensed Timber Operator (LTO) logs a 50-acre piece of timberland he owns with a valid Timber Harvest Plan (THP). He completes the work satisfactorily but fails to restock adequately in the prescribed time. Briefly list and explain the corrective steps that CALFIRE may take, assuming that the LTO refuses to do any planting?

20% 2B. The same LTO is logging a piece of timberland, under an approved THP, for the DoDah Lumber Co. During an inspection he is found to be skidding across a Class I stream, in several locations, in violation of the THP specifications. Briefly discuss three actions that CALFIRE may take, from less serious to most serious, to stop the damage.

20% 3. A RPF signs a THP prepared by his apprentice 2010 graduate forester, without the RPF ever visiting the site. The RPF believes the area is not erosion-prone with no class I, II, or IV streams in the THP area and a selection cut is proposed. The RPF believes his apprentice has adequate experience to do the fieldwork and prepare the THP. Discuss the RPF's level of responsibility and whether he would perform an illegal act by signing the plan under these circumstances.

CONTINUED NEXT PAGE

15% 4. A RPF retains a wildlife biologist's service in preparing a THP, with his client's permission. The RPF pays the biologist for his work. The RPF then adds a 20% charge to the biologist's fee on to his bill for the client. Discuss whether the RPF might be guilty of any violations of the Professional Foresters Law.

20% 5. For this question, assume an RPF is also a Licensed Timber Operator. He buys timber from small non-industrial timberland owners. One of his marketing points in "closing the deals" to buy their timber is that he can do the THP as well as the logging, saving the landowner on the expense of preparing a THP, and hence give them a better price for their timber. In addition he tells the timberland owners that since he will also be the LTO, he will be supervising the logging and that improves quality and compliance with the Forest Practice Act and this arrangement lets him give the timberland owners a better price.

A. Discuss whether this is a criminal act and the validity of this approach as it relates to the best interest of the landowner.

B. Describe the steps that you would take to head-off any potential conflicts of interest or criminal/civil problems if you were faced with a similar situation.

END OF QUESTION

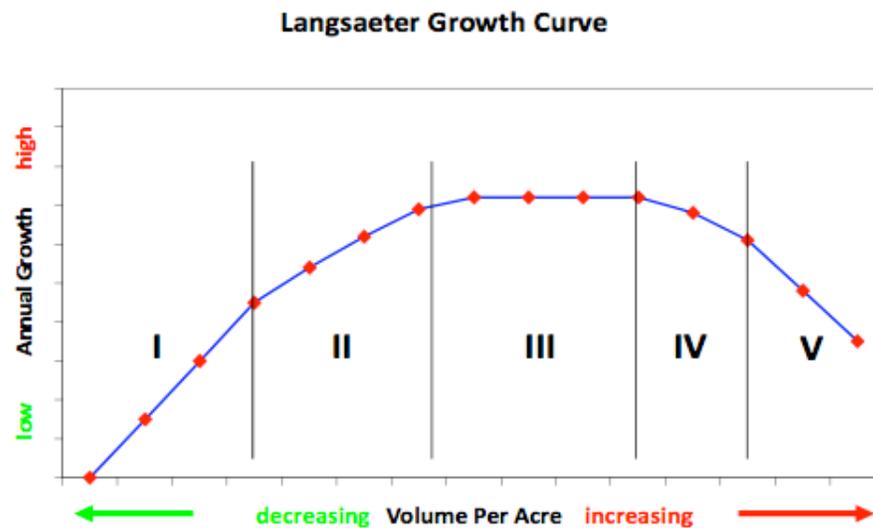
QUESTION X- FOREST MANAGEMENT

OBJECTIVE:

Foresters have long recognized the following forest growth principle,

The total production of cubic volume by a stand of a given age and composition on a given site is, for all practical purposes, constant and optimum for a wide range of density of stocking¹

This key principle has led to the following theoretical graph of growth, development and response to changes in stocking levels on a per acre basis. This graphical representation (shown Below) is part of the basis of silviculture and is known as the “Langsaeter Growth Curve.”²



The objective of this Question is to demonstrate your understanding of the dynamics of forest tree and stand growth and management implications.

CONTINUED NEXT PAGE

¹ Smith, David M. 1962. *The Practice of Silviculture*. Seventh Edition. John Wiley & Sons, Inc., New York

² Langsaeter, A. 1941. Om tynning I enaldret gran- og furuskog. Meddel. f.d. Norske Skogforsoksvesen 8-131-216. In Smith, David M. 1962. *The Practice of Silviculture*. Seventh Edition. John Wiley & Sons, Inc., New York

QUESTIONS:

- 50% 1. Using a forest stand of a western U.S. coniferous specie or mix of species that you are familiar with describe the growth and health condition stage that each of the Roman numerals represents. Describe the forest stand that would exist in each zone in terms of **volume, stocking numbers, stand health and species content.**
- 25% 2. Thinning is a long accepted method for managing forest stands. Using the stand that you assumed for discussion in Question 1, describe how, in theory, you would improve the overall health and vigor of the forest stand while improving opportunities for increased growth and yield of forest products. Please use Langsaeter's curve and principles to facilitate your discussion.
- 25% 3. For the management practice of thinning, discuss the physiological and economic tradeoffs of using a short re-entry versus a long re-entry management regime and the effects on the sustainability of thinning practices in the future.

END OF QUESTION

END OF EXAMINATION