Professional Foresters Registration Examination

APRIL 11, 2014

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

Applicant #:_____
Question # __I_____

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.**

Acronym or Abbreviation	Full Text
BLM	Bureau of Land Management, USDI
BOF	California State Board of Forestry and Fire Protection
CCR	California Code of Regulations
CALFIRE	California Dept. of Forestry and Fire Protection
CDF&W	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

3% 1. Define the term marginal revenue.

3% 2. The genus *Accipiter* is a group of birds of prey in the family *Accipitridae*. These birds are slender with short broad rounded wings and a long tail that helps them maneuver in flight. They are commonly found in forested,wooded or shrubby areas. Name a sensitive species of *Accipter* that is mentioned in the California FPRs.
_____.

4% 3. Today, forest managers generally recognize that large woody debris (LWD) is important in influencing the biology and habitat values of streams in temperate ecosystems. List **four** biological and/or habitat functions of LWD in forested streams of California.

2% 4. Geotextiles come in basically two forms of fiber arrangement. The two forms of fiber arrangement are:

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% 5. Give one reason why it is silviculturally more important to thin developing ponderosa pine stands sooner than developing true fir stands?

3% 6. If a Public land Survey section has all normal measurements, how many acres are in the NE1/4 NE1/4 SW1/4 SE1/4?

3% 7. The maintenance of destructive agents (such as insects) at tolerable levels, by the planned use of a variety of preventive, suppressive, or regulatory tactics and strategies that are ecologically and environmentally efficient and socially acceptable is termed:

4% 8. List four purposes a THP document serves during its life:

4% 9. List 2 situations which may occur during field variable plot cruising, when is it important to know the plot radius factor.

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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% 10. Define what is meant by the ecological term, “obligate species”.

4% 11. List two (2) types of fixed costs and two (2) types of variable costs generally incurred by Licensed Timber Operators in harvesting operations.

4% 12. According to the definition in 14CCR 895.1, define the two conditions required in the abandonment of a forest road:

4% 13. The Forest Practice Act is intended to regulate timberlands to assure what two results?

3% 14. Explain how stream "ordering", such as the Strahler System, works in a large watershed (it is a system that compares streams within and among watersheds):

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% 15. According to the California Code Of Regulations, which silvicultural method is used to develop an uneven aged stand from a stand that currently has an unbalanced irregular or even-aged structure. This method is used no more than twice to increase stocking and improve the balance of age classes so as to allow the residual stand to be managed by selection or group selection.

4% 16. Using economics as the sole criteria to determine when a project or transaction is economically feasible, what condition must be met?

3% 17. What is the basal area of a 14 inch DBH tree in square feet?

2% 18. The THP is a part of a process that has been certified as _____ to an EIR subsequent to a decision by the Secretary of the California Resources Agency.

3% 19. A geomorphic feature formed by coalescing scars originating from landsliding and erosional processes caused by active stream erosion and is identified as that area situated immediately adjacent to the stream channel below the first break in slope is called an:

3% 20. The area on which timber operations are being conducted as shown on the map accompanying the Timber Harvesting Plan, and within 100 feet, as measured on the surface of the ground, from the edge of the traveled surface of appurtenant roads owned or controlled by the timberland owner is called the:

3% 21. Under the Forest Practice Act regulations governing "nonindustrial timberland", list three characteristics which define a nonindustrial tree farmer".

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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% 22. What is a hypsometer? Give two examples of hypsometers commonly used by foresters.

3% 23. Name three retention practices recommended for stand treatments to maintain options for spotted owls on timberlands in the Sierra Nevada?

3% 24**.** Define the term hyporheic flow and describe **one** important effect it has on fish habitat.

3% 25. Define the term "Externality" as it is used in economics. Give two common examples of an externality that may occur in forestry operations.

4% 26. Briefly describe the relationship of the Z'Berg-Nejedly Forest Practice Act, the Public Resources Code, and Title 14 CCR, Chapters 4 and 4.5 to each other.

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% 27. Give the scientific names of 3 genera of bark beetles common to western US forests.

4% 28. High definition remote sensing mapping products called LIDAR images are becoming more common in forestry and natural resource use. Briefly describe the technology creating these aerial photo substitutes.

2% 29. In forest fires and other larger public emergencies within the US, a particular organizational system is used to manage the facilities, personnel, participating organizations, equipment and other resources and needs of the emergency. Name this organizational system. (Do not abbreviate)

2% 30. For tax purposes, logging equipment is usually depreciated and permanent roads are amortized. By what taxation process is the cost of timber recovered by the forest enterprise?

3% 31. According to the CALFIRE guidance concerning large old trees, what is the smallest stand size area that must be disclosed in a THP when large old trees are present and of potential significant adverse impacts pertaining to large old trees may occur?

2% 32**.** The Forest Practice Rules allow the Review Team how many days to examine a THP so as to assist the Director in determining if the plan is acceptable for filing as submitted?

END OF QUESTION

QUESTION II - FOREST MENSURATION

OBJECTIVE

To determine your ability to identify property location and size, develop and implement cruise specifications, and make rudimentary mensurational calculations.

QUESTION

25% 1. Your employer gives you the attached plat and asks you to write the legal description of the real property shown and to compute the total area in acres. For acreage computation purposes, assume all parcels have the standard size of the Public Land Survey except that portion of the ownership in the S1/2 SW1/4 of section 15 that is 45 acres.

20% 2. Assume you are a Registered Professional Forester in California. Your boss tells you there are some problems regarding the correct location of the property lines on the east boundary of Section 15 on the plat shown in Part 1. He asks you to take the necessary action to locate the property line so it can be recorded with the County as a Record of Survey. Without going into detail about actual survey procedure, what would you do to get the job done?

15% 3 a. Describe "3P sampling".

15% 3 b. Imagine a 40-acre tract of timber (80 to 95 MBF/AC) that is to be sold. Contrast the use of 3P sampling with both a 100% cruise and line-plot sampling to make an estimate of the appraised value of that tract.

4. Your employer asks you to conduct a 20% line plot cruise of all property shown on the plat shown in Part 1, except for the area located in section 15. Assume the area to be cruised is all timbered except 40 acres in Section 10 and the property located in Section 1, both of which are covered with brush and no trees.

5% a. What is the land area to be cruised? How many 1/4 acre plots will you cruise?

5% b. All of the areas to be cruised are on moderately steep, north facing ground. In what cardinal direction will your cruise lines run?

5% c. On completion of the cruise, you calculate that the total sample volume is 700 MBF gross. What is the gross volume on the cruised area?"

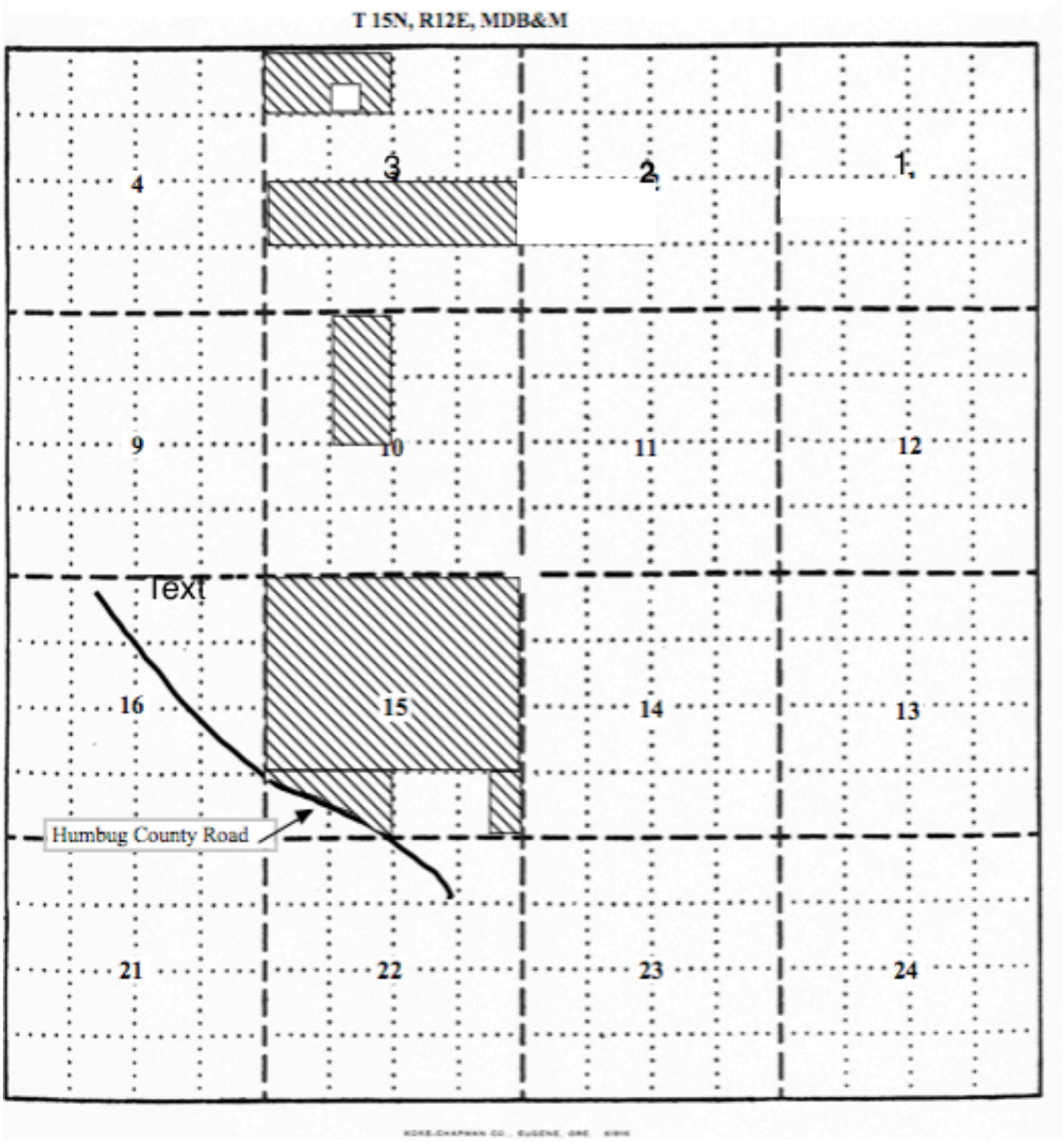
10% d. Your boss wants an estimate of the net volume recoverable when the area is logged. What factors have you considered while in the field and during office calculations to arrive at your estimate of net volume?

(SEE MAP ON FOLLOWING PAGE THAT COMPLETES THIS QUESTION)
****NOTE - BE CERTAIN TO INCLUDE PLAT MAP IN THE EXAM PACKET ****

END OF QUESTION

MAP FOR MENSURATION QUESTION: APPLICANT NO. _____

This map is to be used to construct the answer to Question 1. You may compute on this map, but all sections and acreages should be listed in table form. Please note that this is a partial township map with the section numbers in the center of each section. **Hand in this map with all answer sheets.**



QUESTION III-FOREST ECOLOGY

OBJECTIVE

To determine your understanding of the role of carbon cycling in both urban and rural forest settings

SITUATION

The issue of Global Climate Change (Think Global, Not Local Or Regional) and the possible relationship with man-made carbon dioxide production (Also known as anthropomorphic global warming, (AGW) has been a subject of intense discussion in the news media, in the California State Legislature, and the federal Congress. A frequently suggested partial solution for the United States has been the planting of trees in both our urban and wildland environment.

QUESTIONS

Please note that these questions do not involve your drawing any conclusions as to the scientific validity of AGW or the role of CO_2.

25% 1. Diagram in detail or describe the carbon cycle in a global ecosystem.

30% 2. In terms of carbon sequestration, discuss the way in which trees may modify CO_2 concentrations in the atmosphere. Include in your answer the impact of timber management and harvesting and the withdrawing of forests from management activities upon carbon sequestration.

10% 3. A. Describe the basic physics behind CO_2, or any so-called greenhouse gas's, effect on global temperature.

5% B. Besides CO_2, list five (5) other greenhouse gases present in the atmosphere.

30% 4. Biomass usage is often proposed as an alternative to fossil fuels for energy production and as a means of decreasing man-made global warming effects (AGW). Define what is meant by Biomass Fuels. Give three examples of biomass and how they would be used (Do not restrict yourself to only forest derived biomass materials.). List and briefly discuss three environmental and/or economic benefits derived from using biomass fuels in place of fossil fuels.

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END OF QUESTION

QUESTION IV-FOREST ECONOMICS

OBJECTIVE:

To determine your ability to explain and use the Present Net Worth (PNW) approach in timberland purchase decisions.

SITUATION

You are the land procurement forester for the Treegrow Timber Company. Mr. Fishcatch, who operates a segment of a nearby stream as a private fishing club, owns several thousand acres of well-forested land surrounding the stream segment to protect water quality and provide a scenic backdrop. Mr. Fishcatch realizes the importance of timber production and, therefore, offers to sell to Treegrow Company a portion of his property if the Company will agree contractually to operate this land under the uneven-aged system.

You are seriously considering Mr. Fishcatch's offer because you have determined, by examining similar lands, that all of the parcels offered by Mr. Fishcatch are suitable for timber production. These parcels look especially attractive since you know that the ideal residual growing stock level for your timberlands is 20,000 b.f./acre, the same as the Fishcatch parcels. You have also previously determined that the addition of only 185 more acres to your existing land base would make it possible to achieve a "regulated forest" for Treegrow Timber. You have developed a fact sheet (which can be found on the page following this question) that you use to answer the following:

QUESTION

15% 1a) Using the Present Net Worth (PNW) approach (formula on fact sheet), which hypothetically ideal cutting cycle length (4, 5, or 6 years) will maximize PNW? Show all of your work on the Computational Table provided below:

(Applicants: Please note that the solution to this question is possible without a scientific calculator. See the tools and aids given on the fact sheets.)

Cutting Cycle Length, Yrs.	Growth/Cut Volume, MBF	Forecasted Unit Values for Harvested Timber $/MBF	(a) = Net Revenue, $/AC	Discounted Net Revenue, $	Constant, (c/i)	PNW, $
4	4.8				33.33	
5	6.0				33.33	
6	7.2				33.33	

CONTINUED NEXT PAGE

15% 1b) Explain what the term Present Net Worth means and why it is a valid approach for determining the solution you derived for 1a, above.

10% 2. Briefly discuss which parcels you can feasibly buy based only on PNW.

5% 3. Can you acquire enough acres to economically achieve forest regulation?

5% 4. Explain what budget request you should submit for the purchase of the new lands.

20% 5. Answer **EITHER** a or b:

a. Explain to the Treegrow Timber Company owners why you did not subtract the value of the residual growing stock as a cost when calculating the PNW of Mr. Fishcatch's offer.

b. Mr. Treegrow Sr. does not understand why you used a 6% real interest rate when inflation alone is over 4%. Explain how the effect of inflation is normally handled in PNW calculations.

30% 6. When you present your proposal to Mr. Fishcatch, he questions your management plan. In particular, he feels compelled by the Forest Practice Act to achieve the goal of "maximized sustained production of high quality timber products" (Sec. 4513[b], PRC). Discuss **two (2)** possible interpretations of "maximum sustained production of high quality timber products" and how they pertain to the use of a PNW approach.

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FACT SHEETS ON NEXT 2 PAGES

END OF QUESTION

FACT SHEETS FOR DETERMINATION OF PNW OF FISHCATCH PARCELS

Mr. Fishcatch has offered to sell the following parcels to the Treegrow Company at these prices:

Parcel No.	Acres	Current Stocking Level/Acre	Selling Price/Acre Including Value of Current Growing Stock
A	53	20,000 b.f.	$2,400
B	65	20,000 b.f.	$2,500
C	71	20,000 b.f.	$2,600
D	75	20,000 b.f.	$2,700

Assumptions Regarding Mr. Fishcatch's parcels:

Annual growth increment (constant over stocking levels of 20 - 30 mbf; do not compound growth in any computations): 1200 bf/ac/yr

Administration and other annual cost: $ 2.00/ac/yr

Alternative Rate of Return (REAL interest rate or the rate of return that could be earned on an investment in the financial markets with similar risk): 6%

Ideal cutting cycle length: 4, 5 or 6 years

Simplified formula for Present Net Worth (PNW):

PNW = Discounted Net Revenue – Discounted Annual Costs

$$\text{PNW} = \left[\frac{a}{(1+i)^n - 1}\right] - \frac{c}{i}$$

Where: a = Net Revenue at end of each cutting cycle
c = Annual costs
i = Real Interest Rate (Discount Rate)

Denominator value for first term in PNW equation (Discounted Net Revenue).

n	(1+i)^n
4	1.2625
5	1.3382
6	1.4185

i = Discount rate (real interest rate)
n = Cutting cycle length

Forecast Unit Values for Harvesting in Varying Volumes/Acre (Assumes same quality/size of trees at all levels)	
Volume Cut (b.f./acre)	Stumpage ($/mbf)
< 1000	105
1000 - 2000	110
2000 - 3000	120
3000 - 5000	140
> 5000	145

END OF FACT SHEET

QUESTION V- FOREST PROTECTION

OBJECTIVE

To determine your knowledge of white pine blister rust and its impacts in California.

SITUATION

Sugar pine is an important component of the mixed conifer forests of the Sierra Nevada and some parts of the California Coast Range. White pine blister rust has had serious impacts on sugar pine through most of its range in California.

You are a forest manager with responsibility for 10,000 acres of industrial forestland. Sugar pine has represented about 20-30% of the standing volume on these managed lands. Your management objectives include sustainable harvest of timber and maintaining sugar pine as a significant component of the growing stock.

QUESTION

40% 1. Describe the origin and life cycle of white pine blister rust (WPBR) including signs and susceptibility, and the impact this disease may have (or is having) on the forestland you manage. Also describe other pest problems that may be of concern when managing a blister rust problem.

30% 2. Describe some of the special considerations you will make when you plan and implement a timber harvest involving sugar pine. Also describe your objectives when disease or insect problems have caused sugar pine mortality.

30% 3. Prescribe a program for ensuring that sugar pine will be a significant component of these stands for the foreseeable future; describe the elements of a sugar pine improvement program. What are some of the silvicultural practices you will use to implement this program?"

END OF QUESTION

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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

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QUESTION VI-FOREST ENGINEERING

OBJECTIVE

To determine your knowledge of the Shovel Logging system and methodology.

SITUATION

Shovel logging (often called hoe-chucking in Canada) may seem new for many foresters, but it has been in use since the 1970s. It has been proven to be highly productive and economical and has become increasing utilized on settings with more difficult terrain, previously considered "cable ground". In some companies, it has become the main method of ground-based logging.

QUESTIONS

45 % 1. Describe how this logging system is A) equipped, B) the techniques used, and C) operational considerations to be considered. You may use diagrams if useful for your answer.

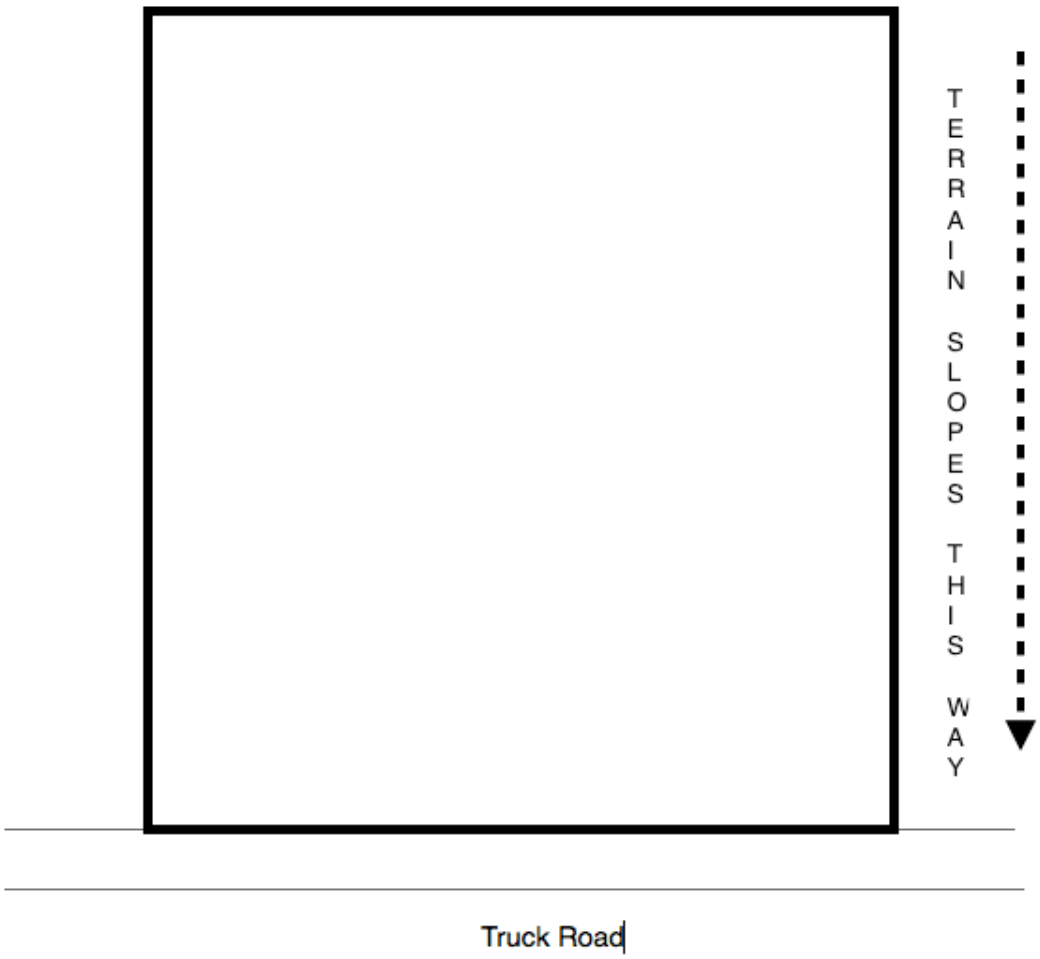
20 % 2. **Shown on the next two pages are two logging units** that will be logged by shovel. Unit A is on gentle terrain (e.g. flat to 25%). Unit B is a steeper unit (e.g. up to 40-50%), but within acceptable limits for shovel logging. Draw a typical, efficient shovel-logging pattern for each unit that accommodates the machinery and its limitations. Be sure to indicate where the shovel will start and end it's baling, the direction of movement across the logging unit, and the basic movement of swinging logs so as to end up with them all down at the road.

15% 3. In many states, shovel logging is permitted under wet and rainy conditions whereas other ground based systems are often curtailed by Forest Practice Rules. Explain how this is allowed in light of current erosion and stream water quality concerns.

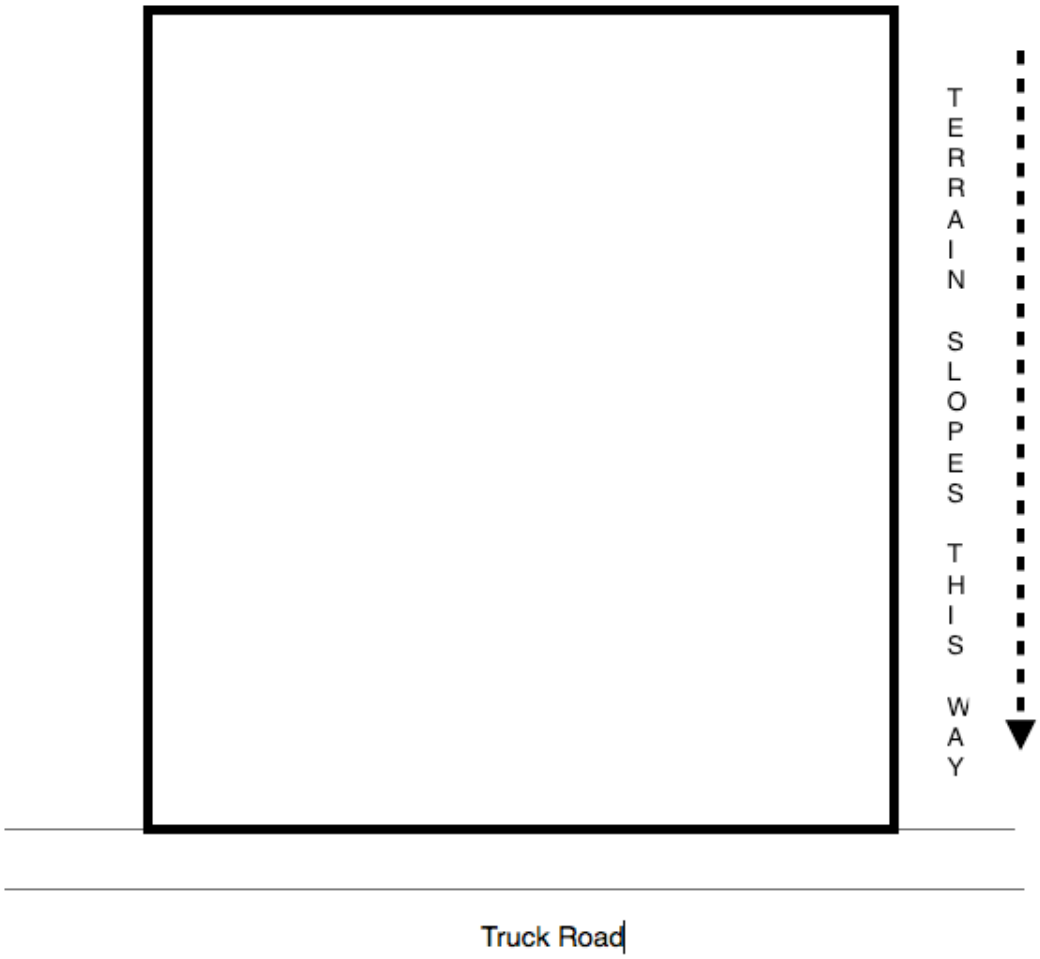
20% 4. How can a system employing an expensive piece of equipment with high maintenance and operating cost that requires the repeated handling of each piece be cost effective? List and briefly discuss four reasons this is an economical system.

END OF QUESTION

UNIT A: GENTLER TERRAIN **APPLICANT'S NUMBER= _____**



UNIT B: STEEPER TERRAIN **APPLICANT'S NUMBER= _____**



QUESTION VII-SILVICULTURE

OBJECTIVE

To determine your understanding of the methodology of developing a silvicultural prescription.

SITUATION

A stand management prescription is an outline of all of the silvicultural treatments that are to be applied to a stand (and its aggregations where stand structure is complex). A prescription must state the objectives that are to be achieved by treating or not treating the stand, and the sequence of changes that can be expected to follow the first and subsequent entries. Also, the prescription must describe the treatments required to produce the desired stand structure and composition.

Consider the described timber stand with the following conditions:

Generalized Site Description: A proposed thinning timber sale is located in the coast range of northern California along the Oregon-California border about 40 miles east of the Pacific Ocean. The objective for the proposal is to accelerate development of late-successional structure and in particular, to improve future nesting habitat for the Marbled Murrelet.

The proposed 80-acre treatment area burned in 1959 as a part of the 28,000-acre No-Where Creek Fire. Almost all of the merchantable green trees and snags were cut after the fire.

The site naturally regenerated to a stand primarily comprised of Douglas fir with scattered red alders in spring and seep areas and along drainages. This stand is currently averaging 45-55 years old and averages 177 trees per acre. Average tree diameter is 15" dbh. Site is an upper Site III (Douglas-fir). Minor amounts of other hardwoods, such as tanoak and madrone are present on more droughty soils. Some hemlock and cedar exists in the understory and as intermediates within the stand.

Substantial quantities of Coarse Woody Debris (CWD) are still present on site as a result of low-utilization standards during the fire salvage. You have estimated that CWD approaches or exceeds 15 percent ground cover. There are root rot infection pockets within the stand. Overall stand vigor is moderate to low.

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Slopes are steep (over 55% in over half the area and dissected with multiple drainages. Soils are shallow on the steeper areas to moderately deep on flatter areas. Soils are generally granular. Roads are present, but some additional roads may be needed. It appears that short-span, uphill cable logging of this unit is feasible and will most likely be the harvesting system required.

Wind firmness has been a post-harvesting issue in this area.

There is currently very limited vertical-stand diversity in the unit to be treated. The range of tree diameters and heights is narrow compared to other late-successional stands.

QUESTIONS

20% 1. Project the existing stand 50 years into the future without treatments. Describe this hypothetical future stand in terms of structure and composition.

50% 2. Describe the silvicultural prescription you propose to harvest this stand in order to meet resource objectives? Describe the desired stand composition and structure. Be clear on your objectives and methods to be used**.**

30% 3. Due to site and conditions, cable logging has been chosen for this unit. Discuss a cable harvesting system that would have operational characteristics best suited to carrying out your silvicultural prescription discussed in Question 2.

END OF QUESTION

QUESTION VIII- FOREST ADMINISTRATION

OBJECTIVE

To assess your understanding of the environmental documentation required of Registered Professional Foresters by the CA Forest Practice Rules when preparing THP's.

QUESTION

15% 1.The Forest Practice Rules and Regulations, Section 897(b)(1), states: "the goal of forest management on a specific ownership shall be the production or maintenance of forests which are healthy and naturally diverse, with a mixture of trees and understory plants, in which trees are grown primarily for the production of high quality timber products". The CCR [897(b)(1)] further lists several broad objectives that the CALFIRE Director can use as a basis to determine whether a THP conforms to the intent of the Forest Practice Act. State **THREE** (3) of those objectives.

20% 2. In general terms, briefly discuss what steps the Forest Practice Rules require of the RPF with regard to probable adverse environmental effects associated with a THP he/she is preparing?

20% 3. Briefly discuss the specific "environmental" or physical information required, in the THP, for **ONE** of the following THP categories

a. Harvesting practices
b. Watercourse and lakes
c. Wildlife

45% 4. Using the following scenario, develop **ONE SHORT RESPONSE** to **EACH** of the **SEVEN** categories of cumulative environmental impacts required as part of the assessment process for a THP you are preparing. Consider the information given in the scenario, state your assumptions, make and justify your response. The seven categories are: Watershed, Soil Productivity, Biological, Recreation, Visual & Aesthetics, Traffic, Other.(from Technical Rule Addendum #2)

SCENARIO FOR PART 4

The area covers 500 acres of TPZ forestland supporting mature second growth mid-site Douglas- fir and hardwood. The landowner must pay off hospital debts totaling $250,000 from revenue generated through timber harvest.

CONTINUED ON NEXT PAGE

A Class I stream flows through the center of the property and two small tributaries intersect the main stream. A neighbor has used one of these tributaries for 15 years for domestic water. The other carries noticeable sediment after light rains from eroded material from an old rotational slump activated by past railroad logging.

You have found an old railroad grade that would serve as an ideal truck road to the harvest unit you are proposing. The existing wooden trestle crossing one of the Class II's must be replaced with a rail car bridge to facilitate truck traffic into the watershed.

A popular swimming hole is on the main stream within the property.

Neighbors have sighted a bald eagle foraging along this watercourse. The landowner is unaware of any nest sites in the area.

The local elementary school yard is adjacent to the only haul route for timber products from this property to nearby mills.

Assume: Stand age of 60 years; MAI 600 bd ft/ac/yr; stumpage value $600/mbf

END OF QUESTION

QUESTION IX- FOREST POLICY

OBJECTIVE

To determine your understanding of the Yield Tax Law and Timberland Production Zoning (TPZ) and the effects on timberland management.

SITUATION

The Forest Taxation Reform Act of 1976 dealt with the taxation of both forested land and harvested timber. One of the objectives of this Act, commonly referred to as the "yield tax law", was to establish an equitable method of taxing forest properties while encouraging owners to retain and manage these lands in timber production.

QUESTION

1. One objection that has been raised is that this law appears to be a "tax shelter" for owners of forestlands.

   15% a. Explain the basic method of taxing timber and timberland under the Forest Taxation Reform Act.

   15% b. What provisions of this Act appear to offer a tax shelter? What are the political justifications for offering such tax shelters?"

2. Assume you have agreed to inform your client about his/her responsibility for the payment of yield taxes.

   5%. a. . Briefly explain the process used for the payment of yield taxes. Will there be a difference in who pays dependent on the method of sale? Be sure to specify the State Agency administering the program.

   10% b. Briefly explain how the “harvest values” for timber species are determined.

3. A practicing professional forester usually has a "personal philosophy", or opinion, as to the ownership and management of forested lands. At the same time he/she must give consideration to alternative uses of these lands. Sometimes these factors conflict as to the best land use and management recommendations for a given property.

   15% a. As a forester, what conflicts of interest could you expect to experience if a client asked for advice on whether to petition for Timberland Production Zoning for his property (assume that entry into TPZ is possible at this time)?

CONTINUED NEXT PAGE

20% b. What advantages should you inform your client about for placing his/her property in TPZ?

20% c. What disadvantages should you inform your client about placing his/her property in TPZ?

END OF QUESTION

QUESTION X- FOREST MANAGEMENT

OBJECTIVE
To assess your knowledge regarding computerized growth simulators for management projections.

SITUATION
Computerized growth and yield, stand simulators have become increasingly sophisticated, user friendly and affordable to help determine if management options are sustainable.

QUESTIONS
25% 1. Briefly describe what a growth/stand simulator is, three specific mensurational or forest management purposes it can be used for and why the profession has seen the great growth in the number and use of these simulators

Most of the commonly used growth/stand simulators are of three types or levels:

A. Individual-tree, distance-independent
B. Individual-tree, distance-dependent, and
C. Whole Stand

15% 2. Define and compare the three types of simulators listed above.

3. Shown below are the Acronyms of several Forest Growth Simulators COMMONLY used in the western U.S. or Western Canada:

I. CACTOS
II. CRYPTOS
III. FVS
IV. ORGANON
V. FPS
VI. DFSIM
VII. PPSIM
VIII. FORECAST

Pick any ONE Simulator and answer the following questions:
10% A. Define the complete title of the Simulator you have chosen to discuss. (E.g.- What does the acronym stand for?) And who or what organization developed the simulator.

50% B. Discuss how the simulator is utilized including appropriate species, the geographic range of the original data, what data ranges are most appropriate and general information about what data is necessary to execute the simulator. (If you are using FVS be certain to state which variant you are discussing).

END OF QUESTION

END OF EXAMINATION