8. (1.75 points)

An insurer's retention model predicts the following:

% Change in Premium	Retention Ratio	
	First Renewal	Second Renewal
0%	85%	0%
5%	75%	0%

The following information is known:

0.00%	Discount rate
$0	Fixed expenses
$0	Implementation costs
$1,000	Premium per policy
$800	Loss & LAE per policy

- Senior management will consider only the following at renewal:
    - i. No rate change
    - ii. +5% rate change

a. (1.25 points)

Select the rate change that will maximize the insurer's profit.

b. (0.5 point)

Briefly evaluate the selected rate change with respect to the *Statement of Principles Regarding Property Casualty Insurance Ratemaking*, citing one relevant principle.

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QUESTION 8	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE(S): A5, A6**
SAMPLE ANSWERS	
Part a: 1.25 points	

Sample 1

Scenario 1: No rate change

Year	Premium	Losses & Expenses	Profit	Retention: No Rate Change	Adjusted Profit
current	1000	800	200	1	200
1st renewal	1000	800	200	0.85	170
Total	2000				370

Scenario 2: 5% rate increase

Year	Premium	Losses & Expenses	Profit	Retention: Rate Change	Adjusted Profit
current	1000	800	200	1	200
1st renewal	1050	800	250	0.75	187.5
Total	2050				387.5

Sample 2

Scenario 1: No rate change

Year	Premium	Losses & Expenses	Profit	Retention: No Rate Change	Adjusted Profit
1st renewal	1000	800	200	0.85	170

Scenario 2: 5% rate increase

Year	Premium	Losses & Expenses	Profit	Retention: Rate Change	Adjusted Profit
1st renewal	1050	800	250	0.75	187.5

Sample 3

Scenario 1: No rate change

Year	Premium	Losses & Expenses	Profit	Retention: No Rate Change	Adjusted Profit
current	1000	800	200	1	200
1st renewal	1000	800	200	0.85	170
Total	2000				370

Profit as % of Premium (not required, but also acceptable to use) 18.5%

Scenario 2: 5% rate increase

Year	Premium	Losses & Expenses	Profit	Retention: Rate Change	Adjusted Profit
current	1000	800	200	1	200
1st renewal	1050	800	250	0.75	187.5
Total	2050				387.5
Profit as % of Premium (not required, but also acceptable to use)					18.9%

Sample 4

Scenario 1: No rate change

Year	Premium	Losses & Expenses	Profit	Retention: No Rate Change	Adjusted Profit
1st renewal	1000	800	200	0.85	170
Profit as % of Premium (not required, but also acceptable to use)					17.0%

Scenario 2: 5% rate increase

Year	Premium	Losses & Expenses	Profit	Retention: Rate Change	Adjusted Profit
1st renewal	1050	800	250	0.75	187.5
Profit as % of Premium (not required, but also acceptable to use)					17.9%

- Recommend 5% rate change

Part b: 0.5 point

Sample 1

Principle 1: A rate is an estimate of the expected value of future costs.

- The strategy from part a violates the principle if it focuses solely on maximizing profit for the insurer without considering the expected value of future costs.
- While there is a profit, variable costs and risk loads/UW profit are needed to cover inherent risks and could still be deemed a fair rate

Sample 2

Principle 2: A rate provides for all costs associated with the transfer of risk

- The strategy violates the principle if the focus is solely on profit and does not reflect estimated loss costs
- A profit is made even without a rate increase.
- While there is a profit, variable costs and risk loads/UW profit are needed to cover inherent risks and could still be deemed a fair rate

Sample 3

Principle 3: A rate provides for the costs associated with an individual risk transfer.

- The strategy violates the principle if the focus is solely on profit and does not reflect estimated loss costs
- While there is a profit, variable costs and risk loads/UW profit are needed to cover inherent risks and could still be deemed a fair rate

Sample 4

Principle 4: A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.

- given lack of other assumptions and which lines of business and market condition, it's hard to evaluate whether the rate is excessive or inadequate.
- all insured is receiving the same price, therefore, it's not unfairly discriminatory

EXAMINER'S REPORT

Candidates were expected to understand retention ratio, lifetime value, optimized pricing and the CAS Ratemaking Principles.

Part a

Candidates were expected to calculate and compare the profit under each scenario while considering the rate change and retention ratio.

Stating an assumption regarding total number of policies in the book was acceptable but not required.

Candidates received credit for using profit or for using profit as a percentage of premium as the basis for recommendation.

Common mistakes included:

- Applying the retention rate only to premium and not loss.
- Not applying the rate increase to the 1st year renewal premium.

Part b

Candidates were expected to reference one of the 4 CAS Ratemaking Principles and make appropriate comments on how Part a is evaluated based on the quoted principle.

Common mistakes included:

- Referencing the 4th principle but failing to evaluate all components of the principle.
- Referring to affordability issues, which is not part of the CAS Ratemaking Principles.