12. (2.5 points)

An insurer is proposing the following changes in order to address inadequate rates:

Building Type	Rating Factor		Exposures
	Current	Proposed	
Commercial	1.00	1.00	300
Large Industrial	1.15	1.15	500
Small Industrial	1.20	1.40	100

Years Since Claim	Discount		Exposures
	Current	Proposed	
0	0%	0%	50
1	10%	5%	150
2+	15%	10%	700

- Additive expense factor (after applying rating factors and discounts) = $20.
- Base premium = $100.

a. (1.75 points)

Estimate the change to average premiums.

b. (0.25 point)

Briefly explain a shortcoming with the calculation performed in part a. above.

c. (0.5 point)

Briefly describe two non-pricing solutions that can address inadequate rates.

CONTINUED ON NEXT PAGE

QUESTION 12

TOTAL POINT VALUE: 2.5	**LEARNING OBJECTIVE(S): A9**

SAMPLE ANSWERS

Part a: 1.75 points

Sample 1

Current Average Building Type rating factor = [(1)(300)+(1.15)(500)+(1.2)(100)]/900=1.1056
Proposed Average Building Type rating factor = [(1)300+(1.15)(500)+(1.4)100)]/900=1.1278
Current Average discount factor = 1 – [(0)(50)+(.1)(150)+(.15)(700)]/900=.8667
Proposed Average discount factor = 1 – [(0)(50)+(.05)(150)+(.1)(700)]/900=.9139
Current Average Premium = 100*1.1056*.8667 + 20 =$115.82
Proposed Average Premium = 100*1.1278*.9134 + 20 =$123.07
Change to Average Premium = 123.07/115.82 – 1 = .063 6.3% Increase

Sample 2

*Average Current Factor = 995/900 * 780*900 = 0.958
Average Proposed Factor = 1015/900 * 822.5/900 = 1.031
1-[100*0.958+20]/[100*1.031+20] = 0.063 6.3% increase

Sample 3

Building Overall Change = [300(1)+500(1.15)+100(1.4)]/[300(1)+500(1.15)+100(1.2)] = 1.02
Claim History Factor Overall Change = [50(1)+150(.95)+700(.9)]/[50(1)+150(.9)+700(.85)] = 1.0545
New = 100*1.0756 + 20 = $127.56
Old = 100 + 20 = $120
Change $127.56/$120 = 1.063 Increase 6.3%

Sample 4

100(300+1.15(500)+1.2(300))=99500
Avg. discount = 50(0)+150(.1)+700(.15) = .133
Current premium = 99500*(1-.133) = 86266.5
100(300+1.15(500)+1.4(300))=101500
Avg. discount = 50(0)+150(.05)+700(.1) = .086
Current premium = 99500*(1-.086) = 92771
[92771+20*900]/[86266.5+20*900] -1 = .062 6.2% Increase

Part b: 0.25 point

- The calculation above does not take into account the exposure correlation between the two variables.
- A shortcoming is estimating the average relativity change for both variables – it wouldn't be as accurate as rerating each exposure and comparing new actual prem. vs. old prem.
- Does not take into effect that client base may change as result of rate change. Distribution likely not identical for future.
- Does not consider variable interaction
- Assumes independence of building type and discount.
- It doesn't account for distributional bias by variable.

Part c: 0.5 point

- Lower Expenses (ex: lay off employees)

- Market to risks with better loss experience
- Underwriting guidelines can be strengthened to limit exposure to worse performing segments
- Insurer could require insureds to fulfill certain loss mitigating practices such as safety seminars/training.
- Restrict coverage – i.e. require higher deductibles without changing rates.
- Adopt a more aggressive investment strategy to increase investment income.

EXAMINER'S REPORT

Candidates were expected to calculate the change in average premium given multiple inputs, and describe the shortcoming to this approach. Candidates were also expected to identify how to impact rates through two non-pricing solutions.

This question was relatively straightforward and candidates performed well.

Part a

Candidates were expected to calculate the current premium and proposed premium given two variables, a base rate and a fixed expense fee in order to calculate the change in average premium.

Common mistakes included:

- Missing the $20 fixed expense fee, or subtracting it instead of adding it.
- Making the expense fee adjustment twice by calculating premiums for each rating plan
- Calculating discount separately without the consideration of the other rating plan.
- Using 0 weighting instead of 50 for the 1.0 claim discount factor.
- Using 1,000 as the denominator in the weighted average

Part b

Candidates were expected to know how using exposure weighted distribution of each variable to get average factor may lead to less than accurate result.

Many responses related to the two variables not being independent, that extension of exposures would be more accurate and that future distribution may not be identical to current.

Part c

Candidates were expected to name two non-pricing actions that would improve profitability and thus address inadequate rates.

Common mistakes included:

- Naming a pricing action
- Naming only one action
- Proposing that the insurer exit the entire market.
- Proposing that the insurer skim the cream (without briefly explaining what is meant by this)
- Naming a vague or incomplete solution such as "Adjust Marketing" or "Change U/W"