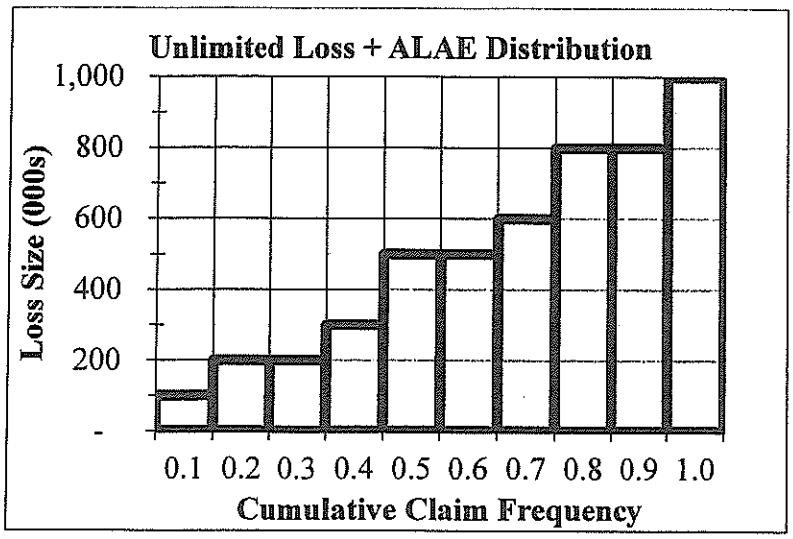
15. (1.75 points)

Given the following information about a worker's compensation book of business:



Standard premium	$840,000
Loss based assessment factor	2.0%
Ratio of ULAE to Loss	5.0%
General overhead expense	2.0%
Risk load for credit risk	4.0%
Acquisition expense	5.0%
Taxes	3.0%
Profit	-8.8%

a. (1.25 points)

Calculate the deductible for an excess workers compensation policy that minimizes the insured's loss retention with a maximum premium of $100,000.

b. (0.5 point)

Contrast the profit load in a large dollar deductible (LDD) policy to the profit load in an excess workers compensation policy.

CONTINUED ON NEXT PAGE

QUESTION: 15	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE(S): B7**
SAMPLE ANSWERS	

Part a: 1.25 points

Sample 1

Avg Unlimited Loss + ALAE = (100+200+200+300+500+500+600+800+800+1000) x (0.1) = 500 (000)

Minimize Insured's Loss Retention by finding minimum deductible.
I assume that the question is asking for the aggregate deductible. Assume maximum premium of 100K is referring to the maximum premium for an excess WC policy.
Excess WC Premium = [XL x (1 + ULAE) + SP(GO)] / (1 – A – T – P)

100,000 = [XL(1.05) x 840,000 (0.02)] / [1 – 0.05 – 0.03 – (-0.088)]

XL = 80,000, or Excess Ratio = 80,000 / 500,000 = 0.16.

Find the aggregate limit such that the excess ratio = 0.16:
Try 600K:

> Using the distribution provided, Excess Ratio at 600K = [800k x 2 + 1000k – 600k x (3)] / [500k x 10] = 0.16.

Therefore, the deductible is 600k.

Sample 2

Excess Premium = [EEL x (1 + ULAE) + SP x (GO)] / (1 – A – T – P)

100,000 = [EEL x (1.05) + (840,000) x (0.02)] / [1 – 0.05 – 0.03 – (-0.088)]

EEL = 80,000

Using Trial and Error, let deductible = 600,000:

EEL = (800,000 – 600,000) x (0.2) + (1,000,000 – 600,000) x (0.1) = 80,000

Therefore, the minimum retention is 600,000.

Sample 3

LDD Premium = [EX x (XS + LBA + ULAE) + SP (CR + GO)] / (1 – A – T – P)

EX = expected total loss = (100+200+200+300+500+500+600+800+800+1000) x (0.1) = 500 (000).

LDD Premium = [500 x (XS + 0.02 + 0.05) + 840 x (0.04 + 0.02)] / [1 – 0.05 – 0.03 – (-0.088)]

= 100

XS = 0.0308

Expected Excess Loss = 0.0308 (500,000) = 15,400

If deductible = 800k then EEL = 0.1 x 200,000 = 20,000
If deductible = 900k then EEL = 0.1 x 100,000 = 10,000
If deductible = 846k then EEL = 0.1 x 154,000 = 15,400.
Therefore, the deductible is 846,000.

Part b: 0.5 point

- The profit load for LDD is typically higher than XS because for XS you're competing basically just on price, but for LDD you're competing on price and service.
- Profit load in LDD tends to be higher because they are not just competing on price. They are also competing on service.
- Profit load for excess policy is generally smaller than an LDD policy. LDD policy competition is driven by both quality of service and price, since LDD provides full service. Because excess provides service only for claims above deductible, service quality is less important and price is the main concern. This drives down profits for excess policies due to competitive forces.

EXAMINER'S REPORT

Candidates were expected to apply the formula for the premium of an excess policy to solve for the expected excess loss amount that corresponds to $100,000 in premium. Then, candidates were expected to use the Lee diagram provided to determine the deductible that would result in an expected excess loss amount equal to the amount derived in the first portion of part a.

Part a

Candidates were expected to show the formula and calculations used in deriving the expected excess loss amount, and then explain the connection to the Lee diagram (either quantitatively by showing their calculations, or through words) and calculate the correct deductible that results in the expected excess loss amount derived.

The question asked for the "deductible" for an excess workers compensation policy, which caused some candidates to believe that the question was asking for the premium for an LDD policy (an excess policy has a "retention", not a deductible). Because of this, candidates did not lose credit for this approach.

Common mistakes include:

- Not making connection between using the Lee diagram to calculate the deductible amount.
- Providing an incorrect formula for the premium of an excess or LDD policy.
- Showing insufficient work for calculations.
- Incorrectly using the Lee diagram to calculate the deductible amount.

Part b

Candidates were expected to state that the profit provision for an excess policy is generally lower than that of a LDD policy. Additionally, candidates were expected to explain that the primary reason for this is that for LDD policies, insurers are able to compete on both price and service, while for excess policies insurers compete primarily on price (which drives down the profit load).

Many candidates also provided additional information such as noting that the longer average payout period for excess policies resulting in greater opportunity for investment income. While this is true, it was not required to receive credit.

Common mistakes include:

- Stating that LDD policies typically have a lower profit provision.
- Not providing a correct explanation for why excess policies have a lower profit provision.