8. (1.5 points)

Given the following for a policy:

- Basic Limit = 100,000
- Expected Basic Limit Indemnity = 65,000
- Allocated Loss Adjustment Expense (ALAE) = 20% of Indemnity
- Unallocated Loss Adjustment Expense = 1.5% of Indemnity and ALAE
- All other expenses are variable and are 15% of the premium
- Risk load = 0%
- Profit load = 2.5%
- The following table shows Indemnity-only limited expected severity:

Limit L	E[X; L]
100,000	58,750
200,000	100,000
500,000	156,250
1,000,000	218,750

Calculate the premium for this policy with a 500,000 limit over a 500,000 deductible.

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QUESTION 8	
TOTAL POINT VALUE: 1.5	**LEARNING OBJECTIVE(S): B1**
SAMPLE ANSWERS	

Sample 1

ILF(500K) = 156,250/58,750 = 2.6596
ILF(1M) = 218,750/58,750 = 3.7234

Expected losses = 65,000*(3.7234 - 2.6596) = 69,149

Premium = 69,146*1.2*1.015 / (1 - 0.15 - 0.025) = 102,089

Sample 2

Assume the profit load is proportional to loss and LAE

Basic prem = (65,000*1.2*1.015*1.025)/(1 - 0.15) = 95,470

ILF (1M) = 218,750/58,750 = 3.723
ILF(500K) = 156,250 / 58,750 = 2.660

95,470*(3.723 - 2.660) = 101,564

Sample 3

E[x; 500k+500k] - E[x; 500k] = 218,750 - 156,250 = 62,500
E[S] = E[N]*E[X] = 65,000 = E[N]*58,750
E[N] = 1.1064

Expected layer loss = 1.1064*62,500 = 69,149

Premium = [69,149(1.20)]*1.015 / (1 - 15% - 2.5%) = 102,089

Sample 4

Expected indemnity 500k x 500k =
65k * (218,750/58,750 – 156,250/58,750) = 69,149

Assume ALAE and ULAE are a percent of ground-up losses

ALAE = 20% * 65k * 218750/58750 = 48,404
ULAE = 1.5% * [65k * 218750/58750 * (1+20%)] = 4,356

Premium = (69,149 + 48,404 + 4,356) / (1 – 15% - 2.5%) = 147,769

EXAMINER'S REPORT

Candidates were expected to calculate ILFs using the correct expected severity from the given table and use the other information to calculate the premium of the policy.

As the question did not specify the profit as a percentage of premium, candidates assuming the profit as a percentage of loss also received credit. Candidates also received credit by assuming the ALAE and ULAE were a percent of ground-up losses.

Common mistakes included:

- Mistaking layer severity as layer loss cost
- Calculating ULAE as percentage of loss instead of loss and ALAE.