13. (1.75 points)

An insurer writes private passenger automobile liability coverage in two states.
Given the following bodily injury (BI) and property damage (PD) information as of December 31, 2018:

State A:

Accident Year	Earned Exposure	Ultimate Claim Count	
		BI	PD
2016	36,000	50	950
2017	37,800	60	1,140
2018	41,580	72	1,368

Paid Age-to-Ultimate Factors			
Coverage	12-to-Ult	24-to-Ult	36-to-Ult
BI	5.00	1.50	1.20
PD	1.20	1.01	1.00

Coverage	Ultimate Severity
BI	15,000
PD	5,000

State B:

Accident Year	Earned Exposure	Ultimate Claim Count	
		BI	PD
2016	100,000	1,250	5,000
2017	105,000	1,300	5,200
2018	110,250	1,375	5,500

Paid Age-to-Ultimate Factors			
Coverage	12-to-Ult	24-to-Ult	36-to-Ult
BI	9.00	2.10	1.30
PD	1.30	1.01	1.00

Coverage	Ultimate Severity
BI	10,000
PD	2,500

- There is no exposure, claim count, or severity trend.

a. (0.5 point)

Discuss an argument for performing a bodily injury and property damage combined unpaid claims analysis for state A.

b. (0.5 point)

Discuss an argument against performing an all-state combined unpaid claims analysis for bodily injury.

c. (0.75 point)

Fully evaluate management's assertion that state A should be charged a higher premium than state B for bodily injury coverage due to its higher ultimate severity.

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QUESTION 13

TOTAL POINT VALUE: 1.75 | **LEARNING OBJECTIVE(S): B1, B3, B8**

SAMPLE ANSWERS

Part a: 0.5 point

Sample 1

BI has low claim counts compared to PD, so by combining them, it gives more credibility to the result than if BI alone.

Sample 2

Claim count for BI is small relative to PD. So combining the two coverages may provide a more stable result.

Part b: 0.5 point

Sample 1

Ultimate severity for state A is higher than B, and State A seems to be growing faster than B

Sample 2

The two books have different development patterns as seen in the paid age ultimate factors. They are also growing at different rates.

Part c: 0.75 point

Sample 1

Ultimate severity alone is not enough to assess rating. Based on loss cost that would be an incorrect assumption to make. See below for details:

State A AY	(1) Expos	(2) Ult BI Count	(3) Ult BI Sev	(2)*(3)/(1) Loss Cost
2018	41,580	72	15,000	25.97

State B AY	(1) Expos	(2) Ult BI Cnt	(3) Ult BI Sev	(2)*(3)/(1) Loss Cost
2018	110,250	1375	10,000	124.72

Sample 2

AY	A Pure Premium	B Pure Premium
16	(50*15,000)/36000=20.83	(1,250*10,000)/100,000=125.00
17	(60*15,000)/37,800=23.81	(1,300*10,000)/105,000=123.81
18	(72*15,000)/41,580=25.97	(1,373*10,000)/110,250=124.72

While severity is higher for A, Pure Prem is higher for B (driven by higher frequency). With this, State B should actually be charged higher than A

EXAMINER'S REPORT

Candidates were expected to understand the concepts of credibility, homogeneity, and that frequency and severity relative to an exposure base make up pure premium.

EXAM 5 SPRING 2019 – SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to review two sets of data and determine that one set was not credible on its own due to low claim counts and needed to be combined with the second set to produce more accurate results.

Common mistakes included:

- Stating data or exposure not credible instead of claim count data.
- Misreading question and comparing State A and State B data instead of BI and PD for state A.
- Stating that BI and PD should not be combined and giving a reason.

Part b

Candidates were expected to review two sets of data and determine that they should not be combined since they are not homogeneous due to different paid development factors or securities. The two sets of data also have different growth rates.

Common mistakes included:

- Making opposite argument that state A and state B should be combined
- Misreading the question and comparing BI and PD instead of BI for state A and state B

Part c

Candidates were expected to realize that pricing decisions should not be made based on severity alone. Frequency also needs to be taken into consideration. Candidates should know that they should calculate pure premium = frequency * severity or loss per exposure = Ult Claim Counts * Severity / Exposure. The results of these calculations show that management came to an incorrect conclusion.

Common mistakes included:

- Applying LDFs to ultimate claim counts
- Combining PD with BI in the calculations
- Calculating ultimate losses without dividing by exposure
- Not directly addressing the comparison between state A and state B such as discussing the credibility of State A, complements of credibility, industry data, waiting until more data comes in, attributing state A's higher severity to volatility and bad luck, or entering a new market.