20. (2.75 points)

Given the following:

Closed Claim Counts					
Year	12	24	36	48	Count
2015	308	555	642	647	647
2016	356	563	678		683
2017	358	575			684
2018	402				795

Cumulative Paid Claims ($000s)				
Accident Year	12	24	36	48
2015	375	745	906	916
2016	397	750	922	
2017	422	762		
2018	385			

- A court decision on December 31, 2018 will increase future claim payments by 20%.
- All claims are closed by age 48.
- There is no severity trend.

a. (2.25 points)

Use the frequency-severity disposal rate technique to estimate unpaid claims for accident year 2018.

b. (0.5 point)

Describe an advantage of using the frequency severity technique over a paid development technique in part a. above.

CONTINUED ON NEXT PAGE

QUESTION 20

TOTAL POINT VALUE: 2.75 | **LEARNING OBJECTIVE(S): B3, B4**

NOTE FROM THE SYLLABUS AND EXAMINATION COMMITTEE

The Closed Claim Count triangle was mislabeled in the question, where the first column was labeled "Year" and not "Accident Year" and the final column was labeled "Count" and not "Ultimate Count". This was unintended and was considered during grading.

SAMPLE ANSWERS

Part a: 2.25 points

Sample Response:

Disposal Rate

Accident Year	12	24	36	48
2015	0.476	.858	.992	1.000
2016	0.521	.824	.993	
2017	0.523	.841		
2018	0.506			
Selected	0.507	0.841	0.992	1.000

Incremental Claim Counts:

Accident Year	12	24	36	48
2018	402	266	121	6

$266 = \frac{(795-402)}{1-0.506}(0.841 - 0.507)$ $121 = \frac{(795-402)}{1-0.506}(0.992 - 0.841)$ $6 = \frac{(795-402)}{1-0.506}(1.000 - 0.992)$

Incremental Paid Loss:

Accident Year	12	24	36	48
2015	375	370	161	10
2016	397	353	172	
2017	422	340		
2018	385			

Incremental closed claims

Accident Year	12	24	36	48
2015	308	247	87	5
2016	356	207	115	
2017	358	217		
2018	402			

Incremental paid severity

Accident Year	12	24	36	48
2015	1.218	1.498	1.851	2.000
2016	1.115	1.705	1.496	
2017	1.179	1.567		
2018	0.958			
Selected		1.590	1.673	2.000

Final unpaid claims = 1.2*(1.590 * 266 + 1.673*121+2.000*6) =764,848

Part b: 0.50 point

Sample responses:

- The frequency-severity technique allows for an explicit adjustment to severity to handle change in legal environment
- The frequency-severity technique can use alternate assumptions about disposal rates or claim speedups/slow-downs.
- The frequency-severity technique allows for changes in trend or development
- The frequency-severity technique allows for the separation of frequency and severity into parts, enabling greater insight into the impact of each
- The frequency-severity technique allows for more stable estimates at early maturities when the claim is long-tailed/highly leveraged.

EXAMINER'S REPORT

Candidates were expected to apply the frequency-severity disposal rate technique and know how to adjust the data to deal with a sudden increase in severity due to a change in the legal environment.

Part a

Candidates were expected to calculate unpaid for a single accident year using the frequency-severity disposal rate technique and correctly increase this number by 20% to account for the tort change.

Common mistakes included:

- Not allocating the accident year 2018 claim counts by year.
- Using the paid development technique.
- Incorrectly calculating severity, either by calculating a cumulative-to-date severity or using an incremental loss dollar amount divided by a cumulative or ultimate count.
- Attempting to calculate one unpaid frequency value and one unpaid severity factor.
- Neglecting to add the tort factor or applying it incorrectly.

Part b

Candidates were expected to successfully describe one advantage of the frequency-severity method over the paid development method.

Other common mistakes included:

- Mentioning case reserve adequacy, despite neither the disposal rate frequency-severity technique nor the paid development technique using case reserves
- An incomplete answer that identified a difference between the methods but didn't describe why the frequency severity technique was advantageous
- Providing "advantages" that are true for both methods or not always true for either method.