20. (2 points)

Given the following information as of December 31, 2018:

Incremental Closed Claim Counts as of (months)			
Accident Year	72	84	96
2011	141	81	13
2012	145	61	
2013	59		

Incremental Paid Claims ($000s) as of (months)			
Accident Year	72	84	96
2011	7,600	6,100	2,400
2012	8,800	3,900	
2013	5,600		

6%	Annual severity trend
20%	Reduction in claim costs from legislative change for claims occurring after January 1, 2012

a. (1.5 points)

Estimate the trended tail severity for age 84 and older at 2018 cost levels.

b. (0.5 point)

Briefly describe two considerations when choosing the maturity age of the tail severity.

QUESTION 20	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE(S): B3**
SAMPLE ANSWERS	

Part a: 1.5 points

Sample 1

$$\frac{(6100 + 2400) * 1.06^7 * 0.8 + 3900 * 1.06^6}{81 + 61 + 13} = 101.66$$

Sample 2

Trended and Adjusted Inc Avg Paid (000)

	72	84	96
2011	64.84	90.59	222.07
2012	86.04	90.69	
2013	127.02		

	Adj Factor
2011	$(1.06)^7$ x .8
2012	$(1.06)^6$
2013	$(1.06)^5$

Trended Tail Severity at 84+ months =

$$\frac{81 * 90.59 + 13 * 222.07 + 61 * 90.69}{81 + 61 + 13} = 101.66$$

Sample 3

AY	Sev Trend	Leg. Adj
2011	1.06^7	0.8
2012	1.06^6	1
2013	1.06^5	1

Adj. Inc Paid

AY	72	84	96
2011	9142	7338	2887
2012	12483	5532	
2013	7494		

Est. 84 older tail =

$$\frac{7338 + 2887 + 5532}{81 + 61 + 13} = 101,658$$

Part b: 0.5 point

Sample 1
- Consider at what age data becomes erratic
- % of claims expected to close beyond the selected maturity age

<u>Sample 2</u>
- Choose so that there is enough data in the tail for it to be stable or credible, but not too much data that could be used for more reliable age-to-age factors
- Need to consider the industry maturity age. As it's easier to use industry data as a complement

<u>Sample 3</u>
- Should consider at what age results become erratic as combining them may increase stability
- Should consider the overall impact on the total projections – if combining the data has a small impact on total projections then the added effort to gain some stability may not be worth it

EXAMINER'S REPORT

Candidates were expected to be able to apply a frequency-severity method to calculate a tail severity and to adjust the data for annual severity trend and a reduction in claim cost due to a legislative change. They were also expected to provide two distinct considerations when choosing the maturity age of the tail severity and to explain their reasoning.

Part a

Candidates were expected to calculate a tail severity for maturity age 84 and older by pooling the experience of the relevant older development periods, adjust 2011 incremental paid claims for the legislative change and trend to 2018 cost level.

Common mistakes included:
- Applying the legislative change factor to the wrong years, or not applying it at all.
- Not determining the proper trend period.
- Correctly determining severity by accident year/development period but failing to properly weight them to provide a meaningful estimate.
- Calculating the trended tail severity for age 72 and older rather than 84 and older

Part b

Candidates were expected to provide two distinct relevant elements to consider when choosing the maturity age of the tail severity and to explain their reasoning.

Common mistakes included:
- Repeating the same statement twice but phrased differently. For example, point at which data becomes volatile and point at which data becomes erratic
- Blanket statements such as: judgment of the actuary
- Stating the tail should start when development factors are close to 1
- Not providing sufficient explanation. For example, simply stating "credibility of data" without identify which data elements needed to be credible and why.