24. (2.25 points)

An insurer's policyholders were exposed to a severe storm that occurred on December 1, 2013. As of December 31, 2013, the claims related to the storm have been recorded in the claims system, but payments on the claims have not yet been processed. The claim history does not include any severe storms.

The following information is available for accident year 2013 as of December 31, 2013:

- Reported claims = $20,000.
- Paid claims = $5,000.
- Initial expected claims as of the beginning of the accident year = $100,000.
- 12-month age-to-ultimate factor for reported claims = 8.000.
- 12-month age-to-ultimate factor for paid claims = 20.000.

a. (0.75 point)

Identify a technique that will result in a reasonable estimate of ultimate claims. Calculate ultimate claims for accident year 2013 using the identified technique and briefly describe why the estimate is reasonable.

b. (0.75 point)

Identify a technique that will overstate the estimate of ultimate claims. Calculate ultimate claims for accident year 2013 using the identified technique and briefly describe why the estimate is overstated.

c. (0.75 point)

Identify a technique that will understate the estimate of ultimate claims. Calculate ultimate claims for accident year 2013 using the identified technique and briefly describe why the estimate is understated.

END OF EXAMINATION

| **QUESTION 24** | |
|---|---|
| **TOTAL POINT VALUE: 2.25** | **LEARNING OBJECTIVE: B3, B8** |
| **SAMPLE ANSWERS** | |
| **Part a:** 0.75 point | |

Accepted Answer 1 (BF Incurred/Reported)

The Reported BF technique will result in a reasonable estimate for ultimate claims
B-F Ult = 20,000 + (1 – 1/8) * 100,000 = 107,500
This estimate reflects the increased reported losses that resulted from the storm, but tempers those immature reserve estimates with IBNR calculated using a priori expected losses. Thus it doesn't overreact to the storm losses but still reflects them.

Accepted Answer 2 (Expected with large loss load)

Since severe storm = big large loss reported but not paid, we should take it out first.
Expected reported @ 12 months = 100k x 1/8 = 12.5k
Large Loss = Total Reported – Expected Reported = 20k – 12.5k = 7.5k
Since paid CDF is highly leveraged, I would recommend we use expected claim + large loss load.
Ult = 100k + 7.5k = 107.5k

Accepted Answer 3 (Paid Development with large loss load)

Use paid development and add on a large loss (catastrophe load). No payments have yet to be processed so paid is not impacted. Current reported claims = 20,000 (w/ cat loss).
Reported claims at beginning = 100,000 / 8 = 12,500 (expectation w/o cat)
Cat loss reported = 20,000 – 12,500 = 7,500
Paid development = 5,000 * 20 = 100,000
Add reported cat loss = 107,500 (assume storm cat loss is adequately reserved and does not require development)

Accepted Answer 4 (BF Paid with large loss load)

Reported development will overstate because includes storm loss. I use BF Paid and add in the storm loss for AY 2013.
Expected loss of 100,000 with LDF reported of 8 => Reported as of 12/31/2013 should be 12,500=100k/8. Let one adding storm; storm loss is 7,500.
BF Paid method based on a priori estimate so won't affected by storm loss in the AY. So use BF Paid for Ult and add in storm.
Ult based on BF Paid + Storm Loss = [5,000 + 100,000 * (1-1/20)] +7,500 = 107,500

Accepted Answer 5 (Reported with Storm Adjustment)

I would use a Reported loss development with the severe storm losses removed. Develop the NonCAT to ultimate and add provision for the ultimate storm loss. This way LD method still

works, history is usable and not distorted.
When expect 12,500 at 12 mos
1/8 (100,000) so 20,000 – 12,500 is storm losses 7,500.
8 (12,500) = Non Storm Ult = 100,000 + 7,500 Strom Loss = 107,500 Ult

**Part b:** 0.75 point

Accepted Answer 1 (Reported Development)

Reported development technique will overestimate
Rpt Dev Ult = 20,000 * 8.0 = 160,000
This method applies the historical development to the current year. Because there are no severe storms in the experience used to calculate the Ult-CDF, it will treat the inflated 12-mo reported loss just like any other year and will result in an overestimate of the IBNR and thus the Ult loss.

Accepted Answer 2 (Case O/S Development)

Case O/S Development
ILDF = 8 PLDF = 20 ( 8 – 1 ) * ( 20 ) / ( 20 – 8 ) + 1 = OSLDF = 12.667
OS Ult = 5,000 + ( 15,000 x 12.667 ) = 195,000
Overstated as the method develop a large event with large O/S. The observed experience is inconsistent with historical development.

**Part c:** 0.75 point

Accepted Answer 1 (Paid Development)

Paid development method will underestimate losses. This is because severe storm losses have not yet been paid (only reported) and historic LDF's do not include severe storm losses. So severe storm losses that occurred will not be taken into account at all.
Paid Development Ultimate = 5000 * 20 = 100,000 (paid loss) x (paid loss CDF)

Accepted Answer 2 (Expected Claims)

Expected claims with given ultimate of 100,000 will understate because it is not responsive to the catastrophe event.

Accepted Answer 3 (Paid BF)

Paid BF = 5,000 + 100,000 * ( 1 – 1/20 ) = 100,000
Paid is not processed. So paid BF doesn't consider effect of large loss. Loss estimate understated.

**EXAMINER'S REPORT**

Candidates generally selected the correct methods and correctly calculated each part. Common errors included using the incorrect paid and reported data/LDFs when calculating ultimate claims, lacking a full explanation for why the selected method was appropriate or inappropriate, and not fully explaining why the method does or does not work in this problem's particular scenario.

**Part a**

The candidate had to identify the correct method, correctly calculate the method, and clearly explain why the method calculated a reasonable estimate of ultimate claims, identifying that the method is able to capture the reported to date storm loss but also not be overly responsive to the storm loss for future emergence.

Common errors included selection of the wrong method or identifying the method without describing why it worked in the problem's particular case. Also, when using the BF Reported Method, many candidates neglected to mention that it both includes the storm loss but also uses an a priori loss amount (which do not include storm losses) to calculate the IBNR.

**Part b**

The candidate had to identify the correct method, correctly calculate, and clearly explain why the method calculated an overstated estimate of ultimate claims, identifying that the method uses historical development factors, which did not include storm losses, and applies to storm losses, which should not be developed as much.

Common errors mostly included selection of the wrong method. When using the reported loss development as an answer (which was the most common response) some candidates simply stated that the reported development method was applying a high LDF to a high loss amount, without describing why that was inappropriate in this particular case. Also, many candidates said that the LDF was affected by the storm, which is not true (the LDF is based on historical years). When suggesting the Case Outstanding method as a response to the problem, only a handful of candidates calculated the correct ultimates; most either forgot to include paid to date or incorrectly calculated the factor used to derive the unpaid (Case + IBNR) portion of ultimates.

**Part c**

The candidate had to identify the correct method, correctly calculate, and clearly explain why the method calculated an understated estimate of ultimate claims, identifying that the method ignored the storm losses is some way.

Common errors included selection of the wrong method or not mentioning the lack of the storm or large loss impact on the chosen method. Again, some candidates simply described the method rather than commenting why it was inappropriate in this problem's scenario.