25. (2.5 points)

An actuary has performed the following unpaid claims analysis as of December 31, 2014:

Accident Year	Claims as of December 31, 2014 Reported ($000)	Claims as of December 31, 2014 Paid ($000)	Development Technique Ultimate Claims Reported ($000)	Development Technique Ultimate Claims Paid ($000)	Selected Ultimate Claims ($000)
2013	10,000	4,800	12,500	12,000	12,250
2014	7,500	2,200	15,000	11,000	13,000

a. (1 point)

For accident year 2014, determine the expected incremental reported and paid claims in calendar year 2015 based on the development techniques.

b. (1 point)

For accident year 2014, determine the expected reported and paid claims in calendar year 2015 based on the actuary's ultimate claim selections.

c. (0.5 point)

Assume for accident year 2014, the reported claims are $3,300,000 and the paid claims are $2,400,000 in calendar year 2015. Assess whether the actuary's estimate of the ultimate claims should change.

END OF EXAMINATION

QUESTION 25	
TOTAL POINT VALUE: 2.5	**LEARNING OBJECTIVE: B3, B8**

SAMPLE ANSWERS

Part a: 1 point

Sample Answer 1

LDF: 12 24
Rep 2.00 1.25
Paid 5.00 2.50
Reported: $7,500 ((2/1.25)-1) = $4,500
Paid: $2,200 ((5/2.5)-1) = $2,200

Sample Answer 2

	% reported	
2013 Reported ATU =	12,500/10,000 = 1.25	0.8
2014 Reported ATU =	15,000/7,500 = 2.00	0.5
	% paid	
2013 paid =	12,500/4,800 = 2.5	0.4
2014 paid =	11,000/2,200 = 5.0	0.2

Reported: (15,000 – 7,500) * (0.8 – 0.5)/(1 – 0.5) = 4,500
Paid: (11,000 – 2,200) * (0.4 – 0.2)/(1 – 0.2) = 2,200

Part b: 1 point

Sample Answer 1

LDF: 12 24
Rep 2.00 1.25
Paid 5.00 2.50
Rep (13,000 – 7,500) * (1/1.25 – 1/2)/(1 – 1/2) = 3,300
Paid (13,000 – 2,200) * (1/2.5 – 1/5)/(1 – 1/5) = 2,700

Sample Answer 2

	% reported	
2013 Reported ATU =	12,500/10,000 = 1.25	0.8
2014 Reported ATU =	15,000/7,500 = 2.00	0.5
	% paid	
2013 paid =	12,500/4,800 = 2.5	0.4
2014 paid =	11,000/2,200 = 5.0	0.2

Reported: (13,000 – 7,500) * (0.8 – 0.5)/(1 – 0.5) = 3,300
Paid: (13,000 – 2,200) * (0.4 – 0.2)/(1 – 0.2) = 2,700

Sample Answer 3

% Reported at 12 = 7,500/13,000 = 0.577
% Reported at 24 = 10,000/12,250 = 0.816

% Paid at 12 = 2,200/13,000 = 0.169
% Paid at 24 = 4,800/12,250 = 0.392

Reported: (13,000 – 7,500) * (0.816 – 0.577)/(1 – 0.577) = 3,107.57
Paid: (13,000 – 2,200) * (0.392 – 0.169)/(1 – 0.169) = 2,898.19

Part c: 0.5 point

Sample Answer 1

Reported developed as expected using expected ultimate claims ($3,300 = $3,300)
Paid developed is lower than expected, between expected and development ($2,400 < $2,700)
Paid is still leveraged and immature
Actuary doesn't need to change estimate since reported agrees and some volatility is expected in paid.

Sample Answer 2

Actual reported – Expected reported = 3,300 – 3,107.57 = 192.43
Actual paid – Expected paid = 2,400 – 2,898.19 = -498.19
Actual reported claims are only slightly higher than expected while paid claims are below expectations by a decent amount. This low paid amount could be due to paying small claims versus large claims, or settlement rate decrease. I would investigate further for settlement rate decrease and leave ultimate as is, since reported development is similar.

EXAMINER'S REPORT

Part a

The candidate is expected to know that Accident Year 2013 at 12/31/2014 is at 24 months of development and the ratio of the ultimate claims to the claims as of 12/31/2014 for AY 2013 is the 24-ultimate development factor (or that the reciprocal is the percent reported or paid). Similarly, the candidate is expected to know that Accident Year 2014 at 12/31/2014 is at 12 months of development and the ratio of the ultimate claims to the claims as of 12/31/2014 for AY 2014 is the 12-ultimate development factor (or that the reciprocal is the percent reported or paid).

The candidate is expected to know how to calculate the expected incremental reported (or paid) for the next calendar year using the development factors or the % reported (or paid). They only need to calculate this for the most recent Accident year so only the 12 to 24 development is needed.

Most candidates performed well on part a.

Part b

The candidate is expected to use the "Selected Claims" as the ultimate for both paid and reported and then determine what would be expected to be paid and reported given the development factors and percent reported at 12 and 24 months as calculated in part a. A significant number of candidates recalculated the factors and percentages based using the selected ultimate rather than the developed ultimate. Both methods were given full credit.

Some candidates lost credit for providing the total expected amount as of 12/31/2015 rather than the "expected for calendar year 2015".

Most candidates who attempted part b. performed well.

Part c

The candidate was expected to compare the actual reported and paid claims in calendar year 2015 to what was expected (the calculation in part b) AND give an assessment what that result would mean in terms of the actuary's estimate.

Since there were two acceptable answers for part b., the answer in part c. depended on how part b. was answered.

Candidates struggled with part c. Candidates only received partial credit if they compared the actual to expected but did not offer any comment as to whether the actuary's estimate of ultimate should change.