

18. (2 points)

Given the following information as of December 31, 2016:

Accident Year	Cumulative Reported Claims as of (months)			
	12	24	36	48
2013	1,000	1,350	1,450	1,480
2014	4,500	6,000	6,400	
2015	4,800	6,350		
2016	4,100			

Accident Year	Reported Claims Age-to-Age Factors		
	12-24	24-36	36-48
2013	1.350	1.074	1.021
2014	1.333	1.067	
2015	1.323		

Accident Year	Earned Premium
2013	1,500
2014	6,800
2015	7,200
2016	7,500

- Accident year 2016 paid claims as of December 31, 2016 = 2,775.
- Expected claim ratio for all years = 75%.
- There is no reported claims development after 48 months.

a. (0.75 point)

Calculate the IBNR and the total unpaid claims for accident year 2016 as of December 31, 2016 using the expected claims technique.

b. (1.25 points)

Calculate the IBNR and the total unpaid claims for accident year 2016 as of December 31, 2016 using the reported Bornhuetter-Ferguson technique.

EXAM 5 SPRING 2017 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 18

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE: B3

SAMPLE ANSWERS

Part a: 0.75 point

Sample 1

AY 2016 Ult = .75*7500 = 5625

Unpaid = 5625-2775 = 2850

IBNR = 5625-4100 = 1525

Sample 2

IBNR = .75*7500-4100 = 1525

Unpaid = .75*7500-2775 = 2850

Part b: 1.25 points

Sample 1

Ultimate = 4100 + (.75)*(7500)*(1-1/1.458) = 5867

Unpaid = 3092

IBNR = 1766.97

	12-24	24-36	36-48
Select LDFs	1.335	1.07	1.021
CDF	1.458	1.0925	1.021

Sample 2

	12-24	24-36	36-Ult
ATA	1.328	1.0705	1.021
ATU	1.451	1.093	1.021
% reported	0.689	0.915	0.979

IBNR = 7500*0.75*(1-0.689) = 1749

Unpaid = 1749 + 4100 – 2775 = 3074

EXAMINER’S REPORT

Candidates were expected to understand difference between IBNR and total unpaid claims, and how to calculate these values given various claims development techniques.

Part a

Candidates were expected to understand and apply mechanics of the expected claims technique to calculate IBNR and total unpaid claims.

Common errors included:

Calculating either IBNR or total unpaid claims but not both.

Calculating an expected claims ratio based upon experience rather than utilizing the 75% provided in the question.

Part b

Candidates were expected to understand and apply mechanics of the Bornhuetter-Ferguson technique to calculate IBNR and total unpaid claims. Candidates were expected to make

EXAM 5 SPRING 2017 SAMPLE ANSWERS AND EXAMINER'S REPORT

reasonable age-to-age factor selections and calculate age-to-ultimate cumulative development factors.

Common errors included:

- Calculating either IBNR or total unpaid claims but not both.
- Using the 12-24 age-to-age factor instead of the 12-Ultimate cumulative development factor to determine percent unreported.