14. (1.75 points)

Given the following accident year and report year information as of December 31, 2016:

Accident Year	Cumulative Reported Claims ($000) as of (months)		
	12	24	36
2014	120	200	276
2015	120	200	
2016	60		

Accident Year	Incremental Reported Claim Counts as of (months)		
	12	24	36
2014	60	10	3
2015	60	10	
2016	60		

Report Year	Cumulative Reported Claims ($000) as of (months)		
	12	24	36
2014	120	180	240
2015	140	210	
2016	86		

- No claims are reported beyond 36 months.
- Accident year 36-to-ultimate development factor = 1.06.
- No claims occurred prior to January 1, 2014.

Calculate the claims incurred but not yet reported (IBNYR) in total for all years as of December 31, 2016.

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QUESTION 14	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE(S): B1**

SAMPLE ANSWERS

Sample 1

RY	12-24	24-36
2014	180/120=1.5	240/180=1.33
2015	210/140=1.5	
Selected LDF	1.5	1.33
ATU	2.0	1.33

Ultimate	
2014	240
2015	210*1.33=280
2016	86*2=172
Sum	692

AY	12-24	24-36	
2014	200/120=1.667	276/200=1.38	
2015	200/120=1.667		
Selected LDF	1.667	1.38	
ATU	2.44	1.46	1.06

Ultimate	
2014	276*1.06=292.56
2015	200*1.46=292
2016	60*2.44=146
Sum	731

IBNYR=IBNR-IBNER=731-692=39

Sample 2

AY LDFs

	12-24	24-36
2014	1.67	1.38
2015	200/120=1.67	
Sel	1.67	1.38

A	Ult Claims
2014	1.06*276=292.56
2015	1.06*1.38*200=292.56
2016	1.06*1.38*1.67*60=146.57

Total IBNR=IBNYR+IBNER=731.69-(276+200+60)=195.69

Projected counts:

AY	12 - 24	24 - 36
2014	1.167	1.04=(10+60+3)/(60+10)
2015	1.167	
Selected ATA	1.167	1.04

AY	Ult CC
2014	73
2015	(60+10)*1.04=72.8->73
2016	60*1.04*1.167=73

Unreported counts=73*3-(73+70+60)=16

AY	Avg severity
2014	292.56/73=4.007
2015	4.007
2016	1.99

Select 4.007 because 2016 is too green.

Ultimate on claims not yet reported = 16*4.007=64.11
So of the 195.69 indicated IBNR, 64.11 is purely for not yet reported. The rest is for development on known.

EXAMINER'S REPORT

Candidates were expected to construct the accident year and report year triangles, select loss development factors, calculate cumulative development factors, and calculate the ultimate loss for both accident years and report years. Additionally, candidates were expected to know the relationship between IBNR, IBNER, and IBNYR.

Some candidates calculated the IBNYR by using a frequency-severity method. With this method, candidates were expected to calculate the correct pure IBNR count and select a reasonable ultimate severity with which to calculate total IBNYR.

Common errors included:

- Calculating IBNR or IBNER rather than IBNYR.
- Not including the given tail factor in calculating the accident year CDFs.
- Including a tail factor in calculating the report year CDFs.
- Not developing the severity to ultimate.