18. (1.75 points)

Given the following data as of December 31, 2017:

Accident Year	Cumulative Reported Claims ($000) as of (months) 12	24	36	48
2014	500	1,100	1,800	2,500
2015	900	1,700	2,300	
2016	1,000	1,900		
2017	1,100			

Calendar Year	Earned Premium ($000)
2014	5,300
2015	7,200
2016	7,800
2017	8,500

1.3	48 to ultimate reported claim development factor

- In 2015 the company started writing a new class of insureds within this line of business.
- Both existing and new classes of insureds are priced accurately.

a. (1.25 points)

Estimate ultimate claims for accident year 2017 using the reported Cape Cod technique.

b. (0.5 point)

Discuss the effect the new class of insureds has on the reported Cape Cod technique for accident year 2017.

CONTINUED ON NEXT PAGE

QUESTION 18

TOTAL POINT VALUE: 1.75 | **LEARNING OBJECTIVE(S): B3, B4**

SAMPLE ANSWERS

Part a: 1.25 points

Sample 1

	12-24	24-36	36-48	48-60
LDF	1.9963	1.4932	1.3889	1.3
CDF	5.3822	2.6961	1.8056	1.3

AY	Claims	EP	% Rept	Used up Prem
2014	2500	5300	.7692	5300(.7692) = 4076.76
2015	2300	7200	.5538	3987.65
2016	1900	7800	.3709	2890.10
2017	1100	8500	.1858	1579.81
	7800			12536.8

2017 ECR = 7800/12536.8 = .622168

2017 Ult = 1100 + 8500(.6222)(1 - .1858) = 5405.84

Sample 2

	12-24	24-36	36-48	48-60
LDF	1.9	1.353	1.389	1.3
CDF	4.642	2.443	1.806	1.3

Using selected LDFs based on the latest diagonal to reflect changes to book due to new class of insureds. Assumes there are no one-time changes that EP needs to be adjusted for.

AY	EP	CDF	Used up Prem
2014	5300	1.3	4077
2015	7200	1.806	3987
2016	7800	2.443	3193
2017	8500	4.642	1831
			13088

ECR = (1100 + 1900+2300+2500)/13088 = .596

AY 2017 Ult = 1100 + .596(8500)(1 – 1/4.642) = 5074

Additional

Graders also gave full credit to alternate loss development factor selections such as weighted averages or excluding the 2014 development factors due to the new class of business.

Part b: 0.5 point

- Since the new class of insured is priced accurately, they should have no effect on the ultimate claims ratio. However, looking at the development factors from part (a), there looks to have been a speedup in reporting after the new class was introduced. This would lead to our LDFs being overstated and our "used up" premium being understated, resulting in an overstatement of the ECR and thusly the AY 2017 ultimate claims.
- Pre – 2015, the development factors were higher, meaning ultimate claims were higher. Since the CC method uses these development factors, it is overestimating the ultimate claims in 2017.
- Since the development technique shows a change in development patterns in 2015, I reduced the influence of 2014 by not including that factor into my selection. The 36-48 is based on the 2014 AY, so it might be higher than what it should be, and as a result, ultimate might be slightly overstated using the CC method due to a higher % unreported and slightly higher ECR.

EXAMINER'S REPORT

Candidates were expected to calculate the estimated ultimate loss using the Cape Cod technique, and explain how the change in the mix of business impacted the Cape Cod ultimate claims for Accident Year 2017.

Part a

Candidates were expected to select claim development factors from a reported claims triangle and use these development factors to calculate used up premium. Candidates were expected to calculate the expected claims ratio as the ratio of reported losses to used up premium (as defined by the Cape Cod technique), and apply this expected claims ratio to get the estimated unreported claims, and subsequently, the ultimate claims.

Common mistakes include:

- Calculating the expected claims ratio as something other than total reported losses over total used up premium (e.g., straight average or total developed claims over total earned premium)
- Multiplying the expected claims ratio by the earned premium to get the ultimate claims

Part b

Candidates were expected to recognize the change in the development factors as a result of the change in the mix of business, and to discuss the impact of this change in development factors on the estimated ultimate claims.

Common mistakes include:

- Stating that the Cape Cod ultimate claims would be impacted without detailing how.
- Stating that the new mix of business would have no impact on Cape Cod ultimate claims.
- Confusion regarding the loss ratio as the source of the effect to the Cape Cod technique rather than the change in reported development.
- Stating that the new mix of business would lower the estimated ultimate claims.