19. (2 points)

Given the following RBC information for an insurer as of December 31, 2018 (all dollar figures are in millions):

	Homeowners (HO)	Private Passenger Automobile Liability (PPAL)	Other Liability (OL)	Total
Loss & LAE Reserves		$33.25	$14.25	
RBC Charge (R4)		$3.80	$4.70	$12.00

- Loss Concentration Factor (LCF) is 0.85
- PPAL adjustment for investment income is 0.94
- Industry Loss and LAE RBC percentage for HO is 0.2
- The HO line makes up the largest portion of reserve dollars for the insurer
- HO, PPAL and OL are the only lines that the insurer writes
- The insurer has written the same lines of business and consistent premiums for the last five years
- The insurer does not use any reinsurance

a. (0.75 point)

Calculate the percentage of the R4 charge, before applying the LCF, that is attributable to the HO line of business.

b. (0.75 point)

Calculate the total amount of loss & LAE reserves for the insurer.

c. (0.5 point)

Assuming that the insurer begins writing Workers Compensation insurance, briefly describe two ways in which this change might impact R4.

Some candidates assumed that the government bonds referred to in the question were not guaranteed by the US government, and would therefore receive an RBC charge of 0.003. This required candidates to note that this would cause R2 to decrease by 0.3 multiplied by the amount converted, and R1 to increase by 0.003 multiplied by the amount converted.

Common errors included:
- Calculating R2 = 0.3*10m, ignoring other R2 components
- Using a charge other than 0.3 on NAIC Class 6 stocks
- Forgetting to divide the difference in R2 by 0.3
- Assuming government bonds have a charge of 0.003 and that this would cause R2 to reduce by (0.3 - .003)*(amount converted), instead of adding the charge to R1
- Taking the difference in Target & Current RBC instead of R2
- Not multiplying the ACL by 2 to get the RBC
- Confusing the amount of Class 06 stock to retain with the amount to sell

Part c

Candidates were expected to be familiar with IRIS ratio 5 (Two-Year Overall Operating Ratio) and the components of the Operating Ratio.

A wide range of answers were accepted for why IRIS ratio 5 might be outside the usual range for the insurer, as long as it provided a reason that might increase the overall operating ratio. Many candidates did well describing the usual IRIS ratio 5 (Two-Year Overall Operating Ratio) and highlighting a component of the Operating Ratio.

Common errors included:
- Stating that the usual range was over 100%
- Identifying the usual range for investment income instead of the usual range for IRIS ratio 5
- Not providing a reason that would cause Operating Ratio to be high

FALL 2019 EXAM 6U, QUESTION 19	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: C2**
SAMPLE ANSWERS	
Part a: 0.75 point	

Sample 1

R4 Charge before LCF = 12m / .85 = 14,117,647

Sum of RBC charges ex HO = 3.8m + 4.7M = 8.5m

HO RBC % = 1 - (3.8m + 4.7m) / 14,117,647 = 40%

Sample 2

x= HO R4 Charge

12 = .85(x+ 3.8+ 4.7)

12/.85 =x+ 8.5

14.1=x+8.5
X=14.1-8.5
X=5.6
HO RBC as % of total RBC: 5.6/14.1= 39.7%

Part b: 0.75 point

Sample 1

HO reserve % = (.85 - .7) / .3 = 50%

Total Reserves ex HO = 33.25m + 14.25m = 47.5

Total Reserves= 33.25 + 14.25 +47.5 = 95m

Sample 2

x= HO reserve

.85= .7 + .3x/(x + 14.25 + 33.25)

.15 (x+ 47.5)= .3x

.15*47.5= .15x

x= 47.5

Total Reserves= 33.25 + 14.25 +47.5 = 95m

Part c: 0.5 point

Sample Responses

- Would add WC Loss & LAE reserve RBC
- LCF could change
- Excessive premium growth if growing rapidly
- WC will now be included in the industry average loss & LAE ratio
- WC will now be considered in the adjustment for investment income
- WC may impact the percent of business that is retro rated
- WC is volatile or WC is long-tailed

EXAMINER'S REPORT

The candidate was expected to know the RBC formulae, what is extraneous info that should be excluded, and how to work with the LCF.

Part a

The candidate was expected to know that the LCF applies only to the total RBC R4 charge and not the R4 for each line.

Common errors included:

- Applying the LCF to PPAL and OL
- Using the investment income adjustment
- Using Industry Loss and LAE percentage
- Calculating the HO R4 charge correctly, but not using it to calculate the percentage of the total R4 charge attributable to HO.

Part b
The candidate was expected to know the formula for calculating the LCF. Common errors included: • Not knowing the formula • Reversing the 0.3 factor for the largest line and the 0.7 for the total of the other lines • Calculating the HO reserve correctly but not using it to calculate the total reserves.

Part c
The candidate was expected to know enough about the R4 charge to be able to describe ways it would be impacted by introducing another line of business. Common errors included: • The two ways described were too similar. • Incorrectly describing how the R4 charge changes. As an example, "WC reserves will cause the LCF to decrease so the total R$ will increase."

FALL 2019 EXAM 6U, QUESTION 20	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C3
SAMPLE ANSWERS	
Part a: .75 point	

Sample 1
SAP=> Use bond class to decide
⇨ Class 1&2 => Amortized Cost
⇨ Class 3-6 => min (Amortized Cost, Fair Value)
⇨ Bond value = 100 + 85 + 20
            + 62 + 23 + 40
            + 78 + 45 + 27 = 480

Sample 2
SAP Bonds= 100 + 85 + 20   Class 1 @ amortized cost
            + 62 + 23 + 40   Class 3,6 @ min (amortized cost, FV)
            + 78 + 45 + 27
            = 480

Sample 3
Bonds under SAP
NAIC Class 1-2 at Amortized cost
Class 3-6 min(Amortized cost, fair value)
➢ (100 + 85 + 20) + [min(75,62) + min(30,23) + min(47,40)] + [min(80,78) + min(60,45) + min(32,27)]
➢ 205 + [125} + [150]
➢ = 480