

EXAM 6 – UNITED STATES, SPRING 2017

19. (4 points)

Given the following Risk-Based Capital (RBC) charges and Annual Statement information for an insurance company:

	Total RBC Charge (\$000)
Investment income due and accrued	1,000
Federal income tax recoverable	1,500
Recoverable from parent, subsidiaries, or affiliates	3,000
Reinsurance recoverable	4,000
Reserve	22,000
Written premium	17,000
Cash and cash equivalents	4,500
Unaffiliated bond	11,000
Unaffiliated stocks	8,500
Real estate	2,000
Asset concentration	5,500
Other non-insurance subsidiaries	8,000
Investments in insurance affiliates	500

	Annual Statement Data (\$000)
Non-tabular discount	4,500
Tabular discount in reserves	2,500
Unrealized capital gains	6,000
Realized capital gains	12,500

a. (2.25 points)

Calculate the total RBC.

b. (1.25 points)

Calculate the range of surplus corresponding to the Regulatory Action Level.

c. (0.5 point)

At the Regulatory Action Level, briefly describe the actions of the:

- i. Insurance company
- ii. Regulator

SPRING 2017 EXAM 6U SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 19	
TOTAL POINT VALUE: 4	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
NOTE FROM THE SYLLABUS AND EXAMINATION COMMITTEE	
The question as written was not specific enough to identify the allocation of Asset Concentration or Other non-insurance subsidiaries. As a result, multiple answers were accepted.	
Part a: 2.25 points	
<p>Sample answers include:</p> <p>All answers must have these components:</p> <ul style="list-style-type: none"> • The Reinsurance Recoverable (\$4,000) is split between R3 and R4 • $R3 = \\$1000 + \\$1500 + \\$3000 + \frac{1}{2} (\\$4000) = \\$7,500$ • $R4 = \\$22,000 + \frac{1}{2} (\\$4000) = \\$24,000$ • $R5 = \\$17,000$ • The primary equation for this part is: $RBC = R0 + \sqrt{(R1^2 + R2^2 + R3^2 + R4^2 + R5^2)}$ <p>The Asset Concentration could be allocated in any proportion to R1 or R2. The Other non-insurance subsidiaries could be allocated to R0, R1, or R2. Partial allocations were also given credit when it was clear where the RBC charges were being applied.</p> <p><u>Sample 1:</u> $RBC = 8,500 + \sqrt{(21,000^2 + 10,500^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$46,873$</p> <p><u>Sample 2:</u> $RBC = 8,500 + \sqrt{(15,500^2 + 16,000^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$46,150$</p> <p><u>Sample 3:</u> $RBC = 8,500 + \sqrt{(18,250^2 + 13,250^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$46,314$</p> <p><u>Sample 4:</u> $RBC = 500 + \sqrt{(29,000^2 + 10,500^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$43,772$</p> <p><u>Sample 5:</u> $RBC = 500 + \sqrt{(15,500^2 + 24,000^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$42,183$</p> <p><u>Sample 6:</u> $RBC = 500 + \sqrt{(21,000^2 + 18,500^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$41,876$</p> <p><u>Sample 7:</u> $RBC = 500 + \sqrt{(23,500^2 + 16,000^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$42,087$</p> <p><u>Sample 8:</u> $RBC = 500 + \sqrt{(22,250^2 + 17,250^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$41,899$</p> <p><u>Sample 9:</u> $RBC = 500 + \sqrt{(26,250^2 + 13,250^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$42,760$</p> <p><u>Sample 10:</u> $RBC = 500 + \sqrt{(18,250^2 + 21,250^2 + 7,500^2 + 24,000^2 + 17,000^2)} = \\$41,802$</p>	
Part b: 1.25 points	
<p>Adjusted Control Level (ACL) = $0.5 \times RBC$ Regulatory Action Level = RBC ratio from 100% to 150%</p> <p>RBC Ratio = Adj Capital / ACL Adj Capital = RBC Ratio / ACL</p> <p>Adj Capital = PHS - Non-Tab discount - Tab discount PHS = Adj Capital + Non-Tab discount + Tab discount</p> <p>=====</p> <p>PH Surplus range =</p> <p>$1.0 < RBC \text{ ratio} < 1.5$ $1.0 < \text{Adj Capital} / \text{ACL} < 1.5$ $1.0 \times RBC/2 < \text{Adj Capital} < 1.5 \times RBC/2$ $1.0 \times RBC/2 < \text{PHS} - \text{Non-Tab discount} (\\$4500) - \text{Tab discount} (\\$2500) < 1.5 \times RBC/2$</p>	

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$$1.0 \times \text{RBC}/2 + \$7000 < \text{PHS} < 1.5 \times \text{RBC}/2 + \$7000$$

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- Sample 1: 30,437 < PHS < 42,155
Sample 2: 30,075 < PHS < 41,612
Sample 3: 30,157 < PHS < 41,735
Sample 4: 28,886 < PHS < 39,829
Sample 5: 28,092 < PHS < 38,637
Sample 6: 27,893 < PHS < 38,339
Sample 7: 28,044 < PHS < 38,565
Sample 8: 27,949 < PHS < 38,424
Sample 9: 28,380 < PHS < 39,070
Sample 10: 27,901 < PHS < 38,352

Part c: 0.5 point

Action Level	Regulator Action	Company Action
Regulatory Action Level	Right to take corrective action; discretionary	Submit plan of action to obtain needed capital

EXAMINER'S REPORT

Candidates were expected to have knowledge of the RBC calculation and the components of the formula. Candidates were expected to calculate RBC from a series of financial values including applying common adjustments. Finally, candidates were expected to interpret the RBC ratio and know the associated outcomes.

As noted, the wording of the question created some ambiguity which was addressed in the grading process by accepting multiple answers as illustrated above. Additional answers were accepted when candidates stated their assumptions for allocating Asset Concentration and/or Other Non-Insurance Subsidiaries between R1 and R2.

Part a

Candidates were expected to calculate each component of RBC (R0 – R5) and utilize these in the RBC formula.

Common errors include:

- Not completing the reinsurance recoverable adjustment between R3 and R4
- Incorrectly classifying and calculating the RBC components

Part b

Candidates were expected to set up the formula and calculate the range of surplus to achieve the Regulatory Action Level. Candidates needed to state the range of the Regulatory Action Level and algebraically calculate the upper and lower bounds including applying the surplus adjustments for tabular and non-tabular discounts.

Common errors include:

- Not including the tabular discount in the Adjusted Capital calculation
- Incorrectly stating the range of the Regulatory Action Level

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Part c

Candidates were expected to interpret an RBC ratio and indicate the impacts to Company and Regulator.

A common error was not stipulating that regulator actions were discretionary.