

Exam 6US



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Exam 6-United States

Regulation and Financial Reporting (Nation Specific)

May 3, 2017

4 HOURS

INSTRUCTIONS TO CANDIDATES

1. This 73.5 point examination consists of 27 problem and essay questions.
2. For the problem and essay questions, the number of points for each full question and part of a question is indicated at the beginning of the question or part. Answer these questions on the lined sheets provided in your Examination Envelope. Use dark pencil or ink. Do not use multiple colors or correction fluid/tape.
 - Write your Candidate ID number and the examination number, 6US, at the top of each answer sheet. For your Candidate ID number, four boxes are provided corresponding to one box for each digit in your Candidate ID number. If your Candidate ID number is fewer than 4 digits, begin in the first box and do not include leading zeroes. Your name, or any other identifying mark, must not appear.
 - Do not answer more than one question on a single sheet of paper. Write only on the front lined side of the paper – **DO NOT WRITE ON THE BACK OF THE PAPER**. Be careful to give the number of the question you are answering on each sheet. If your response cannot be confined to one page, please use additional sheets of paper as necessary. Clearly mark the question number on each page of the response in addition to using a label such as “Page 1 of 2” on the first sheet of paper and then “Page 2 of 2” on the second sheet of paper.
 - The answer should be concise and confined to the question as posed. When a specified number of items are requested, do not offer more items than requested. For example, if you are requested to provide three items, only the first three responses will be graded.
 - In order to receive full credit or to maximize partial credit on mathematical and computational questions, you must clearly outline your approach in either verbal or mathematical form, showing calculations where necessary. Also, you must clearly specify any additional assumptions you have made to answer the question.

3. Do all problems until you reach the last page of the examination where "END OF EXAMINATION" is marked.

All questions should be answered according to the United States statutory accounting practices and principles, unless specifically instructed otherwise. SAP refers to Statutory Accounting Principles, and GAAP refers to Generally Accepted Accounting Principles. NAIC refers to the National Association of Insurance Commissioners.

4. Prior to the start of the exam you will have a **fifteen-minute reading period** in which you can silently read the questions and check the exam booklet for missing or defective pages. A chart indicating the point value for each question is attached to the back of the examination. Writing will NOT be permitted during this time and you will not be permitted to hold pens or pencils. You will also not be allowed to use calculators. The supervisor has additional exams for those candidates who have defective exam booklets.
5. Your Examination Envelope is pre-labeled with your Candidate ID number, name, exam number and test center. Do not remove this label. Keep a record of your Candidate ID number for future inquiries regarding this exam.
6. Candidates must remain in the examination center until two hours after the start of the examination. The examination starts after the reading period is complete. You may leave the examination room to use the restroom with permission from the supervisor. To avoid excessive noise during the end of the examination, candidates may not leave the exam room during the last fifteen minutes of the examination.
7. At the end of the examination, place all answer sheets in the Examination Envelope. Please insert your answer sheets in your envelope in question number order. Insert a numbered page for each question, even if you have not attempted to answer that question. Nothing written in the examination booklet will be graded. Only the answer sheets will be graded. Also place any included reference materials in the Examination Envelope. BEFORE YOU TURN THE EXAMINATION ENVELOPE IN TO THE SUPERVISOR, BE SURE TO SIGN IT IN THE SPACE PROVIDED ABOVE THE CUT-OUT WINDOW.
8. If you have brought a self-addressed, stamped envelope, you may put the examination booklet and scrap paper inside and submit it separately to the supervisor. It will be mailed to you. Do not put the self-addressed stamped envelope inside the Examination Envelope. Interoffice mail is not acceptable.

If you do not have a self-addressed, stamped envelope, please place the examination booklet in the Examination Envelope and seal the envelope. You may not take it with you. Do not put scrap paper in the Examination Envelope. The supervisor will collect your scrap paper.

Candidates may obtain a copy of the examination from the CAS Web Site.

All extra answer sheets, scrap paper, etc. must be returned to the supervisor for disposal.

CONTINUE TO NEXT PAGE OF INSTRUCTIONS

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9. Candidates must not give or receive assistance of any kind during the examination. Any cheating, any attempt to cheat, assisting others to cheat, or participating therein, or other improper conduct will result in the Casualty Actuarial Society and the Canadian Institute of Actuaries disqualifying the candidate's paper, and such other disciplinary action as may be deemed appropriate within the guidelines of the CAS Policy on Examination Discipline.
10. The exam survey is available on the CAS Web Site in the "Admissions/Exams" section. Please submit your survey by May 17, 2017.

END OF INSTRUCTIONS

EXAM 6 – UNITED STATES, SPRING 2017

1. (3 points)

a. (1 point)

Describe two ways in which usage-based insurance, such as telematics, might unfairly discriminate against lower income and protected classes of individuals.

b. (1 point)

Describe two ways in which usage-based insurance might benefit lower income and protected classes of individuals.

c. (1 point)

Describe two criticisms of usage-based insurance, other than the criticism that usage-based insurance may be unfairly discriminatory against lower income and protected classes of people.

2. (2.5 points)

a. (1 point)

For each of the following groups, describe why rating agencies are important:

i. Policyholders

ii. Property-Casualty Insurers

b. (0.25 point)

Briefly describe an incentive for rating agencies to invest in creating more accurate models to determine financial strength ratings.

c. (0.5 point)

Assume that capital standards are derived from accurate and reasonable models. From the perspective of a rating agency, briefly describe one benefit of having high capital standards, and one benefit of having low capital standards.

d. (0.75 point)

Briefly describe three differences between NAIC RBC requirements and rating agency capital requirements.

3. (2.5 points)

a. (0.5 point)

Briefly describe two motivations for the creation of Risk-Based Capital (RBC) requirements.

b. (0.75 point)

Briefly describe three attributes of RBC that make it useful to regulators.

c. (0.5 point)

Identify two risk categories being developed for inclusion in the RBC requirement.

d. (0.75 point)

An insurance company is on the verge of insolvency. Briefly describe three actions that can be taken to avoid insolvency.

4. (1.5 points)

Three major multi-state insurers decide to form a compact to write private passenger automobile insurance at the same rates. Members of the compact will only do business with agents that exclusively place policies with the compact, and all agents have agreed to work exclusively with the compact. As a result, non-members have a difficult time selling insurance in the states in which the compact operates.

Assume that this compact is formed prior to the Southeast Underwriters Association (SEUA) decision.

a. (0.5 point)

Discuss the impact solely due to the SEUA decision on the ability of these insurers to form the compact.

b. (0.5 point)

Discuss the impact solely due to the McCarran-Ferguson Act on the ability of these insurers to form the compact.

c. (0.5 point)

Discuss the impact solely due to the Dodd-Frank Act on the ability of these insurers to form the compact.

EXAM 6 – UNITED STATES, SPRING 2017

5. (2.25 points)

a. (0.25 point)

Briefly describe the purpose of guaranty funds.

b. (1 point)

Fully describe the most common process used by guaranty funds to assess insurers.

c. (1 point)

Evaluate the potential effectiveness of a proposal to assess each insurer a small percentage of its written premium in a state in order to pre-fund the state guaranty fund.

6. (2.75 points)

a. (0.5 point)

Identify two coverage restrictions that a private passenger auto insurer may impose upon a high-risk driver to reduce the insurer's risk to an acceptable level.

b. (1.5 points)

Fully describe the assignment of private passenger auto insurance risks for each of the following:

- i. Assigned Risk Plans
- ii. Joint Underwriting Associations

c. (0.75 point)

Assume that a telematics device exists that works in all vehicles. The insurance commissioner of a particular state makes this telematics device mandatory for all policyholders in the voluntary private passenger auto insurance market. Assess the effect that this mandate would have on the relative sizes of the voluntary and involuntary markets in the state.

7. (2 points)

Insurers in the homeowners market for a coastal state requested rate changes ranging from +35% to +45%, based on their indicated rate needs. The state-approved rate change for all insurers was +7%.

a. (1 point)

Briefly describe four actions that insurers may take as a result of the state's decision to approve a lower than requested rate change.

b. (0.5 point)

Describe the likely impact of the state-approved rate change on the size of the residual market in the state.

c. (0.5 point)

Briefly describe two reasons why having a policy written through the residual market is worse for a policyholder than having a policy written in the voluntary market.

8. (2 points)

For the Federal Crop Insurance Program and National Flood Insurance Program:

a. (1 point)

Describe the risk transfer process of each program.

b. (1 point)

Briefly describe two criticisms of each program.

9. (1.5 points)

a. (0.5 point)

Describe the interaction between workers compensation insurance and Medicare for a 70-year-old worker who is injured in the course of employment.

b. (0.5 point)

Describe the rationale for the creation of the Medicare Set-Aside Allocations (MSAs).

c. (0.5 point)

Describe one potential impact to estimates of unpaid losses for workers compensation resulting from changes made by the federal government to MSAs.

10. (2.25 points)

a. (0.5 point)

Briefly describe two goals of the Terrorism Risk Insurance Act of 2002.

b. (1 point)

Describe two reasons why private insurers were unwilling to provide terrorism insurance immediately following the terrorist attacks of September 11th, 2001.

c. (0.75 point)

Briefly describe three changes to the Terrorism Risk Insurance Program that might reduce the burden on taxpayers.

EXAM 6 – UNITED STATES, SPRING 2017

11. (3.5 points)

Given the following information from an insurance company's 2014 and 2015 Insurance Expense Exhibits and Annual Statements:

	2014		2015	
	Homeowners	All Lines	Homeowners	All Lines
Policyholders' surplus		18,000		19,000
Net loss reserve	2,450	9,550	2,550	10,000
Net loss adjustment expense reserve	250	1,250	300	1,450
Net unearned premium reserve	3,500	7,900	3,700	8,150
Net earned premium	6,900	15,850	7,350	16,350
Ceded reinsurance premium payable	900	1,050	950	1,150
Agents' balances	2,100		2,250	

- The net investment gain ratio for all lines in 2015 is 3.5%.

a. (2.5 points)

Calculate the 2015 total investment gain for the Homeowners line of business.

b. (1 point)

In 2016, company management plans to shift a large portion of its Homeowners book from inland properties to coastal properties. Explain how the allocation of surplus to Homeowners in 2016 may change in each of the following:

- i. The company's Insurance Expense Exhibit
- ii. The company's internal capital allocation methodology

EXAM 6 – UNITED STATES, SPRING 2017

12. (3.75 points)

An insurance company began operating on January 1, 2013. Below is information from its 2015 Annual Statement. All figures are in millions of dollars.

	2015	2014	2013
Gross Premiums Written	1,140	520	130
Net Premiums Written	855	520	130
Gross Premiums Earned	877	367	33
Net Premiums Earned	600	367	33
Statement of Income			
Other underwriting expenses incurred	150	78	24
Net investment gain	15	13	0
Total other income	10	10	0
Dividends to policyholders	1	0	0
Federal and foreign income taxes incurred	2	5	1
Balance Sheet Lines			
Total admitted assets	870	640	390
Losses	165	120	20
Loss adjustment expenses	45	20	1
Surplus as regards policyholders	300	310	280
Gross Losses Paid	580	260	30
Net Losses Paid	435	260	30
One Year Loss Development	66	-1	
Two Year Loss Development	-1		

Underwriting and Investment Exhibit

Part 3 – Expenses

	Loss Adjustment Expenses	Other Underwriting Expenses	Investment Expenses	Total
Total Expenses Paid	50	136	95	281

<<QUESTION 12 CONTINUED ON NEXT PAGE>>

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EXAM 6 – UNITED STATES, SPRING 2017

a. (1.75 points)

Calculate the insurance company's 2015 net income.

b. (1 point)

Fully describe one concern a regulator might have with the insurance company's balance sheet strength at year-end 2015 based only on the information presented above.

c. (0.5 point)

Briefly describe "Note 23. Reinsurance" in the Notes to Financial Statements, and briefly describe why the regulator might consult this note for this company.

d. (0.5 point)

Describe how Schedule F may assist the regulator in assessing the company's balance sheet strength.

EXAM 6 – UNITED STATES, SPRING 2017

13. (3.75 points)

Company A (Lead) and Company B (Non-Lead) are the only members of an intercompany pooling arrangement. No other reinsurance or pooling exists. Both companies began operations in 2015. Given the following information for 2015 (all figures are in thousands of dollars):

	Pool Percentage	Direct Written Premium	Direct Paid Loss & Loss Expenses	Direct Loss & Loss Expenses Reserves
Company A	80%	\$6,350	\$1,200	\$3,400
Company B	20%	\$1,000	\$350	\$1,175

a. (1.25 points)

Calculate the following amounts that would appear in each company's Schedule P, Part 1:

- i. Direct and Assumed Total Losses and Loss Expenses Incurred
- ii. Ceded Total Losses and Loss Expenses Incurred

b. (1.5 points)

Calculate the following amounts that would appear in each company's Annual Statement Exhibits and Schedules other than Schedule P:

- i. Direct and Assumed Written Premium
- ii. Ceded Written Premium
- iii. Net Written Premium

c. (1 point)

Briefly describe four disclosures regarding intercompany pools that should be included in a Statement of Actuarial Opinion.

14. (3.75 points)

An insurance company purchases reinsurance from only two reinsurers. Given the following:

Recoverables Not in Dispute	Unauthorized Reinsurer A	Authorized Reinsurer B
Total Reinsurance Recoverable	3,500	2,500
Recoverable on Paid Loss+LAE	2,000	1,300
Recoverable on Paid Loss+LAE > 90 Days Past Due	250	150
Recoverable on Paid Loss+LAE > 120 Days Past Due	55	75

Recoverables In Dispute	Unauthorized Reinsurer A	Authorized Reinsurer B
Total Reinsurance Recoverable	600	500
Recoverable on Paid Loss+LAE	400	200
Recoverable on Paid Loss+LAE > 90 Days Past Due	100	50
Recoverable on Paid Loss+LAE > 120 Days Past Due	25	20

	Unauthorized Reinsurer A	Authorized Reinsurer B
Amounts Received Prior 90 Days	40	0
Letters of Credit	1,500	300
Ceded Balances Payable	80	0
Other Amounts Due to Reinsurers	0	35

a. (2.5 points)

Calculate the insurance company’s Schedule F provision for reinsurance.

b. (0.75 point)

Briefly describe one criticism of the Schedule F provision for reinsurance that was addressed by the creation of the Certified category for reinsurers, and describe how the Certified category addressed this criticism.

c. (0.5 point)

Describe one potential improvement to the Schedule F provision for reinsurance from the perspective of a regulator.

EXAM 6 – UNITED STATES, SPRING 2017

15. (4.25 points)

Given the following excerpts from an insurance company’s 2015 Balance Sheet and Income Statement:

	Current Year
Stocks	281,000
Premiums earned	220,000
Losses incurred	147,000
Losses unpaid	135,000
Cash	113,000
Bonds	76,000
Unearned premiums	60,000
Loss adjustment expenses unpaid	36,000
Other underwriting expenses incurred	34,000
Uncollected premiums and agents’ balances in the course of collection	32,600
Current federal and foreign income taxes unpaid	30,000
Loss adjustment expenses incurred	23,000
Net realized capital gains (losses) less capital gains tax	14,500
Other expenses unpaid	9,000
Advance premium	830
Ceded reinsurance premiums payable (net of ceding commissions)	600
Amounts recoverable from reinsurers	400
Provision for reinsurance	170

a. (3.5 points)

Calculate the insurance company’s 2015 policyholders’ surplus using the balance sheet items above. Assume all assets are admitted.

b. (0.75 point)

Assume that 10% of uncollected premiums and agents’ balances in the course of collection become more than 90 days past due. Fully describe the impact this would have on the company’s policyholders’ surplus as well as net income.

16. (2.5 points)

a. (0.5 point)

Briefly describe two items that must be discussed in Note 30 (“Premium Deficiency Reserves”) of the Notes to the Financial Statements.

b. (1 point)

An insurance company exclusively wrote private passenger automobile insurance from 2011 through 2012 and diversified into homeowners beginning in 2013. The company hired staff to exclusively write and market homeowners business, and the company employs a conservative investment policy with 3% annual returns.

Selected information from the company’s Annual Statements is given below (all figures are in thousands of dollars):

Data from 2013 through 2015 Underwriting and Investment Exhibits:

Statement Date	4. Homeowners multiple peril	
	Net Premiums Written	Premiums Earned During the Year
December 31, 2013	1,710	210
December 31, 2014	8,640	5,581
December 31, 2015	8,370	9,690

Data from 2015 Schedule P, Part 1:

Years in Which Premiums Were Earned and Losses Were Incurred	Total Losses and Loss Expenses Incurred – Net
	Part 1A – Homeowners/ Farmowners
2013	300
2014	7,500
2015	15,000

Fully discuss whether or not the company should carry a non-zero premium deficiency reserve in its 2015 Annual Statement.

c. (1 point)

Although recent Homeowners results have not achieved target profit, the company described in part b. above has decided it should remain in the market. Briefly describe four potential factors that could support such a decision.

17. (2.5 points)

Given the following information from an insurance company’s Annual Statement:

Underwriting and Investment Exhibit	
(all figures in millions of dollars)	TOTAL - All Lines of Business
Direct Written Premium	1,900
Prior Year Direct Written Premium	1,640
Net Written Premium	1,730
Prior Year Net Written Premium	1,370
Assumed Written Premium from Affiliates	220
Assumed Written Premium from Non-Affiliates	120
Liabilities, Surplus and Other Funds	
Policyholders’ Surplus	300

a. (2 points)

Calculate IRIS Ratios 1, 2, and 3 and indicate whether or not the values are unusual.

b. (0.5 point)

Assume that in the following year, IRIS Ratio 2 is outside the usual range of values. Describe a strategy the insurance company could implement to produce an IRIS Ratio 2 result that is not unusual.

EXAM 6 – UNITED STATES, SPRING 2017

18. (2.5 points)

Given the following information contained in or derived from the Annual Statement of an insurance company (all figures in dollars):

Reinsurance ceded commissions, excluding contingent	685,000
Reinsurance ceded contingent commissions	15,000
Written premium ceded to affiliates	25,000
Written premium ceded to non-affiliates	1,375,000
Unearned premium ceded to Authorized Other U.S. Unaffiliated Insurers	450,000
Unearned premium ceded to Authorized Mandatory Pools	80,000
Unearned premium ceded to Authorized Voluntary Pools	0
Unearned premium ceded to Authorized Other Non-U.S. Insurers	200,000
Unearned premium ceded to Unauthorized Other U.S. Unaffiliated Insurers	50,000
Unearned premium ceded to Unauthorized Mandatory Pools	0
Unearned premium ceded to Unauthorized Voluntary Pools	0
Unearned premium ceded to Unauthorized Other Non-U.S. Insurers	20,000
Net premiums written	6,500,000
Uncollected premiums and agents' balances in course of collection	430,500
Surplus as regards policyholders	2,500,000

a. (1.25 points)

Calculate IRIS Ratio 4 (Surplus Aid to Policyholders' Surplus).

b. (0.75 point)

When IRIS Ratio 4 falls outside the usual range, a company must make adjustments to other IRIS ratios. Identify one such IRIS ratio and calculate it on both an unadjusted and an adjusted basis.

c. (0.5 point)

Briefly describe two reasons why IRIS ratio 4 is important.

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

20. (3 points)

The following information is available as of December 31, 2015 for a U.S.-domiciled multinational insurance company (all figures are in millions of dollars):

- IFRS Assets: 850
- Minimum Capital Requirement (MCR): 250
- Best Estimate of Liabilities: 150
- The risk-free rate is 0.625%, and the illiquidity premium is 0.25%.
- The cost of capital above the risk-free rate ($R-i$) is 6%.
- Capital is assumed to be held until the end of each year.
- Loss payments are expected to occur for the next 3 years, during the middle of each year.
- The company uses its internal model to calculate Solvency II quantitative capital requirements.
- The following table provides the one-year value at risk (VaR) model results:

Percentile	VaR
95.0%	150
99.0%	200
99.5%	300
99.9%	550

a. (0.75 point)

Briefly describe three requirements for the company's internal model to be approved for use in calculating Solvency II quantitative capital requirements.

b. (2.25 points)

Determine the actions of the regulator based on the Solvency II quantitative capital requirements. Assume that the Solvency Capital Requirement (SCR) is constant across all future years.

EXAM 6 – UNITED STATES, SPRING 2017

21. (2.25 points)

Given the following for Auto Physical Damage for year-end 2013:

Accident Year	Total Net Paid	Undiscounted Reserve
Prior	\$10,000	\$2,000
2012	\$630,000	\$70,000
2013	\$800,000	\$200,000
Total	\$1,440,000	\$272,000

- For calculating tax-basis reserves, the company elects to use its own loss payment patterns.
- The Vintaged Discount Rate for all accident years is 10%.
- The undiscounted reserve for accident year 2015 as of year-end 2015 is \$252,000.

Calculate the accident year 2015 tax-basis reserve for tax year 2015.

22. (2.75 points)

Consider the following balance sheet for an insurance company that has been in business for two years and writes only high limit liability coverage (all figures in millions of dollars):

<i>Assets</i>	
Bonds	\$40.0
Cash and cash equivalents	\$15.1
Amounts recoverable from reinsurers	\$1.0
<i>Liabilities</i>	
Losses	\$25.1
Loss adjustment expenses	\$18.5
Other expenses	\$0.5

- There are no other assets or liabilities.
- The Appointed Actuary has calculated a point estimate of net unpaid loss and loss adjustment expense of \$44.6 million.
- The authorized control level RBC for the company is \$4.3 million.

a. (1.5 points)

Propose and calculate three materiality standards, based on three different metrics, that may be considered by the Appointed Actuary in preparing the Statement of Actuarial Opinion.

b. (0.5 point)

Justify the selection of one materiality standard from part a. above to be considered when evaluating whether there is a risk of material adverse deviation.

c. (0.75 point)

Fully explain whether there is a risk of material adverse deviation.

23. (2.5 points)

A personal lines insurance company had \$30 million of policyholders' surplus as of December 31, 2014. In preparation for the 2015 Statement of Actuarial Opinion (SAO), the Appointed Actuary reviews the 2014 Actuarial Report and schedules meetings with the following individuals:

- i. Head of the Reinsurance Department
- ii. Head of Data Systems Department
- iii. Involuntary Pool Actuary

a. (0.75 point)

Briefly describe how the information gathered from each individual could support a required SAO disclosure.

b. (0.75 point)

Briefly describe three items the Appointed Actuary should consider in determining whether it is reasonable to use the work of the Involuntary Pool Actuary in forming the 2015 SAO.

c. (1 point)

When reading the 2014 Actuarial Report, the Appointed Actuary discovers the following:

- i. The auto physical damage loss development patterns were being applied to the liability losses. If the liability pattern had been used, the Company's recorded loss reserves at December 31, 2014 would have been \$8 million higher.
- ii. With hindsight, the selected homeowners loss development patterns appear too low. The Appointed Actuary estimates the revised patterns would result in an increase to the December 31, 2014 reserves of \$3 million.

For each of the above situations, explain whether the 2014 SAO was issued in error.

24. (2.75 points)

An insurance company expanded its offering of errors and omissions (E&O) coverage in 2009, but later experienced significant and unanticipated development on this exposure relative to total loss and LAE reserves. The actuarial review of E&O reserves conducted in 2013 took into consideration the change in development patterns.

An excerpt from the Five Year Historical Data exhibit is provided below:

ANNUAL STATEMENT FOR THE YEAR 2015
FIVE YEAR HISTORICAL DATA

	1 2015	2 2014	3 2013	4 2012	5 2011
One Year Loss Development (000 omitted)					
73. Development in estimated losses and loss expenses incurred prior to current year (Schedule P, Part 2-Summary, Line 12, Col.11)	76	776	3,218	1,935	1,675
74. Percent development of losses and loss expenses incurred to policyholders' surplus of prior year end (Line 73 above divided by Page 4, line 21, Col. 1 x 100)	0.2	2.8	9.3	5.6	5.2

a. (0.5 point)

Identify an intended audience and briefly describe the primary purpose for Item E of the Actuarial Opinion Summary Supplement (AOS).

b. (0.75 point)

Propose language for Item E of the AOS at year-end 2015.

c. (0.5 point)

Provide two questions that a regulator may have subsequent to reading the Item E disclosure in part b. above.

d. (1 point)

To answer each of the questions posed in part c. above, identify one additional resource that the regulator could consult, and briefly describe what useful information may be found from each resource.

25. (1.75 points)

An insurance company formed on January 1, 2015 has gross written premium of \$2 million and surplus of \$10 million at September 30, 2015. The company only writes General Liability coverage up to \$500,000 per occurrence for agriculture risks in a single state. The company has no ceded reinsurance.

a. (0.75 point)

Identify three risks specific to this entity that could result in material adverse deviation.

b. (0.5 point)

For two of the risks identified in part b. above, briefly describe one change the company could make to mitigate each risk.

c. (0.5 point)

For both of the changes described in part b. above, briefly describe how poor execution of the change could add significant risk to the company.

26. (3 points)

a. (0.5 point)

Briefly describe two motivations for a reinsurer to enter into a commutation.

b. (2.5 points)

Given the following information about a reinsurance contract that was recently commuted:

- 25% quota share
- Primary insurer's direct loss reserves = \$1,250,000
- Primary insurer's direct ultimate loss = \$2,550,000
- Prior to the commutation, the reinsurer's carried reserves are 15% higher than the insurer's carried reserves
- As a result of the commutation, the reinsurer's ultimate assumed losses increase by 10%
- Discount factor = 0.875

Calculate the change in taxable income due to the commutation for:

- i. The insurer
- ii. The reinsurer

27. (2.75 points)

a. (0.75 point)

Fully describe the Expected Reinsurer Deficit method of evaluating whether a contract qualifies for reinsurance accounting.

b. (1 point)

Discuss whether each of the following items is appropriate for use in a risk transfer analysis:

- i. Profit commission
- ii. Reinsurer expenses

c. (1 point)

Briefly describe four considerations for determining the appropriate discount rate to be used in risk transfer analysis.

Exam 6-U.S. Regulation and Financial Reporting (Nation Specific)

May 3, 2017

POINT VALUE OF QUESTIONS

QUESTION	VALUE OF QUESTION	SUB-PART OF QUESTION						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	3.00	1.00	1.00	1.00				
2	2.50	1.00	0.25	0.50	0.75			
3	2.50	0.50	0.75	0.50	0.75			
4	1.50	0.50	0.50	0.50				
5	2.25	0.25	1.00	1.00				
6	2.75	0.50	1.50	0.75				
7	2.00	1.00	0.50	0.50				
8	2.00	1.00	1.00					
9	1.50	0.50	0.50	0.50				
10	2.25	0.50	1.00	0.75				
11	3.50	2.50	1.00					
12	3.75	1.75	1.00	0.50	0.50			
13	3.75	1.25	1.50	1.00				
14	3.75	2.50	0.75	0.50				
15	4.25	3.50	0.75					
16	2.50	0.50	1.00	1.00				
17	2.50	2.00	0.50					
18	2.50	1.25	0.75	0.50				
19	4.00	2.25	1.25	0.50				
20	3.00	0.75	2.25					
21	2.25							
22	2.75	1.50	0.50	0.75				
23	2.50	0.75	0.75	1.00				
24	2.75	0.50	0.75	0.50	1.00			
25	1.75	0.75	0.50	0.50				
26	3.00	0.50	2.50					
27	2.75	0.75	1.00	1.00				
TOTAL	73.50							

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

GENERAL COMMENTS:

- Candidates should note that the instructions to the exam explicitly say to show all work; graders expect to see enough support on the candidate's answer sheet to follow the calculations performed. While the graders made every attempt to follow calculations that were not well-documented, lack of documentation may result in the deduction of points where the calculations cannot be followed or are not sufficiently supported.
- Candidates should justify all selections when prompted to do so. For example, if the candidate selects an all year average and the question prompts a justification of all selections, a brief explanation should be provided for the reasoning behind this selection. Candidates should note that a restatement of a numerical selection in words is not a justification.
- Incorrect responses in one part of a question did not preclude candidates from receiving credit for correct work on subsequent parts of the question that depended upon that response.
- Candidates should try to be cognizant of the way an exam question is worded. They must look for key words such as "briefly" or "fully" within the problem. We refer candidates to the Future Fellows article from December 2009 entitled "The Importance of Adverbs" for additional information on this topic.
- Some candidates provided lengthy responses to a "briefly describe" question, which does not provide extra credit and only takes up additional time during the exam.
- Candidates should note that the sample answers provided in the examiner's report are not an exhaustive representation of all responses given credit during grading, but rather the most common correct responses.
- In cases where a given number of items were requested (e.g., "three reasons" or "two scenarios"), the examiner's report often provides more sample answers than the requested number. The additional responses are provided for educational value, and would not have resulted in any additional credit for candidates who provided more than the requested number of responses. Candidates are reminded that, per the instructions to the exam, when a specific number of items is requested, only the items adding up to that number will be graded (i.e., if two items are requested and three are provided, only the first two are graded).
- It should be noted that all exam questions have been written and graded based on information included in materials that have been directly referenced in the official syllabus, which is located on the CAS website. The CAS takes no responsibility for the content of supplementary study materials and/or manuals produced by outside corporations and/or individuals which are not directly referenced in the official syllabus.

EXAM STATISTICS:

- Number of Candidates: 497
- Available Points: 73.5
- Passing Score: 51.5
- Number of Passing Candidates: 211
- Raw Pass Ratio: 42.45%
- Effective Pass Ratio: 44.89%

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

QUESTION 1	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVE: A1
SAMPLE ANSWERS	
Part a: 1 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Disproportionate impact of offer and sale of UBI against customers in low/moderate income and minority communities. • Telematics may find that people who drive at the early hours of the day present more risk. This could impact low-income insureds who work night shifts. • Telematics may find that people who drive in urban areas present more risk. • When the telematics device is purchased by the consumer, those with low- income may not be able to afford it. • When insurance rates are higher at the outset for a certain class of policyholders due to allegedly unfairly discriminatory factors unrelated to driving history (credit-scores), the application of a discount masks the underlying issue. • Low-income drivers are more likely to operate older vehicles that may not be able to use the telematics device. • Low-income drivers are more likely to operate vehicles in poorer condition or that don't have new automobile features (e.g. lane assist). This could result in harder braking and more swerving. • Those with certain disabilities may need to use a vehicle tailored to their needs, which limits their ability to carpool or use public transportation, which results in higher usage of their vehicle. • Low-income drivers may live near streets in poor condition (e.g. potholes) which could result in more swerving and hard breaking; the telematics may assume these to be poor driving habits. • If one can't speak English, it would be more difficult for them to hear about the benefits of using telematics, or to receive feedback communication on how to improve driving habits. • Lower-income drivers may be forced to drive further to reach employment, especially if they're in a rural area or a neighborhood that businesses don't want to locate to; this results in higher vehicle usage. • Those who can't afford quality driving training may not have learned the skills necessary to be considered a good driver by the standards of the telematics program. 	
Part b: 1 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Progressive's Snapshot does not use GPS, so urban drivers are not penalized by their urban location. • UBI removes the subsidy for high-mileage drivers who account for the majority of miles driven but pay a disproportionately lower premium. This increases affordability for lower-mileage drivers many of whom are lower-income or elderly. This makes insurance more socially equitable. • UBI can potentially reduce the number of uninsured motorists by making insurance more 	

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

affordable.

- Insureds are encouraged to become better drivers through the telematics program; a reduction in premium would have a disproportionately positive impact on low-income drivers.
- Low-income insureds that live in urban areas would have more access to public transportation as an alternative to driving themselves.
- If someone is significantly poor they may not be able to afford the deductible on a claim and therefore be more cautious when driving, something that's picked up by telematics but not by traditional factors such as their address, age, or gender.
- The GPS technology in the telematics devices would help out in case of car theft, which is more likely to happen in poorer neighborhoods.
- The UBI data could supplant or even replace other variables such as credit score, education, and occupation, which are accused of being unfairly discriminatory.
- Seniors tend to drive during the day and not during commute times which could decrease premiums.
- The existence of UBI expands the availability of affordable insurance by allowing insurers to rate and underwrite risks at a more actuarially fair price.
- The data insurers collect from UBI could speed up the claims process, making payments out to the insureds quicker. This would be particularly helpful for low-income insureds that may need a claims payment immediately, especially if their vehicle is unusable as a result of the claim's event.
- Youthful (teen) drivers would have their driving habits tracked. If their parents have access to this data it could help keep them out of trouble.

Part c: 1 point

Any two of the following:

- Telematics-UBI is just another black box rating factor for insurers. By keeping these black box items secret it defeats the key function of risk classification.
- Limited regulatory oversight
- Using a "discount-only" model for installing the devices until a rating factor can be associated with lower overall claims.
- Reliance on a third-party vendor which raises issues of privacy, data accuracy, and misuse of data by internal and external parties.
- Use of different vehicle input devices may lead to issues where the devices may not record the same data. Some devices are only available for newer vehicles.
- Inconsistent frequency and duration of data transmission to the insurers
- If insured is not privy to detailed information regarding the rating factors being measured and their relationship to the receipt of the discount it is less likely that changes in driving behavior will result or premium reductions will be achieved.
- Driving behavior is not always linked to the actual operator.
- UBI is costly, and this substantial cost will ultimately be absorbed by the consumer in the form of higher premiums.
- If your company has data on a good driver, that good driver may be discouraged from shopping around since other companies wouldn't know they're a good driver, decreasing competitiveness.

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

- If certain neighborhoods are designated “high risk” by telematics and drivers are dissuaded from going there in order to save on premiums, it would result in fewer people visiting those places which could make it difficult for businesses located there
- Large swings in rates upon implementation of UBI rating.
- Could be subject to manipulation if users are able to compromise/hack the telematics device
- Large insurers may have access to more and better telematics data, potentially making the marketplace less competitive as smaller insurers are driven out.
- Drivers are enticed to enroll for offers of premium reduction but may have concerns about premiums increasing or about non-renewal due to driving behavior tracked by devices.
- UBI data could be used for other purposes like settling claims without consumer’s knowledge

EXAMINER'S REPORT

Candidates were expected to understand the regulatory implications and issues surrounding the relatively new field of usage-based insurance, combining knowledge of both telematics itself and regulatory goals.

Part a

Candidates were expected to list two separate reasons why telematics could discriminate unfairly, some of which were listed in the NAIC CIPR telematics paper.

Common errors include:

- Listing criticisms with telematics that are common to drivers of all types.
- Giving the same issue twice, rewriting and reusing the same reason.
- Listing a key word or two without describing the reason.
- Arguing that if low-income policyholders are worse drivers they would have to pay more – This would not be unfairly discriminatory since the core actuarial principle here is such that policyholders pay in proportion to their expected future loss costs.
- Stating that if low-income drivers don’t drive as much they don’t get as much practice and would have to pay more as a result. Usage-based insurance has one pay more the more they drive, so driving less would result in lower premium under UBI
- Stating religious or cultural objections to telematics without connecting it to privacy concerns or stating that non-driving religious groups would not benefit from telematics

Part b

Candidates were expected to list two separate reasons why telematics could help out low-income and/or protected classes of individuals in particular. Candidates struggled with this part the most, as it was more challenging to describe positive aspects of UBI that would particularly help out certain classes of drivers.

Common errors include:

- Listing positive benefits of telematics that would help out all of society in general,

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

without noting how it would benefit low-income or protected classes of drivers in particular.

- Giving the same benefit twice in different words.
- Listing a key word or two without fully explaining the reason.
- Stating that UBI results in everyone controlling usage and therefore results in environmental or traffic congestion benefits. This is a general benefit, not particular to protected classes.
- Stating that good drivers will be charged less premium. Unless a reason was given to note how this helps protected classes in particular, this is a general benefit and not particular to protected classes.
- Stating that those who live in protected classes may be in rural areas and therefore charged lower premium. Rural areas are correlated with lower expected losses compared to urban areas. While this is a true statement, this is already understood and rural drivers are today charged less through the ZIP code rating variable. This reason is not attributed to telematics.
- Stating that UBI is more easily understood so low-income drivers can know they aren't being discriminated against. This is a general concern that is not specific to a protected class.

Part c

Candidates were expected to give two separate and complete criticisms regarding telematics that did not involve direct discrimination against certain classes of drivers.

Common errors include:

- Listing a key word or two without fully explaining the reasoning.
- Giving the same criticism twice in different words.
- Giving a criticism that notes discrimination against low-income or protected classes of drivers.
- Repeating a reason from part a.
- Stating that UBI is not perfect, but is still better than the traditional rating variables used by insurers. This response did not link the imperfections of UBI to the implication that someone would be better off by discontinuing its use.
- Stating that UBI discourages usage so drivers get less practice and become more accident-prone. The lack of miles makes up for this phenomenon, since the data thus far shows those who drive more get in more accidents.
- Stating that insurers could be using the data better, or don't have enough data yet to fully use it. The data that insurers have now is better than nothing, so this isn't an argument to discontinue UBI; it's actually an argument to continue so one can collect even more data.
- Stating that UBI isn't well-correlated with actual risk. It's better than the rating variables an insurer has now; which is why insurers want to use it.
- Stating that harsh breaking may be needed to avoid an accident so why penalize for this? Necessary harsh breaks are rare. A good driver will avoid tailgating and other behaviors that necessitate so many hard breaks in the first place.

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

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QUESTION 2	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: A3
SAMPLE ANSWERS	
Part a: 1 point	
<i>Sample Responses for "Policyholders"</i>	
<ul style="list-style-type: none">• Helps them choose financially strong insurers who can pay their claims• Policyholders don't have sufficient knowledge to measure the true financial strength of an insurance company. The rating may help them pick strong companies to buy insurance.• Ratings agencies provide policyholders with easy access a rating based on proprietary information about operating strategy and competitive advantages.• Provide indication of strong insurer when shopping for insurance. Policyholder may be required to buy from high rated company for mortgage or surety or specialty lines.• Ratings are used to determine financially strong insurers and help decide which insurer to buy from.	
<i>Sample Responses for "Property-Casualty Insurers"</i>	
<ul style="list-style-type: none">• Helps them get business, especially in mortgage and surety as sometimes required A-rating or above to write business.• Rating agencies provide considerable expertise in evaluating structure and operations and a rating agency can provide an external benchmark without requiring the intervention of a regulator.• Producers can only place coverage with insurers with certain ratings. Having a good rating can increase sales and demonstrate financial health to regulators.• Insurers want to purchase reinsurance from strong companies to reduce credit risk penalty and evaluating other companies is difficult to do.• Allow insurers to know how they compare to competitors and influence the capital structure, reinsurance program, and business volume by benchmark.• Demonstrate you are a financially strong reinsurer with a good rating and do not need to post collateral to primary company.• Less expensive to use a rating agency than to demonstrate financial strength to investors for insurer that needs a good rating to issue debt securities or have stock publicly traded.• Reinsurers can charge higher prices with high rating and rating agency will show rating.	
Part b: 0.25 point	
<ul style="list-style-type: none">• Increase competitive advantage over other rating agencies, gain customers and profits.• More trust in the models by the public increases demand for and reliance on the ratings.• If agencies change ratings frequently they may lose credibility and improved model may stabilize ratings.• Competition from ORSA and RBC imply rating agencies need good models.• Accurate model helps an agency attract insurers who might be mis-rated by generic model.	

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

- More accurate models will improve rating agency reputation

Part c: 0.5 point

Sample Responses for "benefit having high capital standards"

- Retain only high-quality clients
- Gain more trust from users of the rating
- High standard would ensure highly rated company could survive stress events
- Regulators might want companies to be rated by rating agency that has high standard so more companies will need to be rated by high standard agency
- High standard will attract insurers that want to be differentiated by high rating from strict model

Sample Responses for "benefit of having low capital standards"

- Gain more market share
- More desirability from clients

Part d: 0.75 point

Any three of the following:

- Rating agency includes risks not in RBC such as catastrophe risk
- RBC worst case year vs. rating agency may use value at risk or expected policyholder deficit (EPD)
- RBC is a fixed formula and rating agency may use stochastic economic capital models
- RBC has one model used for all companies but rating agencies models differ so the rating agency model used for different companies may differ when a different rating agency is used for each
- RBC can cause regulatory action but rating agency does not have this power
- RBC is a transparent public formula while rating agency uses opaque proprietary formula
- RBC is the same for all lines vs. rating agency which may vary by line
- Regulator is stakeholder for RBC while stakeholder for rating agency is consumer, agent, investor
- RBC is quantitative formula while agency also uses qualitative information from interview process
- RBC based on public data; rating agency uses confidential data
- Regulator is stakeholder for RBC while stakeholder for rating agency is consumer, agent, investor (if related to conservatism of RBC and/or going concern of rating agency)
- RBC changes infrequently based on model law while rating agency can adapt and change in response to emerging issues
- RBC does not consider reserve adequacy, but rating agency does
- RBC does not discount reserves, but rating agency uses a conservative discount rate

EXAMINER'S REPORT

Candidates were expected to know the fundamental value of rating agencies with respect to what they do, how they do it, why they are needed, and how they may differ from the NAIC RBC

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

approach.

Part a

Candidates were expected to fully articulate the value of rating agencies to both policyholders and property-casualty insurance companies.

Common errors include:

- Providing only a brief description when the question asked for a description such as “Ratings agencies provide policyholders with easy access a rating”
- Describing the information a policyholder could obtain from a rating but not describing the resulting policyholder action (purchase decision) or benefit of having that information
- Stating that rating agencies can make sure the insurance price is fair to policyholders and the coverage will protect policyholders. Rating agencies do not monitor fair prices or adequacy of coverage.
- Discussing the use of advisory organizations that provide loss cost information for pricing purposes rather than rating agencies that provide financial strength ratings

Part b

Candidates were expected to articulate at least one reason why a rating agency would want to improve the model it uses to evaluate an insurance company’s financial strength.

Common errors include:

- Failure to establish how a more accurate model would benefit the rating agency.
- Discussing how more accurate models would benefit the insurance industry instead of how they would benefit the rating agency that developed the improved model.
- Describing a benefit to the public or policyholders but not a benefit for the rating agency

Part c

Candidates were expected to use the perspective of a rating agency to identify at least one advantage to the rating agency of setting relatively high capital standards for insurance companies and one advantage of setting relatively low capital standards.

The most common error was the failure to approach this from the perspective of a rating agency and describing a benefit to the company instead.

Part d

Candidates were expected to compare and contrast, in at least three ways, NAIC RBC requirements vs. capital requirements of a rating agency.

Common errors include:

- Listing a fact about RBC without comparing it to agency capital requirements
- Providing a true statement that does not address how the capital standard differs between RBC vs. rating agency
- Describing a difference that is not related to capital requirements (fee for rating, required vs optional, percentage vs letter grade, frequency of evaluation, filing dates)

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

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

QUESTION 3	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: A2
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Consistent and objective tool is needed to assist in the solvency regulation process by providing early warnings • RBC requirements include both the formula and model law act which provides the regulator to take necessary correction actions • To have a uniform set of rules for the insurance industry to measure main risks and capital requirements • To create an additional tool to protect policyholders from insurers' insolvencies • Standardized methodology to allow easier company comparisons • Relieve burden from regulators to extensively investigate each insurer. Allows them to prioritize the troubled companies • Way to objectively monitor financial strength relative to risk insurers have – this is a formulaic way to calculate which removes management judgment which can be manipulated • Way to identify insurers early that are potentially financially troubled. Different action levels ensure action is paired appropriately to financial condition 	
Part b: 0.75 point	
<p>Any three of the following:</p> <ul style="list-style-type: none"> • It's formulaic and easy to understand • It's consistent across companies which make it easier to compare companies and prioritize where to act • It gives regulators the authority to step in and take over financially troubled insurers • It's based on the actual risks faced/undertaken by each insurer (with riskier insurers having higher capital requirements) so it helps regulators determine which insurers it should spend more time on. • The RBC model law authorizes regulators to take corrective action against an insurer or to take control of the insurer under certain conditions, so it acts as an early warning system before it's too late to rehabilitate insurers • Data is verifiable from Annual Statement • Calculations are simple and formula based • Calculations are consistent industry wide which allows for better comparisons by regulators • Flexible to capture different insurer's characteristics and financial positions • Very strict and conservative capital requirements • The RBC model laws allow regulators to take action like liquidation 	
Part c: 0.5 point	
<ul style="list-style-type: none"> • Operational risk • Catastrophe risk 	

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

Part d: 0.75 point

Any three of the following:

- Limit new business, since the insurer has less information about these new risks which reduces margin for error
- Exit a segment that might be unprofitable
- Buy appropriate reinsurance coverage
- Tighten underwriting guidelines to non-renew bad policies
- Suspending policyholder/stockholder dividends
- Merger or Acquisition with another company
- Regulator can require insurer to increase capital
- Regulator can require insurer to cut back on operating expenses
- Regulator can restrict new business writings of insurer until stable
- Decrease investments in risky assets
- Limit new or renewal business in unprofitable lines

EXAMINER'S REPORT

Candidates were expected to know the motivation for the creation of RBC, the attributes of RBC, components being considered for inclusion in RBC and actions to take to reduce the risk of insolvency.

Part a

Candidates were expected to know the motivation for the creation of RBC and understand the underlying issues with the historical capital requirements.

Common errors include:

- Failure to provide two unique answers
- Stating that the need for RBC was to measure solvency without mentioning anything specific to RBC such as consistency or objectivity that may be lacking in other methods of determining solvency
- Stating an aspect of RBC without describing the motivation for creating it

Part b

Candidates were expected to know attributes of RBC that make it useful for regulators.

Common errors include:

- Not providing a useful attribute from the perspective of the regulator
- Stating an aspect of RBC without describing how it is useful to the regulator (Example: "Uniform", "consistent" or "standardized" without describing how these attributes help regulators compare insurers.)
- Providing a risk component included in the RBC formula which is not considered to be an attribute of RBC
- Providing two or more answers that were too similar and considered to be duplicate answers (Example: "Transparent" and "easy to understand")

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

Part c

Candidates were expected to know risk categories that are currently not included in RBC and are being developed for inclusion in the RBC requirement. This topic is pulled directly out of the text.

A common error was stating risk charges that are currently included in the RBC requirement

Part d

Candidates were expected to know preventive actions that can be taken to avoid insolvency.

Common errors include:

- Providing actions of rehabilitation, receivership, liquidation or bail out which assumes the insurance company is already insolvent
- Providing actions of increasing rates, changing rate plan, or addressing income statement deficiencies. To avoid insolvency, the imbalance of assets and liabilities must be addressed quickly.

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

QUESTION 4	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE: A4
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • Sherman Act & Clayton Act will both reduce monopoly power and antitrust actions. This compact will not be in effect. • The SEUA decision determined that 1 – The Sherman Act, which prohibited collusion in attempt to gain monopoly power, now applied to insurance 2 – Insurance is considered interstate commerce. As a result, these compacts are considered illegal as they are fixing rates and using boycott and coercion. • The SEUA decision makes the Sherman Act apply to insurance which prohibits compacts as they are seen to be collusion to gain monopoly power. • In violation of antitrust laws (Sherman, Clayton Act) which apply in full to insurance after SEUA decision since insurance considered inter-state commerce & all federal law apply. • SEUA prohibits bureau ratemaking and gives regulation power to federal. After SEUA, Sherman Act is effective on insurance. Sherman Act prohibits compact to gain monopoly power. • No longer allowed. Federal anti-trust regulations apply to insurance. Insurance is now classified as interstate commerce. 	
Part b: 0.5 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • Returns power to state to regulate insurance primarily. However, antitrust and action to reduce monopoly power will continue in effect. Compact will not be allowed even though it's interstate commerce. • McCarran Ferguson brought insurance regulation back to the states and allowed bureau ratemaking as long as it was in the public's best interest. As a result, compacts and the use of boycott, coercion, collusion are still illegal (Sherman Act still applies), but the bureau ratemaking is allowed as long as they are not fixing rates. • The McCarran Ferguson Act returned insurance regulation back to the states, but insurers were still subject to the Sherman Antitrust Act in that boycott, intimidation, and coercion were still illegal. Since the compact only allowed business with agents exclusively working with the compact, this is boycott and is illegal. • States regulation insurance, but certain anti-trust provisions from Sherman Act still apply -> cooperative ratemaking is fine, but not coercion/boycott. • The McCarran-Ferguson Act still would not allow this compact. The Sherman Act still applies to insurers after this act in the case of boycott, coercion, and intimidation. • Compacts may be formed. McCarran Ferguson determined insurance is regulated at state level (with exceptions). It is in the public's interest for insurers to share info. However, this compact has anti-competitive behavior. Sherman Act still applies. This compact is not allowed. • Compact is still not allowed because boycott is still illegal under Sherman Act. Compact would be allowed if it didn't use boycott, was used to set credible loss costs, and didn't hinder free and open competition. 	

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

Part c: 0.5 point

Sample answers include:

- Dodd-Frank had no impacts on the ability of the insurers to form compacts – it is still illegal.
- Dodd-Frank does not explicitly address compacts; however, the McCarran-Ferguson Act still applies along with the federal anti-trust laws that apply. Therefore, insurers will not be allowed to form/remain in compact.
- Dodd-Frank indirectly since FIO established to collect info on insurers -> could lead to investigate issue. Still a violation of Sherman Act due to coercion & boycott of members vs non-members. Dodd Frank did not change McCarran Ferguson.
- Dodd-Frank Act still preserve regulations within state. Since it applies to surplus writer and reinsurance, this won't change the impact from prior act. It is still illegal.
- Dodd-Frank Act doesn't have impact on this activity. They are still subject to Sherman Act and cannot form the impact.
- Dodd-Frank reaffirmed insurance is regulated at state level. Insurers may share rates, but anti-competitive behavior is still outlawed by the Sherman Act.

EXAMINER'S REPORT

Candidates were expected to know the anti-trust implication of each landmark decision and understand how each would affect the scenario outlined in the problem.

Part a

Candidates were expected to recognize that insurance became subject to federal anti-trust laws after the SEUA decision and that the activities of the compact were in violation of them.

Common errors include:

- Mentioning that anti-trust laws applied after SEUA without stating the compact (or compact's behavior) was either illegal or violated the laws.
- Identifying that the compact is illegal but not describing why.

Part b

Candidates were expected to recognize that insurance was still subject to some federal anti-trust laws after the McCarran Ferguson Act and that the activities of the compact were in violation of them.

Common errors include:

- Stating that the compact is allowed.
- Explaining behaviors that are illegal but then saying the compact wasn't exhibiting any of those behaviors.
- Citing that federal anti-trust laws no longer apply and consequentially that the compact is now legal.
- Not specifically stating that the compact is illegal, violates anti-trust laws, or is engaged in illegal behaviors.

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

Part c

Candidates were expected to recognize that Dodd Frank didn't have an impact on the compact but that the compact's behaviors were still illegal under anti-trust laws.

Common errors include:

- Stating that compact is allowed.
- Describing the act but not relating it to compacts or the legality of the compact.
- Stating that the act itself disallowed the compact.

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

QUESTION 5	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVES: B1, B2, B3
SAMPLE ANSWERS	
Part a: 0.25 point	
<p><u>Sample 1:</u> The purpose of a guaranty fund is to protect policyholders (or insureds, beneficiaries, etc.) against losses that might result from the insolvency (or impairment, bankruptcy, liquidation) of an insurer that does business in the state.</p> <p><u>Sample 2:</u> When an insurer goes insolvent, pay out claims to affected policyholders.</p>	
Part b: 1 point	
<p><u>Sample 1:</u> Most states follow a post-solvency assessment approach, where the guaranty fund assesses the remaining solvent insurers in the state based on their written premium (or market share) divided along lines of business.</p> <p><u>Sample 2:</u> Post-Solvency Assessment:</p> <ul style="list-style-type: none"> • Regulator determines the amount of funds needed • Regulator charges assessment to remaining insurers based on market share • Assessments are capped at a % of WP and can recur for multiple years 	
Part c: 1 point	
<p>Any four of the following:</p> <p>Advantages:</p> <ul style="list-style-type: none"> • The funds would be ready when an insolvency happens if they are prefunded (quicker relief for policyholders) • The fund can earn investment income on the assessments collected over time, lowering the amount required from insurers • The pre-funding method would guarantee the fund is funded at all times • Increase speed of claim payment when insolvency occurs • Less admin cost after insolvency • Increased protection for policyholders since a reserve can be built up • Less disruptive than large assessment after insolvency • Insurers can anticipate cost upfront and plan accordingly • State can invest the funds and earn investment income • Future insolvent insurers also contribute to the fund, which may be more fair <p>Disadvantages:</p> <ul style="list-style-type: none"> • Prefunding can incur expenses for insurers for a fund that might not even be used, which would increase costs that trickle down to policyholders through rates • Determining the actual percent of written premium would be difficult (fund may end up 	

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

over/under-funded)

- The pre-funding amount is factored into pricing and hence more expensive for policyholders
- Insurers cannot invest the funds collected by the guarantee fund
- The small percentage of WP may not be enough when an insolvency occurs
- Difficult to estimate the appropriate percentage ahead of the time
- With the backdrop, consumers may be indifferent in choosing insurers – this may hurt the insurers with strong financial rating and underwriting
- If the assessment is based on total WP, it may be unfair since only certain LOBs are covered by Guaranty Funds
- WP is not always correlated with risk & exposure; Companies with different risk levels may be assessed the same %
- May not have insolvency for a long time so pre-funding may be inefficient
- May be a burden for insurers at the verge of insolvency; The additional financial burden could lead to more insolvencies
- The additional costs in pre-funding states may cause insurers to focus more on growing in other states and at the extreme level, stop writing business in pre-funding states
- Large (stable) insurers may be subsidizing the smaller insurers which may be more likely to go insolvent

EXAMINER'S REPORT

Candidates were expected to understand the purpose and operation of state guaranty funds and to assess the effectiveness of a pre-funding approach.

Part a

Candidates were expected to briefly describe the purpose of a guaranty fund.

The most common error was not mentioning anything about insurer insolvency.

Part b

Candidates were expected to fully describe how guaranty funds most commonly assess insurers (post-insolvency assessment).

The most common error was describing a pre-insolvency funding approach or not fully describing the process.

Part c

Candidates were expected to evaluate a pre-funding methodology (generally via a comparison to the more common post-insolvency assessment).

The most common error was not explaining/describing the rationale behind the listed advantages and disadvantages.

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

QUESTION 6	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVES: B1, B2, B3
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Higher Deductible for collision risks to reduce losses. • Limitations for medical risks also to reduce losses for insurance company. • Only offer compulsory liability limits. • Require Large Collision Deductible. • Writing policies without Collision/Comp or Med. • Excluding certain types of claims like glass. 	
Part b: 1.5 points	
<p><u>Sample Answers for Assigned Risk Plans</u></p> <ul style="list-style-type: none"> • The driver applies to and is rejected by the voluntary market. They are then assigned to an insurer based on market share. The policy is then handled by the assigned insurer as if it was written voluntarily. Premium and losses stay with the assigned insurer. • Insureds must first be rejected by the voluntary market. They then apply directly to the assigned risk plans. The insureds are then randomly placed with insureds based on the market share of the auto insurance in the voluntary market for each insurer. The insurer is responsible for the profit/loss of their assigned insureds. <p><u>Sample Answers for Joint Underwriting Associations</u></p> <ul style="list-style-type: none"> • Insurance agents submit the applications directly to the JUAs with a servicing insurer. The servicing insurer would handle premium collections and claims handling. The total profit/loss for all high risk insured in the JUA would be pooled and split between insurers based on their market share of voluntary auto. • Insured apply and are rejected by voluntary market. The broker then submits an application to the JUA. Premium and Losses of the policy shared by all insurers in JUA. One or more insures may service the JUA policies (Pay claims etc.) 	
Part c: 0.75 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • The voluntary market share would increase while involuntary market share drops. This is because with telematics, insurer can assess the risk and charge accordingly, or adjust available coverages accordingly with underwriting. They are more willing to accept risks with hopes that by using telematics they can manage the risk they take. • Several drivers would leave the voluntary market and go to the involuntary market due to 	

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

reasons like cost of the program to install or subscribe to, worries that they will be penalized for when, where, how much, or how they drive, concerns over privacy and use of data, and concern over lack of regulatory oversight. The size of the involuntary market would increase due to refusal of voluntary coverage or not qualifying due to not purchasing device.

EXAMINER'S REPORT

Candidates were expected to demonstrate knowledge of residual markets, including mechanics of various residual market mechanisms.

Part a

Candidates were expected to name two coverage restrictions.

Common errors include:

- Stating a pricing strategy, such as price the policy high, rather than a coverage restriction.
- Providing a response to offer no coverage. This is not a coverage restriction.

Part b

Candidates were expected to fully explain the mechanics of assigned risk plans and joint underwriting associations. Candidates struggled with differentiating the mechanics of different types of residual markets.

A common error was referring to policies being serviced by the JUA. It is an association, not an actual company. Therefore, the JUA does not service policies.

Part c

Candidates were expected to take a stance on the relative size change of the residual market and give an argument for why.

A common error was mentioning the residual market would increase due to stricter underwriting guidelines without mentioning why pricing is an unavailable option.

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

QUESTION 7	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVES: A1, B3
SAMPLE ANSWERS	
Part a: 1 point	
<p>Any four of the following:</p> <ul style="list-style-type: none"> • Restrict coverage by increasing deductibles or limiting insured values • Reduce company expenses • Appeal the rate decision • Plan to take additional rate increases over time • Accept a reduced profit load • Accept the unprofitable business as part of a strategy to maintain market presence • Diversify into other areas in the state, lines in the state, or other states • Restructure the company as an excess and surplus lines carrier • Revise company's underwriting guideline to restrict writing certain policies with high risk • Not writing new policies /stop renewing policies to gradually exit this market due to not profitable line 	
Part b: 0.5 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • Reliance on residual market could increase because insurers withdraw from the market. • Since availability is reduced, the government may need to step in with the residual market to fill the unmet need and increasing the residual market. 	
Part c: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Policies are more expensive • Stigma to residual market • Coverages are more limited • Service is not as good • Cannot choose carrier • Extra time to be declined in voluntary market 	
EXAMINER'S REPORT	
<p>Candidates were expected to display an understanding of options for dealing with actuarially inadequate rates and an understanding that when rates are inadequate the voluntary market will constrict and the residual market will take the overflow.</p>	
Part a	
<p>Candidates were expected to display an understanding of options for dealing with actuarially inadequate rates.</p> <p>Common errors include the following responses:</p> <ul style="list-style-type: none"> • Revise the rating plan. If a company had a better rating plan available, they should already have been using it. • Accept the deficient rate. This was accepted only if accompanied by a valid business case 	

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

for taking no action in the face of inadequate rates.

- Exclude the wind peril from the policy. This is not a common peril that an insurer can simply choose to exclude.
- Purchase additional reinsurance. An inadequate base rate will not reduce the price reinsurers are willing to accept, so the company would in fact have an even smaller profit margin.
- Adopt more aggressive investment strategy. A company's investment strategy should already be optimal and would not be changed by the rate level. It would not be responsible for a company to risk insolvency with risky investments.

Part b

Candidates were expected to demonstrate an understanding that when rates are inadequate the voluntary market will constrict and the residual market will take the overflow.

Common errors include:

- Saying the residual market would decrease
- Stating the residual market would increase without a description of why.

Part c

Candidates were expected to show a general understanding of involuntary market principles.

Common errors include:

- Stating residual market not protected by guarantee fund since the policies are issued by a company and have the same claim on the guarantee fund as primary policies issued.
- Stating why the residual market is worse for companies or for society. The question asked why residual market policies are worse for policyholders.

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

QUESTION 8	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE(S): B2, B3
SAMPLE ANSWERS	
Part a: 1 point	
Sample answers include:	
<u>Crop Insurance Program</u>	
<ul style="list-style-type: none"> • Crop is written and serviced by private companies who cede premium and loss to Federal Government; Fed acts as reinsurer. • The Federal Crop Insurance Program acts as a reinsurer to insurers in the private market. Insurers write the policies and the program reinsures a portion of the risk. • Crop: private market sells and services the risks while Federal Government reinsures. Federal Government also provides subsidies for premium and also reimburses portion of administrative expenses for insurers. 	
<u>National Flood Insurance Program</u>	
<ul style="list-style-type: none"> • NFIP is written by Federal Government; Fed acts as primary insurer. • The NFIP is a "Write Your Own" program where private insurers write flood policies and the NFIP fully reinsures all the flood risk written. • Flood: Private market sells and Federal Government reinsures the risk. 	
Part b: 1 point	
Sample answers include:	
<u>Crop Insurance Program</u>	
<ul style="list-style-type: none"> • Risks are not shared proportionally; private insurers have been able to profit while the government losses money • Federal government has needed to pass disaster recovery bills • Did not provide enough coverage • Encourages overproduction • Low participation rates 	
<u>National Flood Insurance Program</u>	
<ul style="list-style-type: none"> • No enforcement of mandatory coverage by federally backed mortgage companies • FEMA provides support to those who do not purchase coverage • Rates are not adequate • Flood maps are not accurate • Benefits are disproportionately spread to the wealthy • Hazard mitigation isn't incorporated into the program • Program in debt • Adverse selection, only the people who need the coverage the most purchase the coverage • Encourages building or rebuilding in high hazard areas • Insurance agents do not market NFIP policies 	
EXAMINER'S REPORT	
Candidates were expected to understand the risk transfer process of the Federal Crop Insurance	

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

Program and the National Flood Insurance Program, and state criticisms of each program.

Part a

Candidates were expected to know the risk transfer process for each program, and know the government's role.

Common errors include:

- Stating the Federal Crop Insurance Program is written directly by the federal government rather than through a commercial carrier, then reinsured by the federal government
- Stating that private insurers underwrite NFIP policies. The NFIP is a take all comers program.

Part b

Candidates were expected to state two criticisms of each program.

The most common error was to only providing one criticism per program.

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

QUESTION 9	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE(S): B1, B2
SAMPLE ANSWERS	
Part a: 0.5 point	
Sample answers include: <ul style="list-style-type: none"> Workers compensation insurance is primary and Medicare is secondary. Workers compensation is primary over Medicare. Medicare will pay the medical expenses first, and then will seek reimbursement from workers compensation since it provides primary coverage. 	
Part b: 0.5 point	
<ul style="list-style-type: none"> All parties are in a WC settlement are required to set aside money for medical expenses related to the injury. The MSA will ensure that the amount paid by the WC insurer will still be sufficient to offer primary coverage when the insured is Medicare eligible. 	
Part c: 0.5 point	
Sample answers include: <ul style="list-style-type: none"> Unpaid loss estimates for WC will increase with strengthening of the MSA because now the WC insurer is responsible for payments that were paid by Medicare prior to the change. It was expected to see a spike in claim closures before MSAs were put into effect since insurers were trying to settle the claims before new requirements became effective. This one-time effect could distort estimates of ultimate loss using traditional actuarial methods. Losses may now take longer to settle since the MSA will require approval. Estimates of unpaid losses could be understated if the slowdown in the closure pattern is not recognized. There will likely be an increase due to MSAs having to be approved beforehand. A company has to submit their MSA and have it approved or else the claim cannot be settled. This will likely have insurers setting aside larger amounts so they don't risk needing to resubmit the MSA. The additional MSA filing requirements are costlier and make claims settlement slower. This would increase the unpaid losses for WC. 	
EXAMINER'S REPORT	
Candidates were expected to demonstrate an understanding of the interaction between workers compensation insurance and Medicare. Also, candidates were expected to demonstrate knowledge of how Medicare Set-Asides (MSAs) are used to ensure that medical portions of workers comp settlements are appropriately spent on medical expenses during Medicare eligibility.	
Part a	
Candidates were expected to identify the workers compensation coverage as primary and the Medicare coverage as secondary.	
Common errors include: <ul style="list-style-type: none"> Not addressing which coverage was primary and which was secondary. Omitting commentary on one of the coverages 	

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

Part b
Candidates were expected to know why MSAs were created and how the MSA addressed that issue.
Common errors include: <ul style="list-style-type: none">• Not addressing the funding source of the MSAs• Identifying Medicare as the party that sets aside funds for the MSA• Not identifying that the workers compensation funds should pay before Medicare
Part c
Candidates were expected to identify a change associated with MSAs and then relating that to an impact to estimates of unpaid losses.
Common errors include: <ul style="list-style-type: none">• Identifying an impact to unpaid loss estimates without relating it to a change to MSAs• Listing medical versus indemnity split having an impact on unpaid loss estimation. The syllabus material explicitly states that there are no publicly available studies to quantify the impact on overall costs or severity trends.

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

QUESTION 10	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVES: B1, B2, B3
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Keep the regulation of insurance at the state level • Stabilize the market after an attack of terrorism occurs • Provide an unmet need • Provide temporary consumer protection by providing affordable / available terrorism insurance • To minimize economic disruption • Provide a private + federal government solution to fund terrorism insurance while the private market stabilized • Increase affordability / availability of terrorism insurance for P/C market • Allow insurance to be continually available to affected consumers • Social: minimize business interruption after a terrorist attack 	
Part b: 1 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Not enough public data to accurately price terrorism risk • Terrorism risk didn't have enough data to provide for actuarially sound rates • # of policies could experience heavy losses impinging solvency making insurers unwilling to write coverage • Terrorism losses are catastrophic and they can potentially bankrupt insurers • Terrorism was / is unpredictable because of high severity + low frequency. The losses were shown to be catastrophe [sic] • Terrorism is an intentional human act. It's not accidental. Thus, not insurable. • For a risk to be insurable, it must be fortuitous. Terrorism losses are not accidental. • Reinsurers stopped offering coverage and private insurers didn't want to assume all that risk w/o reinsurance 	
Part c: 0.75 point	
<p>Any three of the following:</p> <ul style="list-style-type: none"> • Decrease federal quota share of existing terms / have private insurers take on a greater % • Exclude additional definitions of terrorism besides bio attacks / bioterrorism • Use global reinsurance market to cede high excess layer of TRIA coverage so that the government keeps even less net retention • Decrease participation rate below 85% • End the program. It was supposed to be temporary • Look into methods of funding similar to catastrophe bonds. • Lower the maximum amounts TRIA will cover • Increase the standards of a terrorism event that the TRIA will start cover [sic] • Reduce the top limit gov will cover in case of a cat • Increase the insurance company's deductible • Increase the recoup amount • Return terrorism coverage to private insurers 	

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

- Increase the threshold for the size of loss that triggers coverage
- Increase the minimum loss to be counted as a certified act of terrorism
- Increase the recoup amount that the program will recoup all losses from insurers instead of potentially stopping at \$27.5B
- Let TRIA program expire instead of renewing (it was supposed to be temporary)
- Require the insurer to pay a premium for the TRIA reinsurance coverage
- Create additional exclusions beyond existing [*sic*]
- Create a guaranty fund for terrorism, assessing all companies a certain % of written premium
- Explicitly rule out reimbursement of nuclear, chemical, biological, radiological acts [*NCBR*]
- The government could instead focus efforts on partnering with private companies to develop sophisticated models to price the risk accurately so that private insurers can take on more of the risk over time.

EXAMINER'S REPORT

Candidates were expected to understand the purpose and the mechanisms / structure of the TRIA program. Candidates were expected to show they understood that TRIA is a backstop to private insurance and not primary insurance provided by the federal government.

Part a

Candidates were expected to know the background and goals of the TRIA program.

Common errors include:

- Stating that the goal was for the government to provide insurance directly.
- Stating both an "unmet need" and availability / affordability argument as two separate answers, when they are the same idea.

Part b

Candidates were expected to understand the characteristics of terrorism coverage that would make insurers hesitant to provide coverage after 9/11. Candidates were expected to list two reasons and give an explanation or more detail for each reason.

Common errors include:

- Stating that terrorism coverage is catastrophic without more detail such as risk of insolvency
- Stating that the government wasn't directly providing insurance.
- Stating that the risk was fortuitous and therefore uninsurable.

Part c

Candidates were expected to understand the structure of the TRIA program to develop recommendations on how to reduce the burden on taxpayers.

Common errors include:

- Stating that borrowing from the Treasury instead of taxing would save taxpayers money.
- Stating that the federal government is directly providing insurance instead of serving as a backstop.

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

QUESTION 11	
TOTAL POINT VALUE: 3.5	LEARNING OBJECTIVE(S): C1
SAMPLE ANSWERS	
Part a: 2.5 points	
Part a:	
Surplus Ratio (example on p. 218)	
Mean Policyholder's Surplus = [18,000+19,000]/2 =	18,500
Mean Total Net Loss Reserve = [9,550+10,000]/2 =	9,775
Mean Total Net LAE Reserve = [1,250+1,450]/2 =	1,350
Mean Total Net UEP Reserve = [7,900+8,150]/2 =	8,025
Mean Policyholder's Surplus	18,500
/ [Mean Total Net Loss Reserve	9,775
+ Mean Total Net LAE Reserve	1,350
+ Mean Total Net UEP Reserve	8,025
<u>+ 2015 Total Net Earned Premium]</u>	<u>16,350</u>
= Surplus Ratio	52.1%
Surplus Allocable to Homeowners (HO) (example on p. 219)	
Mean HO Net Loss Reserve = [2,450+2,550]/2 =	2,500
Mean HO Net LAE Reserve = [250+300]/2 =	275
Mean HO Net UEP Reserve = [3,500+3,700]/2 =	3,600
Surplus Ratio	52.1%
* [Mean HO Net Loss Reserve	2,500
+ Mean HO Net LAE Reserve	275
+ Mean HO Net UEP Reserve	3,600
<u>+ 2015 HO Net Earned Premium]</u>	<u>7,350</u>
= Surplus Allocable to HO	7,152
Investable Funds for HO (p. 216)	
Mean HO Ceded Reins. Prem. = [900+950]/2 =	925
Mean HO Agent's Balances = [2,100+2,250]/2 =	2,175
Mean HO Net Loss Reserve	2,500
+ Mean HO Net LAE Reserve	275
+ Mean HO Net UEP Reserve	3,600
+ Mean HO Ceded Reins. Prem.	925
- Mean HO Agent's Balances	2,175
<u>+ Surplus Allocable to HO</u>	<u>7,152</u>
Investable Funds for HO	12,277
Investable Funds for HO	12,277

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

* Net Inv. Gain Ratio	<u>3.5%</u>
Investment Gain for HO	430
Part b: 1 point	
Sample Answers for IEE	
<ul style="list-style-type: none">• Because there will be no change to loss reserves (or alternatively premium, accepting UEP, written premium, earned premium or just premium), there will be no change to the surplus allocated to Homeowners in the IEE.• Because coastal policies are riskier than inland policies the company will charge a higher premium in 2016 for HO policies. This will increase the surplus allocated to the line in the IEE.• If a hurricane occurs in 2016 this will likely increase the mean Loss and LAE reserves (or alternatively premium, accepting UEP, written premium, earned premium or just premium) for Homeowner line, which will in turn increase the surplus allocation.• If no hurricanes occur in 2016, the average Loss and LAE reserves for home could be lower in comparison to past years. All else being equal, this would lower the allocated surplus to the homeowners' line.• There would be an increase in premium (accepted UEP, written premium, earned premium, or just premium) or loss reserves but not a lot since it is based on an average using retrospective figures so the increase in surplus is slow to react.	
Sample Answers for Capital Allocation Model	
<ul style="list-style-type: none">• Shift to coastal policies increases risk, and the result of the increased risk is an increase to surplus.• The shift results in an increased exposure to catastrophes or losses, which will increase the surplus allocation.	
EXAMINER'S REPORT	
Candidates were expected to know how to allocate surplus by line of business, and the differences between methods of doing so.	
Part a	
Candidates were expected to demonstrate the allocation to surplus algorithm per the IEE and its use in calculating the investment return for a particular line of business.	
Common errors include:	
<ul style="list-style-type: none">• Not correctly including the current year figure vs. the two-year average (in particular,	

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

candidates often used the current year surplus to calculate surplus ratio rather than the average).

- Excluding an IEE component from the calculation, particularly either the mean agents' balance or ceded reinsurance premiums payable from the HO investable funds calculation.

Part b

Candidates were expected to understand the difference between a retrospective model that relies on historical data such as obtained from the IEE vs. a prospective model that relies on inputs to the model.

Common errors include:

- Not indicating the direction of surplus change.
- Not including an actual example with an IEE metric and the associated effect on surplus.
- Not tying the increase in risk of the shifted booked of business to the increase in surplus allocated to Homeowners.

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

QUESTION 12	
TOTAL POINT VALUE: 3.75 points	LEARNING OBJECTIVE(S): C1, C2
SAMPLE ANSWERS	
Part a: 1.75 points	
Sample answers include:	
<u>Sample 1</u>	
2015 Net Income =	
= Net EP	600
- Net Inc Losses *	-555
Other U/W exp	
- inc	-150
+ Net inv gain	+15
+ tot other inc	+10
- Div to PH	-1
- <u>Fed inc taxes inc</u>	<u>-2</u>
Total	-83 M
* Net Inc Losses	= Net Pd + Δ in Case Reserve
	= 435 + 50 + (165+45-120-
	20)
	= 555
<u>Sample 2</u>	
Incurred Loss = 435 + (165-120) = 480	
Incurred LAE = 50 + (45-20) =75	
U/W Income = 600 - 480 - 75 - 150 = -105	
Investment Income = 15	
Other Income = 10 - 1 - 2 = 7	
Net Income = -105 +15 + 7 = -83	
Part b: 1 point	
Sample answers include:	
<ul style="list-style-type: none"> • One-year reserve development/prior year's PHS = 66/310 = 21.3% > 20%, so unusual. Is the company under reserving? If so, regulator may worry that balance sheet is weaker than it looks because reserves may be understated. Potential insolvency due to under reserving? • Insurer has an unusual IRIS Ratio 3 ($\frac{855-520}{520} = 64\%$). This may indicate the insurer is growing too quickly and may be getting adversely selected against. This is troublesome since rapid growth is often a leading indicator of insolvency. If the insurer is growing too quickly, it may not be able to adjust rates quickly enough to curb the adverse selection. Additionally, the increase in volume will make it more difficult for the insurer to accurately estimate reserves due to volatility in business right now. 	

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

- GWP and NWP were the same in 2013 and 2014; however, this changed in 2015, indicating the insurer has entered into a reinsurance agreement – despite this level of protection GWPs doubled from 2014 to 2015, meaning the insurer is taking on more risks/expanding business. Additionally, PHS went down by \$10M from 2014 to 2015 (represents -3.2% change from 2014). Lower surplus, in addition to more risks is concerning from regulator's POV. This could imply the insurer is gaining more business at the risk of conceding on something else (eg: rate) which only deteriorates financial condition of insurer.
- IRIS ratio 3 shows change in Net Written Premium: $\left(\frac{855-520}{520}\right) = 64\%$. 64% is high above acceptable limit of 33%. Regulator may be concerned with this rapid premium growth since it is the most common symptom leading up to insolvencies. Insurer may be relaxing rates or underwriting standards to bring in cash quickly to pay current debt, but the risk accompanying all the premium may be more than insurer can handle.
- The company has been growing steadily since it began writing business IRIS ratio 1 and 2 have increased each of the last 2 years and IRIS ratio 2 for 2015 ($855/300 = 285\%$) is approaching the threshold for unusual values. The company seems to be taking on more business without a corresponding increase in surplus. The fact that 1 year development in losses has drastically increased in the last year and is unusual ($66/310 = 21\% > 20\%$) add to the concern for the regulator. The regulator may be concerned that the company may not have appropriately priced the line of business entered into.

Part c: 0.5 point

Sample answers include:

Description of Note:

- Includes disclosures on unsecured recoverable, uncollectible balances, retroactive reinsurance, run-off agreements, and others
- It discloses reinsurance recoverable > 3% of surplus and unsecured rec and reinsurance assumed and ceded which are significant

Why Regulator Might Consult Note:

- Regulator may look at unsecured recoverable to evaluate any potential credit risks to certain reinsurers
- The reg will want to see if this insurer has adequate reins protection to support their rapid growth

Part d: 0.5 point

Sample answers include:

- It appears this company just started using reinsurance so Schedule F could help the regulator assess the quality of the reinsures they are using as well as the collectability of the recoverables.
- Schedule F contains a section that shows the balance sheet gross of reinsurance. This can be analyzed to see if insurer is over-relying on reinsurance, has inadequate reinsurance, or is trying to distort financials to appear less risky.
- Schedule F indicates the provision for reinsurance carried by company. It's a liability item. More reinsurance results in higher provision -> increases liability -> decreases surplus.

EXAMINER'S REPORT

Candidates were expected to know the following:

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

- Items in an insurer's Annual Statement and how to utilize them
- Calculating IRIS ratios and knowing the usual ranges of these ratios

Part a

Candidates were expected to know the different components that contribute to net income which are U/W income, investment income, other income, taxes and dividends.

Common errors include:

- Using losses and LAE reserves directly from the balance sheet, as opposed to calculating the change in reserves
- Failing to include loss adjustment expenses in net incurred losses & LAE
- Removing investment expenses from the investment income component
- Assuming that taxes and dividends were already included in other income

Part b

Candidates were expected to fully discuss one concern a regulator might have by referring directly to the provided Annual Statement excerpt.

Common errors include:

- Describing rapid growth as a concern without providing numerical support
- Stating multiple concerns and attempting to relate them to each other
- Stating that investment expenses were too high. Investment expenses are not part of the balance sheet

Part c

Candidates were expected to briefly describe the content of Note 23 and why the content would attract a regulator's interest.

Common errors include incorrectly describing the content/intent of Note 23, such as:

- Stating that Note 23 contains provision for reinsurance
- Stating that Note 23 describes all reinsurance agreements
- Stating that the Note 23 shows financial ratings of reinsurers
- Stating that regulators can determine if the insurer is getting surplus relief from reinsurance

Part d

Candidates were expected to know contents of Schedule F (e.g., calculates provision, shows balance sheet gross of reinsurance) and how it helps regulators assess the strength of the balance sheet (e.g., provision is a liability and the higher it is, the more liabilities the insurer has).

Common errors include:

- Stating that Schedule F shows other U/W expenses
- Stating that Schedule F describes all reinsurance agreements
- Stating that regulator can assess if company has adequate capital to withstand its obligations through loss reserves

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

QUESTION 13	
TOTAL POINT VALUE: 3.75	LEARNING OBJECTIVE(S): C1, D
SAMPLE ANSWERS	
Part a: 1.25 points	
<p>Total Pooled Incurred Loss & LAE = 1,200 + 3,400 + 350 + 1,175 = 6,125 Company A share = 6,125 * 80% = 4,900 = Company A Direct/Assumed Company B share = 6,125 * 20% = 1,225 = Company B Direct/Assumed Company A Ceded = 0 Company B Ceded = 0</p>	
Part b: 1.5 points	
<p>Company A Direct/Assumed = 6,350 + 1,000 (assumes all Company B) = 7,350 Company B Ceded = 1,000 (cedes all direct) Company A Ceded = (6,350 + 1,000) * 20% = 1,470 (cedes 20% to Company B) Company B Direct/Assumed = 1,000 + 1,470 = 2,470 Company A Net = 6,350 + 1,000 – 1,470 = 5,880 Company B Net = 1,000 + 1,470 – 1,000 = 1,470</p>	
Part c: 1 point	
<p>Any four of the following:</p> <ul style="list-style-type: none"> • A description of the pool • Identification of the lead pool member • The names of all pool participants • State of domicile of each member • Each member's pooling percentage 	
EXAMINER'S REPORT	
<p>Candidates were expected to know financial reporting rules regarding intercompany pools, and to demonstrate understanding by performing detailed calculations.</p>	
Part a	
<p>Candidates were expected to apply rules for reporting loss and LAE in Schedule P when intercompany pooling exists, and to perform calculations in the given hypothetical situation.</p> <p>A common error included the application of rules related to "non-Schedule P" sections of the Annual Statement.</p>	
Part b	
<p>Candidates were expected to apply rules for reporting written premium in the Annual Statement, and to perform calculations in the given hypothetical situation.</p> <p>Common errors include:</p> <ul style="list-style-type: none"> • Application of rules related to Schedule P 	

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

- Performing calculations on incurred losses rather than written premium

Part c

Candidates were expected to recall specific guidance on SAO disclosures regarding intercompany pools.

Common errors include:

- Use of general terms such as “structure”, “arrangement”, or “nature” in place of more specific wording as contained in the reading Responses such as “Description of the pool” or “Description of the pooling arrangement” were acceptable.
- Reference to “Parent” or “Subsidiaries” reflecting the company’s financial structure rather than the pooling arrangement
- Use of other general disclosures, such as the amount of the reserve
- Listing provisions related to “Pools and Associations” instead of “Intercompany Poling”

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

QUESTION 14	
TOTAL POINT VALUE: 3.75	LEARNING OBJECTIVE(S): C1
SAMPLE ANSWERS	
Part a: 2.5 points	
Sample answers include:	
<u>Sample 1</u>	
<u>Reinsurer A</u>	
Provision = [Total Recoverable] – [Total Collateral] + [20% of recoverable on paid over 90 days not in dispute] + [20% of total amounts in dispute]	
Total Recoverable = 3,500 + 600 = 4,100	
Total Collateral = letters of credit + ceded balances payable + other amounts due to reinsurers = 1,500 + 80 + 0 = 1,580	
20% of recoverable on paid over 90 days not in dispute = 20% * 250 = 50	
20% of total amounts in dispute = 20% * 600 = 120	
Reinsurer A provision for reinsurance = 4,100 – 1,580 + 50 + 120 = 2,690, less than total recoverable of 4,100	
 <u>Reinsurer B</u>	
Slow-paying ratio = [Recoverable on paid over 90 days not in dispute] / [total recoverable on paid not in dispute] = 150 / 1,300 = 11.5%	
Ratio less than 20%, so not slow-paying	
Provision = 20% of recoverable on paid over 90 days (all amounts) = 20% * (150 + 50) = 40, less than total recoverable of 2,500 + 500 = 3,000	
 Total Provision = 2,690 + 40 = 2,730	
 <u>Sample 2</u>	
<u>Reinsurer A</u>	
Provision = [Total Recoverable] – [Total Collateral] + [20% of recoverable on paid over 90 days not in dispute] + [20% of total amounts in dispute]	
Total Recoverable = 3,500 + 600 = 4,100	
Total Collateral = letters of credit + ceded balances payable + other amounts due to reinsurers = 1,500 + 80 + 0 = 1,580	
20% of recoverable on paid over 90 days not in dispute = 20% * (250+55) = 61	
20% of total amounts in dispute = 20% * 600 = 120	
Reinsurer A provision for reinsurance = 4,100 – 1,580 + 50 + 120 = 2,701, less than total recoverable of 4,100	
 <u>Reinsurer B</u>	
Slow-paying ratio = [Recoverable on paid over 90 days not in dispute] / [total recoverable on paid not in dispute] = (150+75) / 1,300 = 17.31%	
Ratio less than 20%, so not slow-paying	
Provision = 20% of recoverable on paid over 90 days (all amounts) = 20% * (150 + 75 + 50 + 20) = 59, less than total recoverable of 2,500 + 500 = 3,000	

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

Total Provision = 2,701 + 59 = 2,760

Sample 3

Reinsurer A

Provision = [Total Recoverable] – max(0, [Total Collateral] – [20% of recoverable on paid over 90 days not in dispute] - [20% of total amounts in dispute])

Reinsurer A provision for reinsurance = 3500 + 600 – max(0, 1500+ 80 – 0.2*250 – 0.2*600) = 2690

Reinsurer B

Calculated as in either Sample 1 or 2

Note: some candidates treated the recoverables >120 days past due as a subset of recoverables >90 days past due. Others treated them as separate sets and added them together. Both approaches were accepted.

Part b: 0.75 point

Sample answers include:

- It is possible that an unauthorized reinsurer could be financially stronger or more liable than an authorized reinsurer, but still have a higher provision for reinsurance, thus detracting business. Certification partially addresses this issue by allowing reinsurer to have a lower collateral requirement depending on financial strength, ratings, etc. This reduces the provision and collateral costs.
- The provision penalizes financially strong but unauthorized reinsurers by forcing them to post higher collateral if they want a lower provision. This limits insurers' choices. The certified reinsurer category gives credit to the certified reinsurers depending on their financial rating. This credit reduces the amount of collateral these reinsurers have to post, making them more competitive.
- The provision penalized unauthorized reinsurers more than authorized reinsurers. This could discourage a primary insurer from using an unauthorized reinsurer even in the case when an unauthorized reinsurer is financially stronger and keeps current on payments. This could threaten the primary insurer's solvency if the authorized insurer has higher collectability risk. The certified category provides unauthorized reinsurers a chance to become "certified" which lessens the provision the primary insurer is required to carry. Therefore, the primary insurer is able to use dependable (formerly unauthorized) reinsurer with less provision penalty.

Part c: 0.5 point

Sample answers include:

- An improvement to Schedule F from the regulators' perspective would be to show the reinsurance company's agency rating. This would help regulators better understand any

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

solvency concerns with the reinsurer or potential uncollectability issues.

- Conversations with management could be useful for regulators to provide insight to the collectability of reinsurance. Management may be able to provide more information based on past experiences with a particular reinsurer, but this is not reflected in the provision for reinsurance.
- Determine a data-driven percent for what is considered a slow-paying reinsurer. A company might go from a 19.9% to a 20.1% ratio which increases the provision and may concern the regulator, but there is no data supporting the 20% threshold. An actual percent will help the regulator better understand if a reinsurer is slow-paying.

EXAMINER'S REPORT

Candidates were expected to be able to:

- Calculate the provision for reinsurance for both authorized and unauthorized reinsurers.
- Identify short-comings of the provision and propose potential improvements.
- Understand the Certification process for unauthorized reinsurers and the impact it had on the insurance market.

Part a

Candidates were expected to be able to use the information given to calculate the total schedule F provision for the two reinsurers combined.

Common errors include:

- Using paid amounts in dispute instead of total amounts in dispute for the provision for reinsurer A.
- Omitting total recoverables in dispute (600) in the calculation of the total recoverables for reinsurer A.
- Using paid recoverables (600) in dispute rather than total recoverables in dispute (600) in the calculation of total amounts in dispute for Reinsurer A.
- Not clearly stating the 20% threshold for slow-paying test for reinsurer B.

Part b

Candidates were expected to describe a short-coming of the Schedule F provision that is addressed by the creation of the Certification process. Lastly, candidates needed to explain the impact of the improvement.

Common errors include:

- Stating the being certified can lower the provision requirement, but not including the impact of that this has (e.g., allowing unauthorized reinsurers to better compete and hence increasing the supply of reinsurance, or passing on lowered cost of reinsurance due to lower collateral requirements to primary insurers and/or insureds).
- Not specifying that the certified category applies to previously unauthorized reinsurers (as opposed to all reinsurers).

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

Part c

Candidates were expected to propose an improvement that addresses a current issue with Schedule F and clearly state the impact that the improvement would have.

A common error was proposing an improvement, but neglecting to talk about the impact that the improvement would have for regulators or insureds. The question asked the candidate to “describe” a potential improvement and often the candidate would only state the improvement.

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

QUESTION 15	
TOTAL POINT VALUE: 4.25	LEARNING OBJECTIVE: C1
SAMPLE ANSWERS	
Part a: 3.5 points	
<p>Sample answers include:</p> <p><u>Sample 1</u></p> <p>PHS = (Stocks + Cash + Bonds + Uncollected premiums and agent's balances in the course of collection + Amounts recoverable from reinsurers) – (Losses unpaid + Unearned premiums + Loss adjustment expenses unpaid + Current federal and foreign income taxes unpaid + Other expenses unpaid + Advance premium + Ceded reinsurance premiums payable (net of ceding commissions) + Provision for reinsurance)</p> <p>$PHS = (281,000 + 113,000 + 76,000 + 32,600 + 400) - (135,000 + 60,000 + 36,000 + 30,000 + 9,000 + 830 + 600 + 170) = 503,000 - 271,600 = 231,400$</p> <p><u>Sample 2</u></p> <p>Assets: $281,000 + 113,000 + 76,000 + 32,600 + 400 = 503,000$</p> <p>Liabilities: $135,000 + 60,000 + 36,000 + 30,000 + 9,000 + 830 + 600 + 170 = 217,600$</p> <p>Surplus: $503,000 - 271,600 = 231,400$</p> <p><u>Sample 3</u></p> <p>$281K - 135K + 113K + 76K - 60K - 36K + 32.6K - 30K - 9K - 0.83K - 0.6K + 0.4K - 0.17K = 231.4K$</p>	
Part b: 0.75 point	
<p>Sample answers include:</p> <p><u>Sample 1</u></p> <p>PHS would decrease by $10\% * 32,600 = 3,260$ due to those assets now being non-admitted. Net income would not change</p> <p><u>Sample 2</u></p> <p>$10\%(32,600) = 3,260$</p> <p>Policyholders surplus would decrease by 3,260 because this would become non-admitted and thus not count toward surplus</p> <p>Net income would stay the same (assuming the balances are not written off)</p> <p><u>Sample 3</u></p> <p>10% of Agents Balances = 3,260</p> <p>This would now be treated as a non-admitted asset and the change in its value would directly impact surplus</p> <p>The net income would be reduced if the company deemed the 3,260 uncollectible and decided to write it off</p>	
EXAMINER'S REPORT	
Candidates were expected to use the balance sheet items to calculate the PHS, recognizing which	

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

items were assets and liabilities and which were income statement items. They were expected to recognize that agents' balances >90 days past due would become non-admitted assets and would reduce PHS, but not affect net income (unless written-off).

Part a

Candidates were expected to calculate policyholder surplus using all elements provided from the Balance Sheet.

Common errors include:

- Including income statement items in the calculation
- Categorizing an asset as a liability or a liability as an asset
- Not including certain Balance Sheet items – most commonly Advance Premium

Part b

Candidates were expected to recognize that the amount > 90 days past due would become non-admitted causing a direct charge to surplus of \$3,260, and would have no effect on net income (unless assumed it was written-off).

Common errors include:

- Not mentioning the specific amount by which PHS would be reduced
- Saying net income would be reduced without stating the assumption that the company decided to write off the non-admitted asset
- Not recognizing that the 10% would become a non-admitted asset

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

QUESTION 16	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C1
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Any two of the following distinct thoughts:</p> <ul style="list-style-type: none"> • the amount of premium deficiency reserves <ul style="list-style-type: none"> ○ OR the liability carried for premium deficiency reserves ○ OR the size of deficiency ○ OR “the amount or notice there is no premium deficiency reserves” • whether anticipated investment income was utilized as a factor in the premium deficiency calculation <ul style="list-style-type: none"> ○ OR whether or not anticipated investment income was utilized in the calculation • the date of evaluation for premium deficiency reserves <ul style="list-style-type: none"> ○ OR the date of the most recent evaluation of this liability 	
Part b: 1 point	
<p>Sample answers include:</p> <p>Sample 1</p> <ul style="list-style-type: none"> • Yes, a premium deficiency reserve should be booked. • A premium deficiency reserve is established if the unearned premium of in-force business is not sufficient to cover the losses, LAE and maintenance expenses that will arise as that premium is earned. • Homeowners has loss and LAE ratios greater than 100% each year and 2015 has a loss and LAE ratio of 155%; likely the 2015 unearned premium will be deficient compared to future expected losses and LAE. • Investment Income would not be enough to overcome the underwriting losses. • There is no offset between the PPA and HO lines of business based on how they are marketed and tracked separately. <p>Sample 2</p> <ul style="list-style-type: none"> • We do not know whether a PDR should be booked. There is not enough information to evaluate whether the 2015 UEPR is sufficient given there is no information about rate changes or the corresponding expected future losses. <p>Sample 3</p> <ul style="list-style-type: none"> • No, a premium deficiency reserve should not be booked if we believe the data is sparse because it is a new line of business and the business is priced appropriately. 	
Part c: 1 point	
<p>Any four of the following:</p> <ul style="list-style-type: none"> • The homeowners’ line is still relatively new, so data is sparse. • Data was severely impacted by large losses or CAT losses. • Rate increases have been approved. • The market has been soft and a hard market is expected. 	

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

- Implement underwriting changes
- There are regulatory restrictions on withdrawing from the market.
- Attempt to capture market share.
- Attempt to stimulate growth.
- Bundling or Cross-Selling – The company is ok tolerating high homeowners' loss ratios if it means writing profitable auto.
 - Be able to compete in a market with packaged policies
- Diversify risk
- It would cost more to wind down the business than to keep it going.
- The fixed expenses will be a smaller percentage of larger premium as the business grows.
- Could purchase reinsurance.
- Preserve the company's reputation.

EXAMINER'S REPORT

Candidates were expected to know the definition for premium deficiency reserves and the required disclosures in statutory financial reporting. The candidate was expected to understand why a company would continue to write a non-profitable line of business.

Candidates struggled with the concept that the premium deficiency reserve is a prospective analysis. Just like in ratemaking, the past historical information provides valuable insight, but the overall determination is whether the prices used in the unearned premium will be enough to pay for the losses that will occur on future accidents.

Part a

Candidates were expected to know the premium deficiency disclosure required in the notes in statutory financial reporting:

- the amount of premium deficiency reserves;
- whether anticipated investment income was utilized as a factor in the premium deficiency calculation; and
- the date of evaluation for premium deficiency reserves.

Common errors include providing responses that are not required as part of the financial statement disclosure, such as:

- "If" or "Whether" PDR exists.
- "Amount required by line of business."
- Reason why there is or is not a deficiency.
- Discussion of DPAC because the reference is to Note 30 which is an SAP requirement.
- A discount rate or interest rate, or whether a discount rate applies.
- Whether PDR was included in the UEPR.
- How the PDR was calculated or identification of a change in the PDR calculation from the prior year.

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

Part b

Candidates were expected to apply the definition of premium deficiency disclosure to evaluate some historical data and make assumptions about whether PDR should likely be recorded.

Common errors include:

- Calculation of historical loss ratios with no tie to expected future accidents/losses of in force business.
- Noting that development could occur to make past premiums more deficient. A premium deficiency reserve involves analysis of claims/losses that have not yet happened and are not yet reflected in reserves.
- Calculation of historical loss ratios using Written Premium.
- Saying that the PPA experience will offset the HO experience. Offsets would not be permitted given that the company “exclusively writes and markets HO business.”

Part c

Candidates were expected to know some reasons why a company would continue to write a currently unprofitable line of business.

Common errors include:

- Stating that the company has enough surplus or the PPA line is profitable enough to handle a HO loss without explaining why the company should continue to write the unprofitable line.
- Stating that the company attains high investment returns without explaining that the investment strategy would be changed (because the investment rate of 3% was a given).

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

QUESTION 17	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 2 points	
<p>IRIS Ratio 1 is "Gross Premiums Written to Policyholders' Surplus"</p> <ul style="list-style-type: none"> • Result = $100 * (A + B + C) / D$, where... <ul style="list-style-type: none"> ○ A = Direct Premiums Written ○ B = Reinsurance Assumed – Affiliates ○ C = Reinsurance Assumed – Non-Affiliates ○ D = Policyholders' Surplus • Result = $100 * (1,900 + 220 + 120) / 300 = \mathbf{746.7\%}$ • The usual range for the ratio includes results up to 900%; this result is usual. <p>IRIS Ratio 2 is "Net Premiums Written to Policyholders' Surplus"</p> <ul style="list-style-type: none"> • Result = $100 * (A / B)$, where... <ul style="list-style-type: none"> ○ A = Net Premiums Written ○ B = Policyholders' Surplus • Result = $100 * (1,730 / 300) = \mathbf{576.7\%}$ • The usual range for the ratio includes results up to 300%; this result is unusual. <p>IRIS Ratio 3 is "Change in Net Premiums Written"</p> <ul style="list-style-type: none"> • Result = $100 * (A - B) / B$, where... <ul style="list-style-type: none"> ○ A = Net Premiums Written, Current Year ○ B = Net Premiums Written, Prior Year • Result = $100 * (1,730 - 1,370) / 1,370 = \mathbf{26.3\%}$ • The usual range for the ratio includes results from -33% to +33%; this result is usual. 	
Part b: 0.5 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • The company could reduce their NWP by a variety of strategies: writing less business, securing new reinsurance, or lowering the retention (i.e. increase ceding) on their existing reinsurance • The company could increase PHS by a variety of strategies: securing a higher ceding commission on their reinsurance, securing capital from a parent company, lowering expenses via layoffs, or lowering held reserves 	
EXAMINER'S REPORT	
<p>Candidates were expected to know and calculate IRIS ratios 1-3, interpret the results, and demonstrate understanding of the ratio components.</p>	
Part a	
<p>Candidates were expected to identify the components, accurately calculate the ratio, and indicate whether the calculated ratios produce unusual values for each of the three IRIS ratios.</p>	
<p>Common errors include:</p>	

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

- Leaving out one or both of the assumed written premium amounts for Ratio 1
- Dividing by the current year NWP instead of prior year NWP for Ratio 3

Part b

Candidates were expected to identify a strategy that either lowered NWP, raised PHS, or both. The most common answer was to acquire more reinsurance, although all answers that correctly demonstrated a decrease to the numerator or an increase to the denominator were accepted.

Common errors include:

- Not knowing the definition of IRIS Ratio 2
- Erroneously suggesting a decrease to reinsurance

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

QUESTION 18	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 1.25 points	
<p><u>Surplus Aid</u> Reinsurance ceded commissions= 685,000+15,000=700,000 Reinsurance Premiums Ceded=1,375,000+25,000=1,400,000 Ceding Commissions ratio = 700,000/1,400,000=50% Unearned premium ceded to non-affiliates = 450,000+80,000+200,000+50,000+20,000=800,000 800,000*50% = 400,000 400,000/2,500,000=16%</p>	
Part b: 0.75 point	
<p>Sample answers include: <u>Sample 1</u> one such ratio would be IRIS 2 (NWP/PHS) IRIS 2 pre adj = 6500/2500 = 260% IRIS 2 after adj = 260%/(1-0.16) = 309.5%</p> <p><u>Sample 2</u> IRIS 10 = Uncollected + Deferred Prem Bal / PHS Unadjusted = 430,500 / 2,500,000 = .1722 ≤ .4 Adjusted = 430,500 / (2,500,000 – 400,000) = .205 ≤ .4</p> <p><u>Sample 3</u> Ratio 1 – GWP/PHS unadjusted = (6,500,000+25,000+1,375,000) / 2,500,000 = 316% adjusted = 3.16 / (1-0.16) = 376.2%</p>	
Part c: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Significant amounts of surplus aid may indicate PHS is inadequate • Surplus aid can improve the results of other IRIS ratios enough to conceal important areas of concern • Surplus Aid can mask the surplus problem and affect ratios 1, 2, 7, 10, 13 • Too much reinsurance will have collectability risk. The company may be impacted severely if all reinsurance contracts are cancelled. 	
EXAMINER'S REPORT	
<p>Candidates were expected to know how to calculate IRIS Ratio 4 (Surplus Aid to Policyholders' Surplus) from its Statutory Annual Statement components, and understand its importance, including the impact of Surplus Aid on other IRIS ratios.</p>	
Part a	
<p>Candidates were expected to calculate IRIS Ratio 4 (Surplus Aid to Policyholders' Surplus), given the components.</p>	

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

Common errors include:

- Incorrectly excluding given segments of Reinsurance Ceded Commissions, Written Premium Ceded, and Unearned Premium Ceded.
- Switching Written Premium Ceded and Unearned Premium Ceded in the calculation of Surplus Aid.

Part b

Candidates were expected to name an IRIS Ratio that relies on Policyholders' Surplus and is therefore impacted by high levels of Surplus Aid, and calculate the ratio on both an unadjusted and adjusted basis. Information provided in the question allowed for the calculation of IRIS Ratios 1 (Gross Premiums Written to Policyholders' Surplus), 2 (Net Premiums Written to Policyholders' Surplus), and 10 (Gross Agents' Balances (in Collection) to Policyholders' Surplus).

Common errors include:

- Incorrectly adjusting the IRIS Ratio by adjusting the numerator or increasing the denominator (Policyholders' Surplus).
- Correctly naming other IRIS Ratios that require adjustment but not calculating values for the ratios with the information given.

Part c

Candidates were expected to display understanding of how IRIS Ratio 4 helps regulators identify high levels of Surplus Aid, why it can be a concern, and that many other IRIS Ratios are impacted by unusual values of this ratio.

Common errors include:

- Giving two reasons that described the same thing or omitting a second reason.

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) = $0.5 \times RBC$</p> <p>Regulatory Action Level = RBC ratio from 100% to 150%</p> <p>RBC Ratio = Adj Capital / ACL</p> <p>Adj Capital = RBC Ratio / ACL</p> <p>Adj Capital = PHS - Non-Tab discount - Tab discount</p> <p>PHS = Adj Capital + Non-Tab discount + Tab discount</p> <p>=====</p> <p>PH Surplus range =</p> <p>$1.0 < RBC \text{ ratio} < 1.5$</p> <p>$1.0 < \text{Adj Capital} / \text{ACL} < 1.5$</p> <p>$1.0 \times RBC/2 < \text{Adj Capital} < 1.5 \times RBC/2$</p> <p>$1.0 \times RBC/2 < \text{PHS} - \text{Non-Tab discount} (\\$4500) - \text{Tab discount} (\\$2500) < 1.5 \times RBC/2$</p>	

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

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

=====

- 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

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

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.

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

QUESTION 20					
TOTAL POINT VALUE: 3			LEARNING OBJECTIVE: C3		
SAMPLE ANSWERS					
Part a: 0.75 point					
<ul style="list-style-type: none"> • Model is used in running the business • Model has been validated by an independent third party • Model is documented appropriately 					
Part b: 2.25 points					
	Total/Formula	2016	2017	2018	
Required Capital (SCR)	Given	300	300	300	
Risk Cost of Capital	R-i (Given)	6%	6%	6%	
Cost of Capital in Period	$SCR \cdot (R-i) = 300 \cdot .06 = 18$	18	18	18	
Duration	Based on how long capital is held	1.0	2.0	3.0	
Discount Rate (i)	$0.625\% + .25\%$	0.875%	0.875%	0.875%	
Associated Risk Margin	53.07 For each year = Cost of Capital in Period * $(1 + \text{Discount Rate})^{-\text{Duration}}$ $= 18 \cdot (1.00875)^{-2} = 17.69$ for 2017 Associated Risk Margin (Total) = Sum of years = $17.84 + 17.69 + 17.54 = 53.07$	17.84	17.69	17.54	

	Internal
Best estimate liabilities (Given)	150
Risk margin	53.07
Solvency capital requirement	300
Total required assets	503.07

IFRS Assets = 850 which is > 503.07

Therefore, no regulatory intervention required/company will be subject to regulatory intervention/no regulatory intervention required

Some candidates applied a payout pattern and discounted the best estimate of liabilities. Graders accepted this approach.

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

EXAMINER'S REPORT

Candidates were expected to know details of the Solvency II capital requirements.

Part a

Candidates were expected to list three requirements with brief description for each.

Common errors include:

- Discussing general principles of model design, which are not required for approval of an internal model under Solvency II
- Stating specific assumptions that an internal model might make rather than the requirements of Solvency II
- A discussion on values that an internal model might be able to calculate
- Incorrectly stating that an internal model needs to address all risks to a company
- Confusing 'disclosure' and 'appropriate documentation'

Part b

Candidates were expected to be able to determine individual components: SCR, risk margin and best estimates of liabilities. From these components, candidates were expected to be able to determine free surplus and actions that a regulator would need to take, depending on the free surplus results.

Common errors include:

- Incorrectly using liabilities as the basis for the cost of capital
- Failing to include SCR in the calculate of free surplus
- Adding MCR to SCR (MCR is already a portion of SCR)
- Using MCR instead of SCR in the cost of capital calculation
- In the calculation of 'Liabilities', incorrectly used the 'Best Estimate of Liabilities' amount as a payment to be made by the company annually, for the next three years

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

QUESTION 21				
TOTAL POINT VALUE: 2.25			LEARNING OBJECTIVE: C4	
SAMPLE ANSWERS				
AY	Paid	Ult	Cum % Pd	Inc % Pd
2010				5%
2011				5%
2012	630	700	90%	10%
2013	800	1000	80%	80%

Disc % Pd = $0.05/1.1^{2.5} + 0.05/1.1^{1.5} + 0.1/1.1^{0.5} = 0.178$
 Tax Disc Factor = $\frac{0.178}{0.20} = 0.89$
 Tax-Basis Reserve = $0.89 * 252,000 = 224,280$

EXAMINER'S REPORT

Candidates were expected to understand discounting of loss reserves. Unique to this question was the fact that this was an auto physical damage problem and the "prior" reserves needed to be evenly split into the two prior years for discounting purposes. Candidates were required to understand they were discounting the incremental unpaid and incremental paid or paid/incurred ratio.

Common errors include:

- Neglecting to split the prior into two parts
- Discounting incremental paid rather than unpaid
- Neglecting to divide discounted % by undiscounted % to get discount factor
- Some candidates incorrectly multiplied by .9^x rather than dividing by 1.1^x

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

QUESTION 22	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE(S): D
SAMPLE ANSWERS	
Part a: 1.5 points	
Sample answers include:	
<u>Sample 1</u>	
<ul style="list-style-type: none"> • 10% of surplus: Surplus = $40+15.1+1 - (25.1 +18.5 + 10.5) = 12$ Materiality standard = 1.2M • 10% of reserve = $10\% \times (25.1 + 18.5) = 4.36M$ • Amount of surplus that would trigger the next RBC level $=12 - 4.3 \times 2 = 3.4M$ 	
<u>Sample 2</u>	
<ul style="list-style-type: none"> • 20% of surplus: $20\% \times [40+15.1+1 - (25.1 +18.5 + 10.5)] = 2.4M$ • 10% of point estimate = $10\% \times 44.6 = 4.46M$ • Amount of deviation to cause insurer to fall to Authorized Control Level Standard = $12 (PHS) - 4.3 (ACL) = 7.7$ 	
Part b: 0.5 point	
Sample answers include:	
<u>Sample 1</u>	
I would select 10% of surplus or \$1.2M because it's the smallest of the three and it's the most conservative.	
<u>Sample 2</u>	
Regulators are intended user:	
<ul style="list-style-type: none"> • Concerned about solvency • Select most conservative std of the 3 (min) • Mat. std = 1.2M 	
<u>Sample 3</u>	
I choose the surplus to get to the next regulatory action level which is 3.4m. This is reasonable since at this level of surplus the company would be in danger of insolvency and providing a detailed plan to the commissioner so this level is material enough to change the user's opinion & decision on actions to take & financial health of the company.	
<u>Sample 4</u>	
I would choose Amt to trigger company action level (3.4M). This would get the company on regulators scrutiny and would require the co. to write report to Reg stating how they would increase surplus or decrease risk.	
Part c: 0.75 point	
Sample answers include:	
<u>Sample 1</u>	
There is a risk of material deviation. If the materiality standard is \$1.2m, then adding that to the	

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

company's carried loss and LAE reserves gets us to $25.2 + 18.5 + 1.2 = 44.8\text{m}$. It is very likely that this would be within the actuary's reasonable range of estimates, given his point estimate of 44.6m combined with the fact that high limit liability coverage and new companies are challenging to reserve for. These two facts would certainly widen the actuary's reasonable range to include 44.8m.

Sample 2

As no range of unpaid losses exists, a qualitative determination is needed. As ins co is new to market (inexperienced in reserving) & coverage is hi limits, it seems reasonably possible that unpaid losses could develop by 1.2M, thereby reducing surplus by 1.2M, so yes, RMAD.

Sample 3

Company has only been in business 2 years and writes high limits liability, which is a relatively volatile line. This lack of experience w/ liability line could reasonably result in reserves deviating ($1.2/43.6 = 2.75\%$) 2.75% upwards from where they are now.

Sample 4

Actuary's point estimate = 44.6m

10% of current reserves = 4.36m (from part a.)

Using Bright Line Indicator: $4.36 > 3.4\text{m}$ (surplus – 2xACL from part a.)

Therefore, the regulator would expect a note here that there is risk for material adverse development.

Sample 5

Using the Bright Line Indicator Test, 10% of loss/LAE reserves are greater than the difference of surplus & the company action level, $4.36 > 12 - 2(4.3)$. Therefore, risk of material adverse deviation is believed to exist and comments should be sought from the Appointed Actuary if he disagrees with this.

EXAMINER'S REPORT

Candidates were expected to demonstrate knowledge of several potential materiality standards, justify the selection of a materiality standard and use this selection, along with other risk factors described in the question, to determine if the company has an RMAD.

Part a

Candidates were expected to describe and correctly calculate three distinct materiality standards which could be used by this company. This was generally one from each category of: percentage of reserves, percentage of surplus, and amount of adverse deviation which would trigger a decrease in RBC level.

Common errors include:

- Including the "other expense" liability as part of the carried reserves.
- Providing two answers which were too similar. For example:
 - Using a percent of carried reserves and a percent of the point estimate
 - Providing two materiality standards which corresponded to dropping to different RBC levels.

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

- Providing two different percentages of the same metric (e.g., 10% of surplus, and 20% of surplus)
- Referring to a specific RBC level, but calculating the amount of deviation which would cause the company to enter a different level.
- Identifying an RBC level as “RBC” as opposed to “company action level” or “authorized control level”.
- Not adequately describing the materiality standard (for example, just providing an equation without an explanation).
- Using the following materiality standards because they either don't measure materiality with respect to reserves, include other elements not related to reserves, or exclude a significant component of total reserves
 - percentage of assets
 - percentage of total liabilities
 - percentage of loss only reserves (excluding loss adjustment expenses)

Part b

Candidates were expected to select one of their calculated materiality standards, and justify why that selection would be material to this company.

Common errors include:

- Selecting the highest standard because it is the most conservative. The lowest standard represents the most conservative choice.
- Selecting a standard, but not fully justifying the choice. For example, “I select 3.4M because it would cause a drop in the RBC level,” or “I select 1.2M because it is the smallest.” These answers did not provide a complete justification and were either simply a definition of the selection or just one minor fact about the selection and did explain why that is a good choice (like “...and therefore the most conservative.”)

Part c

Candidates were expected to use both quantitative and qualitative reasoning to conclude whether or not an RMAD exists. Candidates generally had difficulty with this subpart with the majority only considering quantitative aspects.

Candidates who assumed a reasonable range of reserves around the central estimate, and correctly concluded whether there was an RMAD based on these criteria were provided partial credit.

Common errors include:

- Concluding that there was or was not an RMAD based on a comparison to the point estimate. For example, “Since the carried + materiality standard > point estimate, there is an RMAD”, or “Since the carried + materiality standard < point estimate, there is not an RMAD”. Quantitative measures look to the carried reserve + materiality standard relative to the range. In other words, is it reasonable to expect that the carried reserves would develop adversely by the materiality standard.
- Incorrectly interpreting the results of the Bright Line Indicator Test, such as “Since 10% of carried reserves > Surplus – 2 x ACL, there is RMAD”. If the test fails, regulators would

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

expect there to be an RMAD, but it isn't a black and white rule. If the actuary's determination conflicts with the Bright Line results, they may need to provide further justification.

- Creating the actuary's range by adding and subtracting the materiality standard from the actuary's point estimate, and then comparing the carried reserve to that range. Or comparing the actuary's point estimate to the top end of the range of the carried reserve plus the materiality standard. The actuary's range is independent of the materiality standard.

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

QUESTION 23	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Any one bullet related to each individual: Sample Responses for Head of Reinsurance Department</p> <ul style="list-style-type: none"> • SAO needs to comment on the reinsurance collectability. The reinsurance department mgmt. can help on any collectability problems as well as things like overdue, disputes, etc. in addition to the Schedule F • Better understand and assess reinsurance uncollectibility risk • The existence of retroactive, financial, or finite reinsurance <p>Sample Responses for Head of Data Systems Department</p> <ul style="list-style-type: none"> • Head of data system would be responsible for providing data details for the SAO. Also, would be helpful if the Actuary has any data reconciliation problems. We need to disclose the name of the person who provides the data. • Assess quality of the data to be used <p>Sample Responses for Involuntary Pool Actuary</p> <ul style="list-style-type: none"> • If the reporting company participates in an involuntary pool, then the reserves of the pool may not need the Appointed Actuary's opinion or may just need the Appointed Actuary's review. Involuntary (pool) actuary can provide the opinion on this part of the reserve. • To decide whether to rely on reserves analyzed by other actuary or understand his/her analysis 	
Part b: 0.75 point	
<p>Any three of the following:</p> <ul style="list-style-type: none"> • Size of estimate by actuary (materiality) • Credentials of actuary • Assumptions and methods used by actuary • The amount of the company's pooling reserves in comparison with the whole reserves of the company • The nature of the pooling exposure • The pooling Actuary's qualifications and relationship with the pooling 	
Part c: 1 point	
<p>Sample Responses for APD</p> <ul style="list-style-type: none"> • Because the wrong loss development patterns were used for the wrong benefit and it would result in a material change (assume 3M, 10% of surplus is material) the SAO was issued in error • Yes, this mistake would have cause a material difference in the reserves which the 2014 SAO commented on. The liability pattern was known at the time the 2014 SAO was issued. <p>Sample Responses for HO</p>	

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

- The SAO was not issued in error. The loss development patterns are subjective, not objective like in part i. A simple change in selections would not mean it was issued in error.
- No, although the revised pattern would have caused a material change in reserves, the opinion at the time did not have the additional time to see how the pattern developed. Opinion could have been reasonable at the time.

EXAMINER'S REPORT

Candidates were expected to understand how the Appointed Actuary's conversations with key departments, and the information gathered from them, is used for required (not optional) disclosures and in determining the reasonableness of results. Candidates are also expected to know when an SAO needs to be revised (was issued in error) based on the receipt of information subsequent to the release of the SAO.

Part a

Candidates were expected to understand how information derived from key departments will assist the Appointed Actuary with required disclosures.

Common errors include providing information that could be gathered from each individual that does not support a SAO disclosure. Examples include:

- Head of Reinsurance –using words like recoverables, disputes or financial strength when not in a clear context of an issue with collectability
- Head of Data Systems Department – stating changes in data (values) or how data is collected
- Involuntary Pool Actuary – the extent of participation in the pool, and the name of the lead company. This is information the company actuary would already have before meeting with the Involuntary Pool Actuary.

Part b

Candidates were expected to know the types of information provided by the Involuntary Pool Actuary that could assist the Appointed Actuary with determining the reasonableness of the overall reserves.

Common errors include:

- Referring only to the experience of the involuntary pool actuary without discussing the actuary's credentials or accreditation.
- Nature of reserves (rather than nature of exposures and coverage)
- Proportion of pool to total (without mentioning reserves)

Part c

Candidates were expected to understand the events that would cause the Appointed Actuary to conclude that the prior SAO was issued in error.

Common errors include:

- Not being firm with a YES or NO, but rather "hedging the bet" – e.g., "may be an error," or "may not be an error" without further explanation

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

- Focusing only on materiality for both subparts – the error associated with the scenario in the second subpart was due to subjectivity, regardless of whether the error was considered material or not
- Not writing an explanation for each scenario, but rather using them in conjunction to arrive at one answer

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

QUESTION 24	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • An intended audience may be domiciliary regulators. The purpose of item E is to disclose whether 3 or more of the last 5 years have had 1 year development greater than 5% of the prior year's surplus and disclose what factors may have caused that deviation • Regulator – helps identify companies that have been under reserving over the past five years • Regulators – identify whether adverse development has occurred in excess of 5% of policyholders' surplus in 3 or more of the last 5 years. 	
Part b: 0.75 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • This company has experienced adverse development of greater than 5% in 3 of the last 5 years. The years are 2011, 2012, and 2013. This was due to significant and unanticipated development on the E&O line of business. • Loss + loss expenses have developed adversely by more than 5% of prior year end surplus in 3 out of the past 5 years. This is due to an expansion into a longer tailed line of business (E+O) without immediately reflecting changes in the book in the development patterns. Management has noted the issue and corrected for it as seen in the latest 2 years. • In reviewing IRIS 11 ratios, 3 out of 5 recent calendar years resulted in outcomes greater than 5%, which considered to be unusual. The reason behind this comes from the errors & omission coverage offered back in 2009, which resulted adverse development in years between 2011 & 2013. However, the company has been increasing less adverse development in recent last two years, which I'm not concerned with. 	
Part c: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • May want to know if other IRIS ratios are alright • May want to check if there is sufficient reinsurance or reinsurance coverage • What are the underlying drivers that is causing the adverse development? • Which lines of business are responsible for this adverse development? • What development procedures did they change? Only for this line? • How are they accounting for the bad development in the prior years? • How the development compared to change in reserve estimate? • Is the development related to issue unique to the insurer? • Is this line of business expected to continue? • Are there reinsurance collectability issues and is reinsurance adequate? • Are the reserves adequate now? • What issues with E+O caused this. Which accident years? • Have the writings in this coverage stabilize or is it growing, since cannot see from what is 	

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

provided?

- How much of this coverage as a percentage of total reserves?
- Is there a solvency concern?

Part d: 1 point

Any two of the following (Including identifying the resource and briefly describing the information):

- Schedule P –
 - Historical loss development by line of business can be used to evaluate reserve adequacy by year
 - to compute frequency and severity to compare to the industry
- Schedule F – to see if there are any reinsurance treaties impacting loss and surplus
- Notes to the Financial Statement - The note on the change in incurred loss should note changes and what line of business caused the change
- IRIS Ratio 13 – IRIS ratio 11, 12, 13 to see if reserve is inadequate during latest years
- Company management - provide insight to the changes in claim handling or insight to the drivers of adverse development
- Underwriting & Investment Expense Exhibit – will have written premium by line of business, can see how much E&O is part of the total business
- Competitor Annual Statements – could compare other insurers financial statements to see if they experienced adverse development in E&O coverage as well and benchmark against the company
- IEE – will show profitability by line of business and may be able to identify problems specific to E&O exposures
- SAO (with any of the following listed as useful information that may be found):
 - Relevant comments on unusual IRIS ratios for IRIS ratio 11, 12, or 13
 - Relevant comments on the collectability of reinsurance
 - Changes in methods and assumptions that may have caused the unanticipated development
 - Regulator can check the appointed actuary's opinion on whether reserves are now adequate
- Five year historical data: RBC analysis

EXAMINER'S REPORT

Candidates were expected to understand the user and purpose of Item E of the Actuarial Opinion Summary, the language the actuary would use in commenting on unusual values in Item E, the additional information a regulator may wish to obtain as a result of adverse deviation indicated in Item E, and available resources that could be used in order to provide the information.

Part a

Candidates were expected to demonstrate an understanding of the audience of the AOS a general understanding as to the primary reason Item E is included in the AOS.

Common errors include:

- Stating the intended user as management or the board of directors. This was not

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

accepted since company management and the board of directors should already know the actuary's range and 5-year historical experience.

- Discussing the purpose of the Item A through D of the AOS, not specifically Item E
- Stating the purpose as an indicator of whether reserves are sufficient; there is insufficient information to make that determination.

Part b

Candidates were expected to demonstrate an understanding of the key information provided in Item E of the AOS.

Common errors include:

- Failing to discuss the cause of the adverse development.
- Failing to state the results (3 out of 5 years, >5% deviation)
- Stating the cause of adverse development was related to Asbestos & Environmental claims, or other factors not presented in the question. Information provided in the question made it clear the development was caused as a result of the E&O line of business.
- Stating very broadly that the development was caused by unanticipated development. The text states that "the AOS also requires explicit discussion of reserve elements and/or management decisions to which such adverse development can be attributed."
- Stating solely that development was caused by expansion of E&O. Expansion into a new line should not necessarily lead to adverse development in the reserves.

Part c

Candidates were expected to demonstrate an understanding of additional information a regulator may request in order to assess the reserve adequacy and solvency of a company that has experienced adverse development in 3 of the past 5 years.

Common errors include:

- Requesting additional information that was already clearly provided in the exam text provided for Item E in part b.
- Requesting two pieces of information that were essentially one in the same
- Asking if pricing for E&O is adequate (something a solvency regulator reviewing Item E would be less likely to be interested in)
- Broad questions regarding the mix of business, for example "is the mix of business changing?"

Part d

Candidates were expected to demonstrate an understanding of resources available that would provide sufficient information to answer the questions posed in part c., as well as the useful information that could be found in the resources listed.

Common errors include:

- Stating a resource without providing insight to the information provided
- Requesting information that a (solvency) regulator would likely not be interested in.

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

- Stating a resource that would not provide sufficient information provided the question posed in part c. (in particular, the Five-Year Exhibit which does not contain enough detail to answer many of the questions posed)
- Stating the same resource twice without clearly stating the different locations and different information that could be found in each part of the same source.
- Stating a resource that addressed a question that was extremely unrelated to the question at hand
- Using IRIS Ratio 11 or 12 as a resource, which are both immediately available and evident in Item E. IRIS 13 (or listing all three) was accepted, however.
- Schedule T as it was seen as providing information at too high of a level to be useful in this situation

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

QUESTION 25	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE(S): D1a
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Any three of the following:</p> <ul style="list-style-type: none"> • Company writes high limits relative to surplus • Company writes only general liability • Company writes business in a single state • Company specializes in underwriting risks in a single industry • The company has no reinsurance protection in place • Company is new and may not have sufficient experience to underwrite/price/reserve correctly 	
Part b: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Company Management could write lower limits so one or two large claims won't have a detrimental impact on surplus • Company management could enter into a reinsurance agreement to mitigate development on net losses. • Company management could expand business into other lines to diversify their business • Company Management could expand business into other states to diversify their business. • Company Management could expand business into industries other than agriculture to diversify their business • Company Management could hire consultants or use industry data to assist in underwriting/pricing/reserving 	
Part c: 0.5 point	
<p>Any two of the following:</p> <ul style="list-style-type: none"> • Reducing the limits of insurance, all things equal, would cause less premium to be earned. The company could consider expansion, to maintain current premium levels. However, the reduction in limits may limit their ability to sell new policies and increase adverse selection. Caution must be used to make sure they aren't underwriting bad risks • Reinsurance placed with a poor performing reinsurer could lead to more reinsurance collectability concerns. • Changes in underwriting new lines of business, new industries, or new states must be done carefully so an insurance company doesn't experience adverse selection from improper pricing. Company will not have their own experience in setting prices and reserves. Or using available industry benchmark data to set prices and reserves could result in improper pricing and reserving if the benchmarks aren't appropriate for the business underwritten. • If outside expertise is too expensive or ineffective, this could lead to deterioration in the combined ratio due to either adverse UW losses or increase expenses. 	

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

- If the reinsurance is too expensive or they don't cede enough risk, either their combined ratio will be adversely affected or the Company has not been properly addressed the inherent risk involved in their business model.

EXAMINER'S REPORT

Candidates were expected to understand identify risks specific to the company and to understand the concept of risk of material adverse deviation

Part a

Candidates were expected to understand were expected to identify three possible risks specific to the Company that could lead to risk of material adverse deviation could be identified by an opining actuary as risks that could lead to RMAD.

Common errors include listing the following risks because they are not specific to the Company:

- Catastrophes - due to the nature of GL coverage, catastrophe type losses are excluded.
- A&E and Environmental – because this Company starting writing insurance in 2015, it would not be exposed to legacy A&E and Environmental exposures.
- Mass Tort – This risk was not considered specific to the Company's circumstances as this would be an exposure that exists for the industry and not for this particular company.
- Rapid growth, without relating to reserve adequacy

Part b

Candidates were expected to provide a change the company could make to reduce the risks mentioned in part a.

Common errors include:

- Providing changes that would not mitigate the risk
- Providing changes that were not relevant from the insurer's perspective.

Part c

Candidates were expected to identify a reasonable risk of implementing the risk mitigation strategy identified in part b.

Common errors include not relating the problem to part b. Or the problem identified in part c. was not an issue the insurance company could face. For example, no insurance company would buy excess of loss reinsurance that attached above the per claim limit of the underlying book of business.

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

QUESTION 26	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVE(S): E
SAMPLE ANSWERS	
Part a: 0.5 point	
Any two of the following: <ul style="list-style-type: none"> • End a troubled relationship • Expect they would be profiting from commutation • Concern the other party's financial solvency • Want to exit a line of business 	
Part b: 2.5 points	
Sample answers include:	
<u>Sample 1</u>	
<u>Reinsurer before commutation</u>	
Reserve = $1,250,000 \times 25\% \times 1.15 = 359,375$	
Paid Loss = $1,300,000 \times 25\% = 325,000$	
Ultimate Loss = $359,375 + 325,000 = 684,375$	
<u>Reinsurer after commutation</u>	
Ultimate Loss = $684,375, \times 1.1 = 752,813$	
Commutation Price = $752,813 - 325,000 = 427,813$	
<u>Change in taxable income</u>	
Primary Insurer = $427,813 - (0.25 \times 1,250,000 \times 0.875) = 154,375$ (increase)	
Reinsurer = $(359,375 \times 0.875) - 427,813 = -113,359$ (decrease)	
<u>Sample 2</u>	
Reinsurer Reserve = $1,250,000 \times 75\% \times 1.15 = 1,078,125$	
Reinsurer paid = $325,000$	
Reinsured Ultimate Loss before comm. = $325,000 + 1078,125 = 1,403,125$	
Ultimate after commutation = $1,403,125, \times 1.1 = 1,543,438$	
Commutation Price = $1,543,438 - 325,000 = 1,218,438$	
<u>Change in taxable income</u>	
i) $1,218,438 - 0.25 \times 1,250,000 \times 0.875 = 945,000$	
ii) $1,078,125 \times 0.875 - 1,218,438 = -275,079$	
EXAMINER'S REPORT	
Candidates were expected to understand the motivation and application of reinsurance commutation.	
Part a	
Candidates were expected to know the motivations of entering into a commutation from a reinsurer's point of view.	

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

Common errors include:

- Providing a response from the insurer's point rather than reinsurer's point
- Only pointing out the adverse loss development but failing to state that the reinsurer is expected to profit from the commutation

Part b

Candidates were expected to know reinsurer's ultimate loss prior to and post commutation and the calculation for taxable income.

Common errors include:

- Incorrectly calculating the reserve and paid loss for reinsurer.
- Assuming the commutation price was only 10% of reserve/paid loss
- Not applying the discount factor in the change in taxable income calculations
- Calculating the change in tax rather than taxable income
- Incorrectly stating/calculating the formula for the change in taxable income (which led to the opposite answer of whether the income is increasing or decreasing)

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

QUESTION 27	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE(S): E
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Sample answers include:</p> <ul style="list-style-type: none"> • The ERD is the net present value of the average severity UW loss to a reinsurer multiplied by the probability of a NPV loss to the reinsurer. This is divided by the ceded premium. If the resulting ratio is greater than 1%, the contract qualifies for risk transfer. • If the (probability that the NPV of loss to reinsurer) *(Ang severity given that there is a loss) > a threshold (usually threshold 1%), then that proves the contract does in fact transfer sufficient risk and qualifies for reinsurance accounting. • ERD = Probability (NPV of an U/W loss)*Avg Severity of U/W Loss. The ERD method takes the probability that a reinsurer will get an U/W loss (losses LAE > ceded premium) multiplied by the average of the loss for that probability. If ERD is less than 1%, then it is not considered to be reinsurance and must use deposit accounting instead of reinsurance accounting. 	
Part b: 1 point	
<p>Sample answers include:</p> <p><u>Profit Commission</u></p> <ul style="list-style-type: none"> • No – this is only applicable if there is no reinsurance loss, and risk transfer only considers scenarios with a reinsurance loss • Profit commission shouldn't be included in the analysis because the analysis isn't concerned with profitable scenarios. • No – we only want cases where the profit is negative and this wouldn't apply. <p><u>Reinsurer Expenses</u></p> <ul style="list-style-type: none"> • No – this is not a cash flow between the cedant and the reinsurer, so it should not be considered. • Reinsurer expenses are not a payment between the reinsurer and ceding company, so they should be excluded from the risk transfer analysis. • Not appropriate – should only consider items directly transferred between reinsurer and insured in this analysis, not reinsurance expenses. 	
Part c: 1 point	
<p>Any four of the following. Sub bullets indicate related thoughts that were given credit as long as they were not repeated:</p> <ul style="list-style-type: none"> • Equal in duration to that of the reinsurer's net cash flows <ul style="list-style-type: none"> ○ Does it account for the timing of payments? ○ Tail of line being reinsured (duration) • Should use the risk-free rate as its minimum or floor <ul style="list-style-type: none"> ○ Consider the risk-free rate ○ If lower (higher) than the risk-free rate may over-(under) detect risk ○ Should exceed the risk-free rate • Should be the same rate for all cash flows 	

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

- Same discount used for all scenarios (no interest rate risk)
- Yield curves are not appropriate
- Use of interest rate from US treasury department
- Should be reasonable
 - Should be appropriate (per SSAP 62)
- Should not include non-U/W risk
 - Should not incorporate a provision for credit risk in the discount rate
 - Should not reflect interest rate risk
 - Should not consider investment return of reinsurer
 - Should not use pricing assumptions

EXAMINER'S REPORT

Candidates were expected to be familiar with the aspects of the ERD calculation.

Part a

Candidates were expected to:

- Describe the ERD calculation (probability of a NPV underwriting loss for the reinsurer multiplied by the NPV of the average severity of the reinsurer underwriting loss).
- Note that the ratio of ERD to Reinsurer premium is compared to a threshold ERD.
- Note that this ratio must exceed the threshold of 1% in order for the contract to qualify as risk transfer.

Common errors include:

- Failure to specify "reinsurer U/W loss" (e.g. "Calculate the PV of loss offset by premium to get the underwriting loss. Multiply by the probability of loss occurring and divide by premium.")
- Failure to include mention of NPV in the calculation (e.g. "ERD calculates Prob of a loss and the average severity of the loss to the reinsurer")
- Responses that only described the 10-10 rule. An example of such a response is as follows: "it must show a 10% probability of realizing a 10% significant loss. There must be presence of insurance risk, both timing and UW risk."
- Responses that only described the requirements of risk transfer. An example of such a response is as follows: "calculates the likelihood that a reinsurer would experience a loss...without some chance of loss, little chance there's actually a transfer of risk. Amounts to determining a n% likelihood of a loss size k."

Part b

Profit Commission

Candidates were expected to:

- State that it is not appropriate to include profit commission in the risk transfer analysis
- State that profit commission only applies when there has been no reinsurer loss. Risk transfer analysis only takes into account scenarios with a reinsurance loss.

Common errors include:

- Providing the rationale that profit commission is not part of risk transfer, as this

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

statement does not describe why profit commission should not be considered. For example, "No, it has nothing to do with risk transfer".

- Responses that offered an incorrect rationale. For example, "No, it is not appropriate because reinsurance contracts should not have profit provision. It is also difficult to model."
- Responses that stated that including a profit provision was appropriate. For example, "Profit commission is appropriate to use since this a portion of the cost associated with an individual risk transfer."

Reinsurer Expenses

Candidates were expected to:

- State that it is not appropriate to include reinsurer expenses in the risk transfer analysis.
- Explain that reinsurer expenses are not a component of the cash flow between the cedant and the reinsurer.

Common errors include:

- Providing the rationale that reinsurer expenses don't apply to the definition of risk transfer, as this statement does not describe why reinsurer expenses should not be considered. For example, "No, expenses are not part of risk transfer"
- Stating that it was appropriate to include reinsurer expenses in risk transfer analysis, "as it corresponds to the premium being charged" or "it is part of the cost of reinsurance."
- Responses that inaccurately described the reasoning. For example, "No, they are not part of the contract and have no bearing on the riskiness of the business."
- Responses that stated that including reinsurer expenses was appropriate. For example, the response, "Yes, reinsurer expenses are passed between insurer and reinsurer should be part of the analysis."

Part c

Candidates were expected to identify four distinct considerations, which could include:

- Constant discount rate for each scenario
- Same discount rate for each cash flow
- Risk free rate as a lower bound
- Not non-insurance risks (e.g. pricing, reinsurer returns, currency risk)
- Reasonable / Appropriate (SSAP 62)
- Duration used to select interest rate is based on net cash flows to reinsurer
- Treasury yield rates

Common errors include:

- Duplication of responses. For example, stating that the risk-free rate should be considered, rates lower than the risk-free rate would over-detect risk transfer, and rates higher than the risk-free rate would under-detect risk transfer as three separate considerations.
- Citing considerations for unpaid loss estimate discount rates (risk margin, illiquidity premium).
- Stating that company historical payment patterns should be considered.

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