

Exam 6US



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Exam 6-United States

Regulation and Financial Reporting (Nation Specific)

4 HOURS

April 30, 2018

INSTRUCTIONS TO CANDIDATES

1. This 71 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.

CONTINUE TO NEXT PAGE OF INSTRUCTIONS

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 14, 2018.

END OF INSTRUCTIONS

EXAM 6 – UNITED STATES, SPRING 2018

1. (3.25 points)

a. (0.75 point)

Briefly describe three differences between price optimization and traditional actuarial ratemaking.

b. (0.75 point)

Identify two pieces of information that could be used in a price optimized rating plan that might lead to prices that are unfairly discriminatory, and briefly describe one reason why the resulting prices might be unfairly discriminatory.

c. (0.75 point)

Briefly describe three constraints a regulator could impose on a price optimized rating plan.

d. (1 point)

Briefly describe four disclosures a regulator may require from an insurer when price optimization is used in a rate filing.

EXAM 6 – UNITED STATES, SPRING 2018

2. (2 points)

a. (0.5 point)

Describe a surplus lines insurance transaction.

b. (1 point)

Identify two types of insurance regulation from which surplus lines are exempt, and briefly describe a possible benefit to policyholders of each exemption.

c. (0.5 point)

Briefly describe two ways in which the surplus lines market is regulated.

3. (2.25 points)

a. (0.5 point)

Define regulatory forbearance.

b. (0.5 point)

Briefly describe two causes of regulatory forbearance.

c. (0.5 point)

Briefly describe two effects of regulatory forbearance.

d. (0.75 point)

Identify two RBC action levels where the risk of regulatory forbearance exists, and briefly describe why.

EXAM 6 – UNITED STATES, SPRING 2018

4. (3.5 points)

a. (1 point)

Describe the circumstances and describe the result of *Paul v. Virginia*.

b. (0.5 point)

Describe the role of the federal government in regulating the business of insurance according to the McCarran-Ferguson Act.

c. (1 point)

Identify four ways in which insurance companies are regulated by states.

d. (1 point)

Identify two insurance programs in which the federal government is involved, and briefly describe the role of the federal government in each program.

5. (1.5 points)

a. (0.75 point)

Briefly describe three ways in which the Graham-Leach-Bliley Act (GLB) regulates the participation of banking institutions in insurance.

b. (0.25 point)

Briefly describe how GLB addresses privacy concerns that arise from the sharing of information between banks and their insurer affiliates.

c. (0.5 point)

Identify the NAIC Model Act issued in response to GLB, and briefly describe the GLB provision that prompted its issuance.

EXAM 6 – UNITED STATES, SPRING 2018

6. (2.75 points)

a. (1 point)

Fully describe Assigned Risk Plans.

b. (1 point)

Fully describe Joint Underwriting Associations (JUA).

c. (0.75 point)

An insurance company is planning to write personal auto insurance in a new state. It has a choice between State A, which has an Assigned Risk Plan, and State B, which has a JUA. In all other respects, the auto insurance markets in State A and State B are the same. Provide a recommendation for which state the company should write in and explain the rationale.

7. (2.25 points)

a. (0.5 point)

Briefly explain two reasons why a financially strong insurer participating in a guaranty fund might prefer strong solvency regulation.

b. (1 point)

Describe two difficulties a guaranty fund might experience if a multistate insurer becomes insolvent.

c. (0.75 point)

If a state were to eliminate its guaranty fund, briefly describe a potential consequence to each of the following:

- i. Policyholders
- ii. Insurers
- iii. Regulators

8. (3 points)

a. (1 point)

Briefly describe four reasons for government participation in insurance.

b. (0.5 point)

For two of the reasons identified in part a. above, briefly describe whether or not each reason applies to beachfront and windstorm plans.

c. (1.5 points)

For Fair Access to Insurance Requirements (FAIR) plans, describe each of the following:

- i. The rationale for their creation
- ii. How the plans operate
- iii. The eligibility requirements of the plans

EXAM 6 – UNITED STATES, SPRING 2018

9. (2 points)

Define each of the following Annual Statement entries and identify whether it is an asset, liability or an income statement item.

- i. Amount Recoverable from Reinsurers
- ii. Reinsurance Payable on Paid Loss & LAE
- iii. Funds Held under Reinsurance Contracts
- iv. Provision for Reinsurance

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EXAM 6 – UNITED STATES, SPRING 2018

10. (3 points)

The following information is calculated from an insurance company's 2016 Annual Statement (all figures are in thousands of dollars).

	Commercial Multi-Peril	Workers' Compensation	All Lines
Written premium in 2016	18,500	10,000	28,500
Earned premium in 2016	20,000	9,000	29,000
Accident year 2016 ultimate loss	12,100	7,500	19,600
Change in accident year 2015 and prior ultimate loss	(200)	100	(100)

Underwriting and Investment Exhibit	Loss Adjustment Expenses	Other Underwriting Expense	Investment Expenses	Total
Total expenses incurred	1,300	2,400	150	3,850
Total expenses paid	1,305	2,100	160	3,565

	All Lines
Net investment income earned	3,200
Net realized capital gains	45
Net unrealized capital gains	6
Net gain (loss) from agents' or premium balances charged off	(2.2)
Finance and service charges not included in premiums	3.5
Aggregate write-ins for misc. income	(1.5)
Dividends to policyholders	80
Dividends to stockholders	525

a. (2 points)

Calculate the 2016 statutory net income.

b. (0.5 point)

The company spent \$1,000,000 on a Workers' Compensation advertising campaign during 2016. The company allocated all expenses to line of business based on earned premium. Describe how this expense allocation methodology could impact the company's view of the profitability of the Workers' Compensation book.

c. (0.5 point)

Briefly describe two reasons an actuary might be involved in the allocation of expenses to line of business.

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EXAM 6 – UNITED STATES, SPRING 2018

11. (3.5 points)

An insurance company formed in 2012 writes only Commercial Auto Liability. The following are excerpts from the company’s 2016 Schedule P (all figures are in thousands of dollars).

Year	Loss and Loss Expense Payments						Salvage and Subrogation Received
	Loss Payments		Defense and Cost Containment Payments		Adjusting and Other Payments		
	Direct and Assumed	Ceded	Direct and Assumed	Ceded	Direct and Assumed	Ceded	
2016	11,822	426	387	15	900	14	244

Year	Losses Unpaid				Defense and Cost Containment Unpaid			
	Case Basis		Bulk + IBNR		Case Basis		Bulk + IBNR	
	Direct and Assumed	Ceded	Direct and Assumed	Ceded	Direct and Assumed	Ceded	Direct and Assumed	Ceded
2016	4,821	512	5,840	374	491	7	1,148	54

Year	Adjusting and Other Unpaid		Salvage and Subrogation Anticipated
	Direct and Assumed	Ceded	
2016	446	0	532

Year	Cumulative Premiums Earned Direct and Assumed at Year End			Cumulative Premiums Earned Ceded at Year End		
	2014	2015	2016	2014	2015	2016
Prior	0	0	0	0	0	0
2012	24,927	21,745	21,745	3,739	3,262	3,262
2013	20,927	22,580	21,626	2,930	3,161	3,028
2014	22,696	25,433	28,952	3,177	3,561	4,053
2015		29,181	29,777		4,085	4,169
2016			28,789			4,030

Calculate the net loss and loss expense ratio that would appear in the company’s 2016 Schedule P, Part 1.

EXAM 6 – UNITED STATES, SPRING 2018

12. (2.5 points)

The following information is taken from a company's 2016 Annual Statement (all dollar figures are in millions):

Statutory surplus	\$200
Deferred tax assets	\$25
Unearned premium reserve	\$150
Undiscounted loss reserve	\$400

Assume the following:

Written premium per year	\$300
Cost of capital	12%
Tax rate	35%
Pre-paid acquisition cost	25%
Discount factor for loss reserves	80%
Pre-tax income earned per year	\$50
Cost of liquidation	\$30

a. (1 point)

Calculate the invested capital used for valuation of the company as of December 31, 2016.

b. (0.5 point)

Calculate the present value of future net income as of December 31, 2016.

c. (1 point)

Based on the calculations in part a. and part b. above, fully describe whether shareholders would prefer liquidation or continuous operation of this company.

EXAM 6 – UNITED STATES, SPRING 2018

13. (4 points)

Below is an excerpt from an insurance company's Five-Year Historical Data Exhibit as of December 31, 2016.

		2016	2015	2014
Gross Premiums Written				
1.	Liability Lines	272,000	254,000	265,000
2.	Property Lines	81,000	68,000	56,000
6.	Total	353,000	322,000	321,000
Net Premiums Written				
7.	Liability Lines	139,000	169,000	171,000
8.	Property Lines	43,000	47,000	38,000
12.	Total	183,000	216,000	209,000
Statement of Income				
13.	Net underwriting gain (loss)	(28,000)	(26,000)	(9,000)
14.	Net investment gain (loss)	3,000	3,000	3,000
15.	Total other income	17,000	18,000	18,000
18.	Net income	(7,000)	(5,000)	11,000
Balance Sheet Lines				
19.	Total admitted assets	340,000	344,000	341,000
20.	Premiums and considerations			
	20.1 In course of collection	27,000	27,000	28,000
	20.2 Deferred and not yet due	79,000	71,000	72,000
21.	Total Liabilities	271,000	268,000	260,000
22.	Losses	99,000	100,000	93,000
23.	Loss adjustment expenses	32,000	33,000	32,000
24.	Unearned premiums	38,000	58,000	68,000
25.	Capital paid up	3,000	3,000	3,000
26.	Surplus regards policyholders	69,000	76,000	80,000

Using the figures above, fully describe four potential areas of concern regarding the insurance company's financial health based on the data provided.

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EXAM 6 – UNITED STATES, SPRING 2018

14. (2 points)

Given the following information:

- An annual policy is written on January 1, 2016 for a premium of \$6,500. The premium is paid on January 1, 2016 and invested at an annual interest rate of 5%.
- A single loss occurs on December 31, 2016. It is promptly reported and recorded on the same day, with an expected loss of \$7,000. No other losses are reported for this policy.
- The insurer pays the loss of \$7,000 on December 31, 2017.
- Assume an IRS annual discount rate of 5%.
- The insurer expects to pay each claim one year after the claim is reported.

Calculate the tax basis income for year-ends 2016 and 2017.

EXAM 6 – UNITED STATES, SPRING 2018

15. (2.75 points)

Given the following information from an insurance company's 2015 and 2016 Annual Statements and Insurance Expense Exhibits (all figures are in millions of dollars):

Insurance Expense Exhibit, Part II	2015	2016
Premiums written	622	501
Premiums earned	473	402
Dividends to policyholders	64	13
Incurred loss	225	154
Defense and cost containment expense incurred	36	35
Adjusting and other expenses incurred	27	26
Unpaid losses	1,580	1,557
Defense and cost containment expenses unpaid	339	358
Unearned premium reserves	101	201
Commission and brokerage expenses incurred	123	113
Taxes, licenses & fees incurred	44	54
Other acquisition, field supervision, and collection expenses	55	45
General expenses incurred	76	66
Other income less other expenses	-10	-17
Investment gain on funds attributable to insurance transactions	47	58
Investment gain attributable to capital and surplus	18	28

a. (2.25 points)

Calculate the company's 2016 IRIS ratio 5 (Two-Year Overall Operating Ratio).

b. (0.5 point)

Determine whether the IRIS ratio calculated in part a. above is within the range of usual values, and briefly describe how a regulator might respond to this IRIS ratio.

EXAM 6 – UNITED STATES, SPRING 2018

16. (3.25 points)

Given the following 2016 information from an insurance company (all dollar figures in millions):

Reinsurance Ceded Commissions	\$7
Reinsurance Ceded Contingent Commissions	\$9
Reinsurance Premiums Ceded - Affiliates	\$40
Reinsurance Premiums Ceded - Non-Affiliates	\$48
Reinsurance Premiums Assumed – Affiliate	\$60
Reinsurance Premiums Assumed - Non-Affiliates	\$35
Unearned Premiums	\$30
Direct Written Premium	\$152
Policyholders' Surplus	\$28

Two-Year Loss Ratio	50%
Two-Year Expense Ratio	15%
Two-Year Investment Income Ratio	8%
Policyholder Dividend Ratio	2%

a. (1.25 points)

Determine whether IRIS ratio 4, Surplus Aid to Policyholders' Surplus, falls within the range of usual values.

b. (1.5 points)

Calculate IRIS ratios 1 and 2 and determine whether they are in the range of usual values.

c. (0.5 point)

Describe why a regulator may not be concerned about the financial health of this company.

17. (2 points)

Identify the four functional areas of the governance structure required by Solvency II – Pillar 2, and briefly describe one responsibility of each function.

18. (3.75 points)

Given the following information for a monoline insurer (all dollar figures are in millions):

The RBC charges for 2016 are:

R1	\$2
R2	\$5
R3	\$1.5
R4	\$10
R5	\$6

Net written premium:

2013	2014	2015	2016	2017
\$18	\$20	\$21	\$30	\$35

Assume the following figures for 2017:

- Industry average loss & LAE ratio is 85%
- Company average loss & LAE ratio is 90%
- Expected industry loss & LAE ratio is 95%
- Adjustment for investment is 96%
- Underwriting expense ratio is 25%

Given the following additional information:

- The insurer has no loss sensitive policies
- Loss and LAE reserves are \$50 in both 2016 and 2017
- The excessive growth factor for R5 is 0.225

a. (3.25 points)

Assuming that RBC charges R0, R1, R2, R3, and R4 are the same in 2016 and 2017, calculate the amount by which the total RBC charge for the insurer changes from 2016 to 2017.

b. (0.5 point)

Describe why the RBC formula increases the capital requirement for an insurer experiencing excessive premium growth.

EXAM 6 – UNITED STATES, SPRING 2018

19. (2.75 points)

The following information is available for an insurance company as of December 31, 2017 (all figures in millions of dollars):

Statutory policyholders' surplus	89
Statutory gross loss and LAE reserves	44
Statutory ceded loss and LAE reserves	18
Statutory gross unearned premium reserve	55
Statutory ceded unearned premium reserve	19
Provision for reinsurance	1
Deferred acquisition costs	11

a. (0.5 point)

Calculate the company's 2017 surplus on a U.S. GAAP basis.

b. (1.5 points)

Briefly describe the accounting treatment of the following items under each of SAP and U.S. GAAP:

- i. Investment grade bonds held to maturity
- ii. Below investment grade bonds available for sale
- iii. Common stocks held for trading

c. (0.75 point)

Fully describe one reason the treatment of bonds under SAP accounting may be in conflict with the general philosophy of SAP accounting.

20. (3.5 points)

a. (0.5 point)

Briefly describe two items included in the Actuarial Opinion Summary (AOS) not included in the Statement of Actuarial Opinion (SAO).

b. (1 point)

Identify the four required sections of the SAO.

c. (2 points)

For each section from part b. above, briefly describe two disclosures required in SAOs.

21. (2.5 points)

Company management booked net loss and loss adjustment expense (L&LAE) reserves of \$125 million and gross L&LAE reserves of \$205 million as of December 31, 2016.

Identify whether the Appointed Actuary should disclose each of the items below in the Statement of Actuarial Opinion, and briefly describe the reason.

- i. The Appointed Actuary works at the insurance company for which the analysis was performed.
- ii. The Appointed Actuary reviewed the reserves both gross and net of reinsurance.
- iii. The Appointed Actuary's range of reasonable net L&LAE reserve estimates is \$100 million to \$165 million.
- iv. Discussions with company management and a review of reinsurer financial strength ratings indicate that there are no collectability concerns for any of the company's reinsurance.
- v. There is a pending lawsuit against the company for \$500,000 that is not reflected in the company's carried reserves or the Appointed Actuary's estimate. The event triggering the lawsuit occurred in 2015, and there is a high probability that the company will lose the lawsuit.

22. (1.75 points)

a. (0.75 point)

In preparing the Statement of Actuarial Opinion (SAO), briefly describe three items the Appointed Actuary should consider when determining if it is reasonable to make use of another's analysis.

b. (0.5 point)

Describe a scenario in which there is a change in assumptions, procedures, or methods for the unpaid claims analysis that would need to be disclosed in the SAO.

c. (0.5 point)

Describe a scenario in which there is a change in assumptions, procedures, or methods for the unpaid claims analysis that would not need to be disclosed in the SAO.

23. (1.75 points)

An insurance company writes only private passenger auto (PPA) and homeowners (HO) insurance products. It buys no reinsurance.

a. (0.75 point)

Briefly describe three reasons why it might be difficult to reconcile the data used in the Appointed Actuary's analysis to Schedule P.

b. (0.5 point)

Explain why the Appointed Actuary's point estimate may differ from the midpoint of the range of reasonable estimates.

c. (0.5 point)

Given the following information for this insurer:

Line	Appointed Actuary's Range of Loss & LAE Reserve Estimates		Management Booked Loss & LAE Reserves
	Low Reasonable	High Reasonable	
PPA	\$20 million	\$40 million	\$60 million
HO	\$80 million	\$100 million	\$60 million
Total	\$105 million	\$135 million	\$120 million

Identify the type of opinion that the Appointed Actuary should issue for this company, and briefly explain the rationale.

EXAM 6 – UNITED STATES, SPRING 2018

24. (3 points)

a. (1 point)

Briefly describe one figure that may be disclosed in each of the following items of the Actuarial Opinion Summary (AOS):

- i. Item A
- ii. Item B
- iii. Item C
- iv. Item D

b. (0.75 point)

Fully describe how a regulator may use item E of the AOS.

c. (1.25 points)

The following is an excerpt from an insurance company's 2016 five-year historical data.

Data from 2016 Five Year Historical Data (000s)					
	2016	2015	2014	2013	2012
26. Surplus as regards policyholders (Page 3, Line 37)	30,510	31,550	39,400	39,950	44,520
74. Development in estimated losses and loss expenses incurred prior to current year (Schedule P, Part 2 - Summary, Line 12, Col. 11)	(500)	1,600	2,400	2,050	(1,860)

Fully explain whether the Appointed Actuary must include an explanatory statement in item E of the AOS based on this information.

25. (1.75 points)

a. (0.5 point)

Identify two considerations in determining whether to disclose the materiality standard to the intended user of an actuarial work product.

b. (0.5 point)

Briefly describe two reasons why determining materiality can be difficult.

c. (0.75 point)

Propose language for the RELEVANT COMMENTS paragraph of the Statement of Actuarial Opinion related to the materiality standard.

26. (2.75 points)

A primary insurance company is considering the following aggregate excess of loss reinsurance contracts.

	Contract Terms	Reinsurance Premium
Contract #1	\$150,000 excess of \$60,000	\$40,000
Contract #2	\$2,000 excess of \$38,000	\$1,000
Contract #3	\$25,000 excess of \$17,000	\$21,000

The following represents the gross annual loss distribution:

Average	\$20,000
90 th percentile	\$40,000
95 th Percentile	\$100,000
99 th Percentile	\$200,000

Additionally:

- There are no additional expenses or reinsurance contract features
- The interest rate is 0%

a. (1.5 points)

Determine whether each contract passes the 10-10 rule for risk transfer.

b. (0.75 point)

Fully describe whether Contract #1 qualifies for reinsurance accounting under the “Substantially All” risk transfer provision.

c. (0.5 point)

Describe the Expected Reinsurer Deficit method of testing for risk transfer.

EXAM 6 – UNITED STATES, SPRING 2018

27. (2 points)

An insurer entered into a quota share reinsurance agreement on January 1, 2017. Financial information for the insurer is given below (in thousands of dollars):

Balance Sheet (\$000s)

	12/31/2016 (Before Quota Share Inception)	12/31/2017 (After Quota Share Inception)
Total Assets	3,600	4,870
Liabilities		
Gross Loss Reserves	1,100	2,700
Ceded Loss Reserves	0	1,530
Net Loss Reserves	1,100	1,170
Gross Unearned Premium	500	1,500
Ceded Unearned Premium	0	850
Net Unearned Premium	500	650
Total Liabilities	1,600	2,160
Surplus	2,000	2,710

Income statement items (\$000s)

	2016	2017
Net Written Premium	500	1,500
Net Loss Ratios	110%	90%

a. (1.5 points)

Based on the financial results, describe three ways in which the reinsurance contract may have benefited this insurer.

b. (0.5 point)

Based on the 12/31/2017 Balance Sheet, explain whether the ceding company has accounted for the reinsurance as prospective or retroactive.

Exam 6-U.S.

Regulation and Financial Reporting (Nation Specific)

April 30, 2018

POINT VALUE OF QUESTIONS

QUESTION	VALUE OF QUESTION	SUB-PART OF QUESTION						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	3.25	0.75	0.75	0.75	1.00			
2	2.00	0.50	1.00	0.50				
3	2.25	0.50	0.50	0.50	0.75			
4	3.50	1.00	0.50	1.00	1.00			
5	1.50	0.75	0.25	0.50				
6	2.75	1.00	1.00	0.75				
7	2.25	0.50	1.00	0.75				
8	3.00	1.00	0.50	1.50				
9	2.00							
10	3.00	2.00	0.50	0.50				
11	3.50							
12	2.50	1.00	0.50	1.00				
13	4.00							
14	2.00							
15	2.75	2.25	0.50					
16	3.25	1.25	1.50	0.50				
17	2.00							
18	3.75	3.25	0.50					
19	2.75	0.50	1.50	0.75				
20	3.50	0.50	1.00	2.00				
21	2.50							
22	1.75	0.75	0.50	0.50				
23	1.75	0.75	0.50	0.50				
24	3.00	1.00	0.75	1.25				
25	1.75	0.50	0.50	0.75				
26	2.75	1.50	0.75	0.50				
27	2.00	1.50	0.50					
TOTAL	71.00							

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 candidate prompts a justification of all selections, a brief explanation should be provided for the reasoning behind this selection.
- 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.
- Candidates should read each question carefully and answer the question as it is presented.
- 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).

EXAM STATISTICS:

- Number of Candidates: 464
- Available Points: 71
- Passing Score: 49
- Number of Passing Candidates: 211
- Raw Pass Ratio: 45.47%
- Effective Pass Ratio: 49.41%

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 1	
TOTAL POINT VALUE: 3.25	LEARNING OBJECTIVE: A1
SAMPLE ANSWERS	
Part a: 0.75 point	
Sample 1: <ul style="list-style-type: none">• Price optimization can be performed at the policy level (individual price optimization) whereas traditional ratemaking typically rates by class (groups of insureds with similar characteristics).• Traditional ratemaking only considers cost-based factors when determining rates whereas price optimization incorporates non-cost-based considerations like propensity to shop for insurance, price sensitivity, etc.• Deviations from indicated rates under traditional ratemaking are subjective and applied at class level; deviations under price optimization are objective (calculated by model output) and can be applied at policy level.	
Sample 2: <ul style="list-style-type: none">• Price optimization uses non-risk factors such as likelihood to shop for cheaper coverage.• Can depend on individual factors rather than risk groups with similar characteristics.• The optimization results from models like GLMs rather than actuarial judgment.	
Sample 3: <ul style="list-style-type: none">• Of the same group of risks, traditional charges the same premium while optimization can be different.• Optimization considers the retention and elasticity of the policyholder but traditional doesn't.• Optimization charges the max premium possible which traditional charges the actuarially sound rate.	
Sample 4: <ul style="list-style-type: none">• While traditional ratemaking is based only on expected value of future losses, expenses, and profit, price optimization also bases rates on:<ul style="list-style-type: none">○ Individual's price elasticity of demand,○ Individual's ability/propensity to shop for insurance, and/or○ Maximum amount an insurer can charge while maintaining a given retention level.	
Sample 5: <ul style="list-style-type: none">• Traditional ratemaking relies more heavily on qualitative judgment when pricing individual risks, whereas price optimization often incorporates quantitative models.• Price optimization may balance rate change with retention whereas traditional ratemaking adjust rate to cover all future expected loss and expense.• Traditional ratemaking is often incorporated at a less granular level than price optimization.	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 6:

- Price optimization quantifies consumer demand when selecting a rate that differs from the actuarial indication where traditional rate making uses actuarial judgment.
- Price optimization directly uses price elasticity of demand which traditional rate making does not.
- Price optimization may charge a different price to two identical risk profiles which traditional ratemaking does not.

Sample 7:

- Provides a more quantitative measure of rate adjustments as opposed to primarily qualitative in traditional.
- Accounts for price elasticity of demand in price optimization.
- Price optimization can look at optimized price for retention at an individual policy level.

Part b: 0.75 point

Sample 1:

- Elasticity of demand.
- Propensity to shop for insurance.
- Could result in different rates for two insureds with the same risk profile.

Sample 2:

- Could use price to see what the highest price a consumer is willing to pay for coverage.
- Can also check to see how often or how willing a consumer to shop around at renewal.
- The price from these factors would be different for the consumer that have the same underlying risk but one person is willing to pay higher than the other, so they will be charged more which is against rates being equitable.

Sample 3:

- Customer price elasticity.
 - Two insureds with the same risk characteristics but with different sensitivities to price could receive different rates which is unfair.
- Expected retention.
 - The company might charge different premium to an insured if they are more likely to renew even though they have the same risk characteristics as an insured that is less likely to renew.

Sample 4:

- Elasticity.
 - How much rate a customer is willing to accept before they will look for a new policy. Customers such as wealthy customers who may not care about price as much will pay a higher rate than their true cost based rate.
- Propensity to shop.
 - How often a customer is shopping their policy. Providing a lower rate to those customers so that they will stay with the company even if not cost justified.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 5:

- Price sensitivity of individual.
 - This could result in two insureds with the same risk profile having different prices.
- Number of complaints/questions.
 - This is unrelated to the actual loss cost of insuring individuals.

Sample 6:

- Price elasticity quantification.
- Tenure / # of years with insurer.
- This might lead to unfairly discriminatory rates if the price optimization suggests that a longer-tenured insured who is less likely to shop after experiencing a rate increase should have their rates increased based solely on the fact that they probably won't "shop" while having to do with the actual underlying risk (hence unfairly discriminatory).

Sample 7:

- Price elasticity of demand.
 - Using any variable at the individual level may result in two insureds with the same risk profile being charged a different rate, which would be unfairly discriminatory.
- Propensity to file complaints or ask questions of the insurer.
 - Insureds and consumers should be able to file complaints without any negative effects or different treatment by the insurer, as this would be unfairly discriminatory.

Part c: 0.75 point

Sample 1:

- Rate changes could be limited to move in between the current rate and the indicated rate, but always towards the indication.
- Optimization could only be allowed to be used on groups of at least a certain size.
- Ban price optimization all together.

Sample 2:

- Can only be used if results in a price decrease.
- Limit the amount of increase allowed (this can be the same as already in regulation or specific to PO).
- Disallow it completely and deem PO illegal in the state.

Sample 3:

- Restrict price optimization to be used only on specific classes of specific size.
- The resultant price/rate after using price optimization should lie between the current rate and indicated rate.
- The price optimization should only be used when the insurer is sure that it will maintain the cost-based differences.

Sample 4:

- Make it illegal to use price optimization in rating.

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Limit use of price optimization (i.e., don't allow use of price elasticity).
- Only allow movement of indicated factors towards actuarially indicated ones.

Sample 5:

- Can only be used if would result in premium discounts.
- Can only move rate towards actuarial indication.
- Cap changes by certain %.

Sample 6:

- Only allow price optimization on renewals if it lowers insured's premium.
- Place caps on rating factors.
- Only allow price optimization in underwriting decisions not rating.

Sample 7:

- Only allow discounts, not surcharges due to optimization.
- Only allow for groups of a reasonable size, not individuals.
- Limit the amount that optimized rates may deviate from manual, actuarially-sound rates.

Sample 8:

- Forbid price optimization in rating plans.
- Only allow price optimization on new business, not renewals.
- Impose rate caps.

Sample 9:

- Limit the use to ratebook optimization. Cannot perform individual price optimization.
- Cannot include non cost-based adjustment in ratemaking.
- Require minimum number of risks in each classification group.

Sample 10:

- Ban the use of price optimization method.
- Require to justify the rate based on expected cost.
- Limit the rate change per year.

Part d: 1 point

Sample 1:

- If the resulting rate selected is different from the current indicated rate.
- The rating factors on which price optimization was used, and the magnitude of the effect it had on those rating factors.
- A summary of all new and existing customers with the same risk profile who are charged a different premium.
- The source of the data, data characteristics, and analysis methods used to arrive at the resulting prices.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 2:

- That price optimization is being used.
- The factors used in optimization.
- The proportion of insureds deviating from manual rates.
- The average amount that an insured not at full rates is deviating from full rates.

Sample 3:

- Whether price optimization was used.
- Which variables are impacted.
- Differences in premium between a new policyholder and an existing policyholder of the same risk profile and same coverage.
- Disclose the loss ratio distribution of the new rates.

Sample 4:

- Disclose the methodology.
- Disclose all adjustment factors.
- Disclose any use of non cost-based adjustment.
- Disclose the minimum number of risks in the classification group.

Sample 5:

- Rate impact on the overall book of business.
- Highest and lowest rate impact an individual receives due to price optimization.
- Complete list of variables used in the price optimization model.
- The price optimization model itself.

Sample 6:

- Disclose that price optimization is being used.
- Disclose which variables are considered in the model.
- Disclose which type of price optimization is being used (ratebook, individual, hybrid).
- Disclose the proposed vs. indicated rate.

Sample 7:

- If it is used on renewal business.
- Disclosure of the model and factors used.
- Projected premium changes due to use.
- If model is used to optimize profit or retention.

EXAMINER'S REPORT

Candidates were expected to know the objectives of and types of information used by price optimization, how price optimization differs from traditional ratemaking, and constraints/disclosures that may be requested by a department of insurance when evaluating a submitted rate filing.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to contrast price optimization and traditional actuarial ratemaking and identify differences in how rates are created.

Common errors include:

- Stating that traditional actuarial ratemaking uses a quantitative approach while price optimization uses a more qualitative and quantitative approach. Traditional actuarial ratemaking actually uses a more qualitative (not quantitative) approach when deviating from actuarial indicated rates.
- Providing separate answers that contained the same idea, in which case credit was awarded to one of the responses. For example, if both responses 'Differences from indicated rates are selected judgmentally in traditional ratemaking and objectively in price optimization' and 'Price optimization provides a more quantitative measure of rate adjustments as opposed to primarily qualitative in traditional' were given, credit was awarded for only one.
- Stating that price optimization, relative to traditional ratemaking, is more of a "black box", more complex, or less widely accepted.

Part b

Candidates were expected to identify two types of information used by a price optimization rating algorithm and explain how they may be unfairly discriminatory since they don't reflect differences in expected costs.

Common errors include:

- Stating two pieces of information (including examples such as age, gender, income, and credit score) that either are not unique to price optimization or do not explicitly identify that the actual information used is price elasticity of demand, propensity to shop, etc.
- Stating a propensity to file claims (as opposed to complaints).
Not stating that the information doesn't reflect expected cost or risk differences.

Part c

Candidates were expected to provide examples of constraints on a rating plan that are pertinent to price optimization.

Common errors include:

- Providing disclosures as opposed to constraints on the rating plan.
- Stating that price optimization can only be used (or is forbidden) for certain lines of business. This constraint isn't applicable since the specific filing (with a specific line of business) is the one under review.

Part d

Candidates were expected to identify disclosures pertinent to a rate filing that may have price optimization.

Common errors include:

- Stating a disclosure to customers that price optimization is used. This response does not

SAMPLE ANSWERS AND EXAMINER'S REPORT

apply to the use of price optimization in a rate filing.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 2	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: A3
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none">• A surplus lines transaction is a transaction in which a specially licensed surplus lines broker places insurance with and unauthorized/non-admitted insurer.• A surplus lines insurance transaction is one that is conducted in the non-admitted market after an insured has proven that they cannot obtain the insurance coverage in the admitted market.• Surplus lines transaction is in the non-admitted market for highly unique risks that have high limits or unique underwriting characteristics that can't be insured in the admitted market.• Insureds cannot get coverage in admitted market and are denied through "diligent search" due to high limits, difficult underwriting and high individualized risks. Then agents with special license place the policy with non-admitted market surplus line insurer.• Insurance is placed through a surplus lines broker with an insurer not authorized in state.	
Part b: 1 point	
<ul style="list-style-type: none">• Do not have to file rates: This benefits policyholder since it increases availability by allowing insurers to charge an adequate premium; otherwise they would have to decline the policy like insurers in the admitted market• It is not subject to rate regulation; this benefit customers as insurer may offer the insurance at cheaper price, given it saves on compliance cost• Do not have to file coverage forms: This benefits the policyholders since it allows insurers to be more flexible; insurers can draft coverage to suit the specific needs of the insured who likely has unique risks• Not eligible for guaranty funds, it has an incentive to be financially strong since guaranty funds are not available, therefore protecting policyholders• Guarantee Funds: Surplus Lines are exempt from guarantee funds so the costs of the funds are not passed down to policyholders• Involuntary markets/assigned risk plans – Insurers do not have to take on any bad surplus line risks, so no subsidizing which is good for the policy holder• It doesn't need to be licensed in the state – benefit is that policyholders can have more options from these non-admitted insurers	
Part c: 0.5 point	
<ul style="list-style-type: none">• There must be a "diligent search" to show that the product is unavailable in traditional insurance market• Agents must be responsible for the assessment of transaction• Still has to adhere to solvency requirements	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Producers are specially licensed to sell surplus lines insurance
- Insurers must meet the minimum capital requirements to be able to sell surplus lines
- Licensure-surplus lines carriers must be licensed to write surplus lines
- Still required to file financial statements, which regulators can review
- Surplus lines carriers are still subject to the Sherman Act when it comes to boycott, coercion and intimidation (these acts are illegal)
- Surplus insurers must file annual statements
- Business can only be placed with insurers that meet specific managerial and financial requirements
- Surplus lines may still be subject to a market conduct exam. They still need to treat policyholders and claimants with respect and honesty with the way they do business
- Subject to RBC regulatory action levels
- Still need to meet high financial rating in order to sell surplus lines
- It can be regulated by the home state DOI of the insurer
- If a surplus lines insurer were to be considered a SIFI, they would be regulated by the FIO

EXAMINER'S REPORT

Candidates were expected to know concepts surrounding the surplus lines market, what constitutes a surplus lines transaction and the details around its regulation.

Part a

Candidates were expected to know what elements are needed to be present in order to have a surplus lines transaction

The main points expected to be conveyed were that the insured was rejected by the admitted market, utilized a specially licensed broker to place its business, and ultimately placed the business with a non-admitted insurer.

Common mistakes included:

- Not mentioning that insurance was placed with unauthorized/non-admitted insurer
- Many candidates confused surplus lines with excess layer coverage.

Part b

Candidates were expected to know what regulations surplus lines insurers are exempt from and how those exemptions benefit surplus lines policyholders.

Common mistakes included:

- Rate regulation is less strict, instead of stating that it is exempt
- Solvency regulation
- Not including the benefit to policyholders

Part c

Candidates were expected to know what regulations surplus lines insurers are still subject to.

Common mistakes included:

- Regulated by competition
- Must submit plan of coverage and rating plan to regulators

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 3	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: A2
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none"> • Failure to act promptly as a regulator when an insurance company has poor financial health • Regulator does not act fast enough with struggling insurer 	
Part b: 0.5 point	
<ul style="list-style-type: none"> • Insurer may be a big player in the market and thus make a significant impact • It could ruin the regulator's reputation, especially if the insurer could have improved • Idea that company could recover w/o intervention • Avoid costly disputes – insurer may contest regulators actions, which results in disputes that can cost resources 	
Part c: 0.5 point	
<ul style="list-style-type: none"> • Insurers that would otherwise have a chance at corrective action/rehab would go insolvent • Insurer could be engaging in risky behavior because it knows that it's not doing well and is betting on upside risks; could end up hurting insurer & public 	
Part d: 0.75 point	
<ul style="list-style-type: none"> • Regulatory Action Level • Authorized Control Level • In both cases Regulator has discretionary authority which opens the door to forbearance since no actions by the regulator are required 	
EXAMINER'S REPORT	
The candidate was expected to understand and describe the concept of regulatory forbearance.	
Part a	
Candidate was expected to describe regulatory forbearance.	
A common error was not stating that there is a timing component to regulator forbearance. That is, the regulator should take prompt action/ act without delay / not hesitate / etc.	
Part b	
Candidates were expected to understand causes of regulatory forbearance.	
Common errors included the following:	
<ul style="list-style-type: none"> • Supervisory ineptitude, limited resources/staff • Insurer's reputation may be damaged • Listing other regulatory failures (regulator fallibility, regulatory capture) 	
Part c	
Candidates were expected to understand results of regulatory forbearance.	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Common errors included the following:

- Peer pressure from other regulators – while this idea is referenced in the syllabus, it is framed as an incentive to act, therefore preventing regulatory forbearance (and is not an effect because peer pressure exists regardless of regulatory forbearance).
- Loss of faith/credibility in regulators – similar to peer pressure, this is considered to be an incentive to act to prevent regulatory forbearance rather than an effect
- Market disruption (inequitable rates, impact on guaranty funds) – this concept was often described as an impact of insolvency without reference to regulatory forbearance specifically and therefore not given credit.
- Insolvency – insolvency can be caused by issues other than regulatory forbearance; it is not a direct result of the inaction by a regulator.

Part d

Candidates were expected to understand various RBC scenarios where regulatory forbearance may exist.

The most common error was providing other RBC action levels. Under Company Action Level, the regulator does not have authority to act. Under Mandatory Control Level, the regulator must act.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 4

TOTAL POINT VALUE: 3.5

LEARNING OBJECTIVES: A4, A1, B2

SAMPLE ANSWERS

Part a: 1 point

Sample Responses for Circumstances

- After applying for a license to do so and being denied, Paul sold insurance in VA for NY insurers. He was arrested since NY insurers did not have necessary deposit in VA and he continued to sell the NY insurance.
- Paul wanted to represent an insurance domiciled in New York to sell insurance in Virginia. This was rejected by the Virginia regulator because the insurer did not post the required foreign insurer deposit. Paul went on to sell insurance policies anyway and was later arrested.
- Paul wanted to sell insurance policies underwritten by NY companies in his home state of VA. VA officials balked as the insurers hadn't paid up the required foreign insurer's bond. Paul sold the policies anyway as he felt he was engaged in interstate commerce, which would be subject to federal, and not state regulation.
- Paul wanted to be licensed in Virginia to sell/issue the policies of a NY insurer. He was refused the license but decided to sell anyway. He was arrested.

Sample Responses for Results

- It went to court and the result was that insurance was not an interstate commerce and should be regulated by the states.
- The lower court, affirmed by the Supreme Court, ruled that insurance was delivered locally and not subject to the commerce clause. Therefore, insurance was subject to state

SAMPLE ANSWERS AND EXAMINER'S REPORT

regulation and not subject to federal regulation. Paul was not absolved of running afoul of Virginia authorities.

- Paul v. Virginia established that insurance was not interstate commerce and therefore should be regulated by the states.

Part b: 0.5 point

- The federal government could create laws specific to the insurance industry. Sherman Act still applied in terms of boycott, collusion to gain monopoly power if state laws didn't cover this on their own.
- Insurance is subject to state regulation. Fed can step in when states do not have laws in certain insurance areas.
- Government regulates antitrust laws if states aren't doing so. Sherman Antitrust Act applies in regards to boycott, coercion, and intimidation. Federal laws applying directly to business of insurance supersede any state laws.
- McCarran-Ferguson Act says states have the authority to regulate the business of insurance. Exceptions – Sherman Antitrust laws still apply with respect to boycott, coercion, and intimidation – Federal government applies if no state law exists – If a federal law specifically created for unique circumstances applying to insurance.

Part c: 1 point

- Rate filing
- Licensing of insurance companies
- Financial exams
- Monitor solvency / RBC
- Monitor market conduct
- Require Annual Statement
- On-site examinations
- Minimum capital requirements
- Guaranty funds
- Review coverages / forms / specify minimum limits
- Power to impose sanctions / intervene
- Review IRIS Ratios
- Impose taxes
- Financial reporting
- Require SAO / monitor reserve adequacy
- Regulate investment affairs
- Specify reinsurance provisions
- Prior approval
- Use and file
- File and Use
- No filing

Part d: 1 point

- Social Security – federal government is the exclusive provider
- NFIP – private insurers market and service policies, federal government acts as reinsurer

SAMPLE ANSWERS AND EXAMINER'S REPORT

(per Government Insurers Study Note)

- NFIP – The Federal government serves as a direct primary insurer of last resort (per King National Flood Insurance paper)
- Crop Insurance – The federal government is the reinsurer of this exposure over the private market.
- TRIA – the federal government share loss costs with insurance companies once terrorism losses reach the attachment point
- Unemployment Insurance – government is exclusive provider and bears all the costs
- FECA – only option for federal employees and the government acts as exclusive provider
- Longshore and Harbor Workers Compensation Act – government prescribes benefits of program for certain workers not covered by state WC
- Black Lung Benefits Act – Federal government provides WC benefits for black lung victims; fed benefit reduced by state benefit.
- Medicare – federal government provides health insurance to older people, pays secondary to WC

EXAMINER'S REPORT

Candidates were expected to demonstrate an understanding of *Paul v. Virginia*, the role of the federal government in regulating the business of insurance according to the McCarran-Ferguson Act, ways in which states regulate insurance carriers, and insurance programs in which the federal government plays a role.

Part a

Candidates were expected to understand the circumstances and the result of *Paul v. Virginia*.

Common errors regarding the circumstances included:

- Stating that Paul was a licensed agent in VA.
- Not mentioning that the carrier was out-of-state.
- Stating facts that were not relevant to the case, such as Paul was an agent licensed in NY.

Common errors regarding the results included:

- Stating that the business of insurance is not a national commerce, as this is an inaccurate description.
- Stating that the Supreme Court ruled in favor of Paul because insurance transactions didn't constitute interstate commerce, as this is inaccurate description.

Part b

Candidates were expected to explain the role of the federal government in regulating the business of insurance according to the McCarran-Ferguson Act.

Common errors included:

- Providing responses that were not specific to insurance, such as the federal government has power to pass laws that supersede state laws
- Providing responses that do not demonstrate sufficient understanding of the impact of the McCarran-Ferguson Act, such as stating that the federal government provides high-level supervisor of changes in policy while the states deal more directly with supervision

SAMPLE ANSWERS AND EXAMINER’S REPORT

of insurers.
Part c
Candidates were expected to understand how states regulate insurance. Common errors included: <ul style="list-style-type: none"> • Describing the groups involved in regulation rather than actual methods of regulation. For example “Legislative Branch, Judicial Branch, Executive Branch.” • Not providing specific methods of regulation. For example “State laws applicable to insurance / insurer must follow state rules.”
Part d
Candidates were expected to identify and describe the role of the federal government in two insurance programs. Common errors included: <ul style="list-style-type: none"> • Identifying a state-run program, rather than one in which the federal government was involved (FAIR, Residual Auto, WC). • “RRGs.” These are alternate risk transfer entities made possible through the Liability Risk Retention Act, but the RRGs form under the laws of a state. These are not insurance programs in which the federal government has a role. • Providing insufficient explanation on the relationship, such as only stating “partner”. • Providing an inaccurate description of the role of the federal government for a given program. For example, stating “writing, servicing, collecting premium, and/or paying losses” for Social Security.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 5	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE: A4
SAMPLE ANSWERS	
Part a: 0.75 point	
<i>Sample Responses</i> <ul style="list-style-type: none"> • It prohibits national banks from forming subsidiaries to sell insurance • Financial holding companies allowed to create insurance affiliates • If holding company holds bank and insurer, funds may not be used from bank to pay claims • It prevents states from prohibiting banks from selling insurance • It facilitates producer’s ability to operate in multiple states • Banks must disclose information sharing practices between its banking and insurance counterparts • Reaffirms that states continue to regulate insurance • Separates the underwriting and marketing of insurance. Banks can market insurance sold by affiliates. • Customer data protections to keep bank and insurance from sharing data of customers 	
Part b: 0.25 point	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample Responses

- Banks must disclose information sharing practices between banks and insurance affiliates
- Publish information sharing guideline to protect privacy of consumer on sharing between banks and insurance affiliates

Part c: 0.5 point

Sample Responses

- NAIC Model Act issued Producer Model Act, asking states to facilitate producers' ability to sell insurance across state by offering reciprocal licensing system or similar.
- Developed the Insurance Producers Model Law to establish uniformity among states to facilitate writing across state lines

EXAMINER'S REPORT

Candidates were expected to understand the major results and consequences of the Gramm-Leach-Bliley Act, and why some specific portions of the act were included to address those consequences.

Part a

Candidates were expected to understand the results or consequences of the Gramm-Leach-Bliley Act (GLB).

Common mistakes included:

- Repeating the same reason as separate entries. For example, "Different servicing segments regulated by different regulators separately", "Federal regulate banking business", and "State regulators regulate business of insurance while Fed regulates very limited areas".
- Providing insufficient detail such as "Allows banks to sell insurance".
- Stating that the Act subjects banks to separate or additional capital requirements if they want to form a holding company in order to create an insurance affiliate.
- Stating that the Act prohibits or restricts the information affiliates of the same holding company may share with one another.
- Stating that the Act prohibits tying (it was already illegal to do so before the Act).
- Confusing GLB with other historic financial acts (e.g. Dodd-Frank) and providing details of another act instead.

Part b

Candidates were expected to understand how the Act dealt specifically with privacy issues raised by affiliates being able to share information within the same corporate structure.

Common mistakes included:

- Stating that the Act prohibits or restricts the information affiliates of the same holding company may share with one another. While the Act does allow consumers to "opt-out" and restrict the personal information one may share with unaffiliated companies, it does not have the same opt-out requirement within the same corporate structure.
- Addressing privacy issues with data sharing between unaffiliated companies, which did

SAMPLE ANSWERS AND EXAMINER'S REPORT

not answer this question.

Part c

Candidates were expected to recall the NAIC model act that was issued in response to the Act.

Common mistakes included:

- Answering with the Dodd-Frank Act, or other federal legislation, which was not an act of the NAIC.
- Answering with an NAIC act that addressed privacy concerns by restricting data sharing between affiliates.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 6

TOTAL POINT VALUE: 2.75

LEARNING OBJECTIVES: B2, B3

SAMPLE ANSWERS

Part a: 1 point

- Drivers apply and are rejected from insurers, then apply to the ARP. Those policies are assigned to all companies in the state based on their auto premium. Once assigned, the insurance company treats those policies as if they wrote them, and is in charge of collecting premium and settling claims.
- Insured was rejected by insurers and went to involuntary market. Then insured will be assigned to an insurer to buy auto insurance at price and coverage level determined by the Assigned Risk Plan. The insurer will write and service the insured and retain the profit/loss.
- When a consumer is unable to attain coverage within 60 days in the voluntary market, they are placed in an Assigned Risk Plan in the involuntary market. The consumer will have higher premium, higher collision deductibles, and limited Med Pay coverage. The insurer receives a number of high risk drivers that corresponds with their share of the state market. The insurer is responsible for the losses of these drivers only.
- A risk applies for auto coverage in the private market, but is denied from a significant number of insurers. The risk can then purchase coverage from the Assigned Risk Plan, which offers minimum limits at a higher rate than the voluntary market. Risk is assigned to insurer based on market share and insurer services policyholder normally.
- High risk drivers are denied coverage in voluntary market. With a valid driver's license, they apply to ARP. APR allocates policies to insurers of the state based on their share in voluntary market.
- After the person fails to secure an insurer in voluntary market for 60 days or more, and is able to meet certain criteria (having a license and no felonies in a certain period), applies to ARP. ARP distributes the policyholders to all insurance companies operating in the state by market share. The insurance company is responsible for the allocated driver's loss and profit. This makes it a very volatile residual program.
- Insureds gets rejected from the voluntary auto market. Each insurer in the market is assigned a portion of these policies based on their premium volume in the voluntary market. Rates are usually higher than those in the voluntary market. Insured has a stigma

SAMPLE ANSWERS AND EXAMINER'S REPORT

for being in this residual market.

Part b: 1 point

- If a high risk applicant applies, a broker forwards the risk to the JUA. Servicing carrier writes and services policy and handles the claims. The consumer doesn't know that he/she has been rejected. Premium and loss is allocated based on market share in voluntary market.
- If the driver is rejected by the admitted auto insurance market, he/she could come to the service carriers of the JUA. The carrier would write the policy, collected premium, and the losses would be shared by the auto insurance companies based on their market share in the state. The driver would not receive a stigma of being in an Assigned Risk Plan.
- A driver applies for and is rejected from the voluntary market. An agent/broker submits the driver's application to the JUA. All losses and premium are pooled and paid based on insurer's market share in the state's voluntary market. An insurer or group of insurers may provide services for the policies in exchange for a portion of the premium.
- JUA are programs with set rates and forms. These groups are serviced by private insurance companies. The total risks are pooled and the profits/losses are shared by all participating insurers by market share. Servicing insurers are paid for servicing the policies.
- Insured applies and is rejected. Gets forwarded to JUA. Servicing carrier services the policy for a fee. Any gain or loss is spread to individual companies based on market share.
- In JUAs, brokers/agents submit high risk individuals to the JUA which may have a policy issuing syndicate or voluntary servicing insurer. The JUA sets the rates and determines coverages. Premiums and losses are shared by insurers' voluntary market share.
- A certain number of servicing insurers serve risks which can't obtain coverage in private market. Servicing insurers collect premiums, handle claims, and service policies. Loss and expenses shared by private insurers based on market share. Rates are higher than voluntary market and usually the same for all insurers.

Part c: 0.75 point

- The insurer should write in State B where there is a JUA. The JUA shares in UW losses and premiums while in an assigned risk plan they are assigned individual risks. The assigned risk plan is much more volatile as the insurer could be assigned the worst risks, hurting their profits.
- The company should write in State A. Since the insurer is entering a new state, the assigned risk plan can allow the insurer to potentially keep assigned drivers that become better risks, and therefore grow its market share. Additionally, since the company is responsible for servicing the policy, they can take advantage of any efficiencies they may have to lower costs.
- The company should write in State B. In addition to there being more stability in the loss experience for individual insurers, there is less of a stigma for the policyholder in going to the JUA rather than being assigned to a company they know little about.
- Write in State B. JUA doesn't have the stigma for the insureds being in high risk plans. All loss/profit is shared by the pool. Group of servicing agents maintain and operate the pool, alleviating the need for insurers to do it themselves which saves expenses.

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Because the company is just starting out, they won't have much business at first so a JUA would offer more stability in results as opposed to the luck of the draw on assigned risks.
- If the company has better claims handling and can lower claim cost, company should write in State A (ARP). If the company wants less volatility due to claims in the involuntary market, the company should write in State B (JUA).
- State A, the Assigned Risk Plan, is recommended. Each policy assigned to company has potential to be profitable. Expenses will follow the company's own practices rather than the JUA's so there is an opportunity to be more efficient. JUA practices tend to be less efficient and to produce U/W losses.
- Recommend State B, because JUA spreads risk more so results due to residual market will be less volatile, and company will have an easier time planning for the future.

EXAMINER'S REPORT

Candidates were expected to demonstrate knowledge of the characteristics of two forms of residual auto programs, the Assigned Risk Plan and the Joint Underwriting Association, and to be able to provide reasonable justification for recommending one over the other.

Part a

Candidates were expected to know multiple distinct characteristics of Assigned Risk Plans.

Common mistakes included:

- Failing to identify that assignments are in proportion to voluntary market share.

Part b

Candidates were expected to know multiple distinct characteristics of Joint Underwriting Associations.

Common mistakes included:

- Failure to identify servicing carriers as an integral part of a JUA.
- Misstating the role of the state in creating and operating the JUA.

Part c

Candidates were expected to provide a reasonable justification for recommending a choice between Assigned Risk Plan (ARP) state or a Joint Underwriting Association (JUA) state. The recommendation was expected to be based on the operational differences between ARP and JUA plans and how those difference impact the company.

Common mistakes included:

- Failing to realize that both the JUA and ARP require participation of voluntary insurers based on market share.
- Incorrectly describing the aspects of the Assigned Risk Plan or Joint Underwriting Association.
- Incorrectly defining the ratemaking process (usually for the JUA).

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 7	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: B3
SAMPLE ANSWERS	
Part a: 0.5 point	
<u>Sample 1</u> <ol style="list-style-type: none">1. The financially strong insurer does not want to have to be assessed to pay the policyholders of a different company that goes insolvent as this is costly. Strict regulation would help limit the number of insolvencies.2. A weak insurer could underprice and have lax underwriting if it knows there's a "backup", the guarantee fund. This could decrease market share for the strong insurer as insureds may choose the cheaper option, especially if they know the guaranty fund is in place. Strong regulation can help avoid this scenario by requiring the weak insurer to charge adequate rates so it doesn't go insolvent.	
<u>Sample 2</u> <ol style="list-style-type: none">1. The strong insurer would want competitors to also have strong solvency so they aren't at a competitive disadvantage (different costs of capital)2. The strong insurer is unlikely to benefit from guaranty fund but still subject to assessments when another goes insolvent. High solvency standards limits this risk.	
Part b: 1 point	
<u>Sample 1</u> <ol style="list-style-type: none">1. It might be hard to generate enough in assessments to cover the losses. Assessments are generally capped, so an insolvency of a large insurer may require assessment over multiple years.2. Since guaranty funds are at the state level it may be hard to allocate the insurer's remaining assets to the various states to help offset losses that would otherwise have to be covered by the guarantee fund.	
<u>Sample 2</u> <ol style="list-style-type: none">1. The guarantee fund is a state level program. A multi-state insurer would have obligations in other states so the assets of the company wouldn't be fully available after the insolvency to any individual state fund.2. Assessments have annual caps. A large multistate insolvency could require many years of assessments due to size.	
Part c: 0.75 point	
<u>Sample 1</u> <p>Policyholders would be more vulnerable to insolvencies and might move to financially strong insurers. Insurers are more focused on solvency as it will attract more business Regulators might enact more stringent solvency requirements to prevent insolvencies</p>	
<u>Sample 2</u> <p>Policyholders are not reimbursed if an insurer goes insolvent</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Insurers can make a higher profit since they won't have to pay for costs of other insurers insolvencies
Regulators will be forced to scrutinize insurers more carefully since the policyholders have no protection if insurer goes insolvent

Sample 3

Policyholders: Reduced costs as premium will not include assessments.
Insurers: Mitigates moral hazard problems and puts strong insured on equal footing with weaker ones in terms of competition
Regulators: Greater focus on solvency regulation to prevent insolvencies.

EXAMINER'S REPORT

Candidates were expected to demonstrate the following concepts:

- What a guarantee fund is and how it's set up
- The purpose of a guarantee fund
- How guarantee funds impact the insurance industry
- The relationship between solvency regulation and guarantee funds

Part a

Candidates were expected to identify two different reasons why strong solvency regulation would be beneficial to a financially strong insurer.

Common errors included:

- Answering from the public's point of view. For example, wanting to ensure that policyholders were less likely to have to go through an insolvency from a weak insurer was not a sufficient motivator for a strong insurer.

Part b

Candidates were expected to demonstrate the connection between a large multi-state insolvency and the operations of a given guarantee fund.

Common errors included:

- Mixing up the insurers remaining assets with assessments.
- Implying that the payments to claimants happen at the national level.
- Stating a difficulty that either wasn't unique to a multi-state insolvency or wasn't a difficulty for an individual guaranty fund. The most common example of this type of mistake was stating that it would be difficult to determine which state pays which claims.

Part c

Candidates were expected to demonstrate that they understood the cause and effect relationship that the presence of a guaranty fund has on the insurance industry.

Common errors included:

- Stating the effect that insurers would become more financially stable without disclosing the cause/incentive.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 8	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVES: B1, B2
SAMPLE ANSWERS	
Part a: 1 point	
<ul style="list-style-type: none">• Compulsory purchase of insurance<ul style="list-style-type: none">○ Lenders will not extend credit for the purchase of property unless the owner can obtain property insurance• Filling insurance needs unmet by private insurance<ul style="list-style-type: none">○ provide insurance for properties with greater than average exposures to loss in areas underserved by the voluntary market• Convenience<ul style="list-style-type: none">○ Set up and appropriate funding quickly compared to private market funding.• Greater efficiency or government expertise<ul style="list-style-type: none">○ Lower cost than the private market• Social purposes	
Part b: 0.5 point	
<p><u>Sample 1</u></p> <ul style="list-style-type: none">• Compulsory - does not apply to beachfront and windstorm plans since this coverage is not required unless the property has a federally backed mortgage.• Unmet need - the private market often limits coverage affordability and availability for properties exposed to hurricane risk.	
<p><u>Sample 2</u></p> <ul style="list-style-type: none">• Social Purpose - in events of catastrophic nature, properties without coverage still received relief from taxpayers, thus the program serves a social purpose to reduce the burden of these losses onto taxpayers.• Compulsory - applies to beachfront and windstorm plans as insureds that have mortgages and are exposed to this peril are still required to get insurance coverage.	
<p><u>Sample 3:</u></p> <ul style="list-style-type: none">• Efficiency - this applies to Beachfront and Windstorm plans as the government can offer coverage at reduced rates due to lack of advertising expense and profit loading.• Convenience - this applies to Beachfront and Windstorm plans since it is convenient for insureds to shop in one place for insurance coverage.	
Part c: 1.5 points	
<p><u>Sample 1:</u></p> <ol style="list-style-type: none">i. Properties in urban settings were having trouble finding voluntary property insurance coverage in the 1960s due to riots and/or damage from civil unrest. FAIR plans were created to ensure property insurance was available and affordable for properties in these areas.ii. The insureds who cannot obtain coverage, apply through an agent or broker and the application is forwarded to a syndicate or voluntary carrier who services the policy for its duration. All insurers writing property coverage in the state share premiums and losses	

SAMPLE ANSWERS AND EXAMINER'S REPORT

based on their market share (as a percent of written premium).

- iii. Properties must be denied coverage in the private market and must not be vacant, subject to trespass, and meet building codes for the area they are in.

Sample 2:

- i. Property owners could not find coverage that was affordable in urban areas due to riot.
- ii. Policies are issued and serviced by private companies who collect premium and pay losses. Policies are assigned to insurers based on their market share.
- iii. The insured must have been denied coverage in the private market and their home must not be vacant or have existing fire damage.

EXAMINER'S REPORT

Candidates were expected to understand the reasoning behind government involvement in insurance and explain how this applies to several programs where the government is involved.

Part a

Candidates were expected to know reasons for government involvement in insurance.

Common mistakes included:

- Providing two reasons for involvement that had the same goal. For example listing social good as a reason for government involvement and then stating the government had a duty to keep rates low for the benefit of insureds.

Part b

Candidates were expected to relate their reasons for government involvement in insurance to Beachfront and Windstorm plans.

Common mistakes included:

- Describing the reasons for government involvement in insurance but not relating their answer to Beach and Windstorm plans.

Part c

Candidates were expected to explain the formation, operation, and eligibility for FAIR plans.

Common mistakes included:

- Stating only that the government fully reinsures the plan without adequately explaining how profit and losses are shared amongst voluntary insurers in the state.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 9	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVES: C1
SAMPLE ANSWERS	
<p><u>Sample Responses for i</u></p> <ul style="list-style-type: none">• Amounts due to insurer from reinsurer for: Asset	
<p><u>Sample Responses for ii</u></p> <ul style="list-style-type: none">• Amounts owed to insurer from assuming reinsurer for ceded Paid Loss and LAE. Liability• Opposite of part i, for the reinsurer's perspective. Liability.	
<p><u>Sample Responses for iii</u></p> <ul style="list-style-type: none">• Collateral from reinsurer held by insurer. Liability for ceding company.• Collateral from reinsurer held by insurer. Asset for Reinsurance Company.• Money held from reinsurer by insurer to reduce credit risk. Asset.	
<p><u>Sample Responses for iv</u></p> <ul style="list-style-type: none">• Formulaic provision from Schedule F that estimates uncollectible reinsurance recoverables. Liability• Minimum reserve estimate for uncollectible reinsurance. Liability.• Direct charge against surplus for estimated reinsurance recoverables no collectible. Liability.	
EXAMINER'S REPORT	
<p>The candidates were expected to define annual statement items, specifically from Schedule F, and whether each item was an asset or a liability.</p> <p>i. Candidates were expected to know amounts due/to be reimbursed, from reinsurers, on Paid loss and LAE. Candidates were expected to know this was an asset.</p> <p>Common mistakes included:</p> <ul style="list-style-type: none">• Using incurred loss or total loss instead of paid loss. <p>ii. Candidates were expected to mention that this is from assumed perspective, and that it was amounts owed on Paid Loss and LAE. Candidates were expected to know this was a liability.</p> <p>Common mistakes included:</p> <ul style="list-style-type: none">• Using incurred loss or total loss instead of paid loss.• Not specifying that it was from the assuming company's perspective <p>iii. Candidates were expected to mention collateral /security/amount held for credit risk, from reinsurers, held by insurer. Candidates were expected to know this was a liability for ceding company (or asset for reinsurer).</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Common mistakes included:

- Saying this item was used to pay losses without mention of collateral, security, or administrative benefits

iv. Candidates were expected to mention uncollectability on recoverables from reinsurers, and that the amount was a formulaic or estimated number. Candidates were expected to know this was a liability.

Common mistakes included

- Saying this was the actual amount of uncollectible recoverables (not an estimate).

QUESTION: SPRING 2018 EXAM 6U, QUESTION 10	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVES: C1
SAMPLE ANSWERS	
Part a: 2 points	
<ul style="list-style-type: none"> • $EP = 29000, IL = (19600 - 100), LAE = 1300, OUE = 2400, \text{Inv Income Earned} = 3200, \text{Realized Gains} = 45, \text{Agents Balances} = -2.2, \text{Service Charges} = 3.5, \text{Agg Write Ins} = -1.5, PHD = 80$ $\text{Net Income} = 29000 - (19600 - 100) - 1300 - 2400 + 3200 + 45 - 2.2 + 3.5 - 1.5 - 80 = 8964.8$ • $\text{Net Income} = 29000 - 19500 - (3850 - 150) + 3200 + 45 - 2.2 + 3.5 - 1.5 - 80 = 8964.8$ • $29000 - (19600 - 100 + 1300) - 2400 = 5800, 3200 + 45 = 3245, -2.2 + 3.5 - 1.5 - 80 = -80.2,$ $\text{Net Income} = 5800 + 3245 - 80.2 = 8964.8$ • $29000 - (19600 - 100 + 1300) - 2400 = 5800, 3200 + 45 = 3245, -2.2 + 3.5 - 1.5 = -0.2,$ $\text{Net Income} = 5800 + 3245 - 0.2 - 80 = 8964.8$ 	
Part b: 0.5 point	
<ul style="list-style-type: none"> • Inaccurate allocation of expense to appropriate line of business distorts company view of profitability. WC might appear more profitable than it is while other lines might appear less profitable due to other lines take on expense of WC. • Allocating this expense could cause other lines to subsidize WC if their earned premium is higher than WC line so WC might be viewed profitable when it is not. • This allocation would make WC look more profitable. The entire 1 million should be allocated only to WC. • It will make the worker's comp line look more profitable than it is because the allocated expense is less than the actual expense. • Expense directly attributed to a line of business should be directly allocated. Sharing with other lines of business will understate expense and overstate profits for WC. • Because CMP is the larger portion of the book it will get hit with the majority of the \$1m expense. WC will have lower expenses than what they actually/truly cost the company, overstating WC profitability. 	
Part c: 0.5 point	
<ul style="list-style-type: none"> • Misallocation of expenses results in subsidies between lines of business • Misallocation of expenses will affect profitability of individual lines 	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Misallocation of expenses can result in anti-selection and distorted profitability
- Misallocation of expenses can impact pricing/ratemaking

EXAMINER'S REPORT

Part a

Candidates were expected to calculate statutory net income, including the correct use of earned premium, calculation of incurred loss, expenses, investment income, and various line items that are included in statutory net income.

Common errors included:

- Mishandling of changes in prior year's reserves
- Deducting investment expenses from investment income, thereby double counting investment expenses

Part b

Candidates were expected to understand how allocation of expenses impacts the bottom line for a particular product/line of business and the impact various allocations would have moving forward. Candidates were also expected to comment on the appropriate treatment of expenses that are specific to a particular product or line of business.

Common errors included:

- Relating allocation of advertising expense based on an EP vs WP

Part c

Candidates were expected to have knowledge of the common responsibilities and activities of actuaries within the context of an insurance organization. They were also expected to have an appreciation for the relationship between those responsibilities and activities and the assignment and/or allocation of expenses to line of business. As well they were expected to comment on the implications of incorrect assignments and allocations.

Common errors included:

- Discussing an actuary's involvement in the amount of total expense rather than allocation of expenses to LOB.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 11	
TOTAL POINT VALUE: 3.5	LEARNING OBJECTIVES: C1
SAMPLE ANSWERS	
(Net loss + NET LAE) / (Net Earned Premium)	
Net = Direct – Ceded	
2016 Direct Earned Premium $31,950 = 28,789 + (29,777 - 29,181) + (28,952 - 25,433) + (21,626 - 22,580)$	
2016 Ceded Earned Premium $4,473 = 4,030 + (4,169 - 4,085) + (4,053 - 3,561) + (3,028 - 3,161)$	
2016 Net Earned Premium $27,477 = 31,950 - 4,473$	
2016 Direct Loss & LAE Payments $13,109 = 11,822 + 387 + 900$	
2016 Ceded Loss & LAE Payments $455 = 426 + 15 + 14$	
2016 Net Loss & LAE Payments $12,654 = 13,109 - 455$	
2016 Direct Loss & LAE Unpaid $12,746 = 4,821 + 5,840 + 491 + 1,148 + 446$	
2016 Ceded Loss & LAE Unpaid $947 = 512 + 374 + 7 + 54 + 0$	
2016 Net Loss & LAE Unpaid $11,799 = 12,746 - 947$	
2016 Net Total Loss & LAE Incurred $24,453 = 12,654 + 11,799$	
2016 Net Loss & LAE Percentage $89.0 = 24,453 / 27,477 * 100$	
EXAMINER'S REPORT	
The candidates were expected to know how to use Schedule P data to calculate a net loss & LAE ratio. In order to do this knowledge required included:	
<ul style="list-style-type: none">• Net is Direct – Ceded	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Premium in Schedule P Part 1 is calendar year
- Loss & LAE includes: Paid, Case Basis Unpaid, Bulk & IBNR for Loss, DCC, A&O
- Schedule P data is presented net of paid (and possibly unpaid S&S) so S&S is not used in the ratio calculation process

Common errors included:

- Not including prior accident year premium earned during calendar year 2016
- Adding and subtracting S&S from paid and/or unpaid loss
- Not including A&O
- Not including paid amounts in the loss ratio

QUESTION: SPRING 2018 EXAM 6U, QUESTION 12

TOTAL POINT VALUE: 2.5

LEARNING OBJECTIVES: C1

SAMPLE ANSWERS

Part a: 1 point

Sample 1

$$\text{Equity in UEPR} = 150 \times 25\% = 37.5$$

$$\text{Equity in Undiscounted loss reserve} = 400 \times (1-80\%) = 80$$

$$\text{Total} = 37.5 + 80 + 200 = 292.5$$

$$\text{Invested Capital} = 317.5 - 25 = 292.5$$

Sample 2

$$\text{Surplus} + \text{UEPR (acq cost \%)} + \text{rsv (discount factor)} - \text{DTA}$$

$$200 + 150(.25) + 400(1-.8) - 25 = 292.5 \text{ Million}$$

Sample 3

$$\text{UEPR equity} = .25 \times 150 = 37.5$$

$$\text{Un Disc Rx equity} = 400 - .8 \times 400 = 80$$

$$\text{PHS} = 200$$

$$\text{DTA} = 25$$

$$\text{Invested capital} = 37.5 + 80 + 200 - 25 = 292.5$$

Sample 4

Figures in \$M

$$1 - \text{Equity from UEPR} \rightarrow 150(.25) = 37.5$$

$$2 - \text{Equity from reserve discount} \rightarrow 400(1-.8) = 80$$

$$3 - \text{DTA} \rightarrow 25$$

$$4 - \text{Surplus} \rightarrow 200$$

$$\text{Invested Capital} = 1 + 2 - 3 + 4 = 292.5.$$

Sample 5

$$\text{Invested capital} = 200 + 25\% * 150 + 400*(1-80\%) - 25 = 292.5$$

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part b: 0.5 point

Sample 1

$$50 \times (1-35\%) / 12\% = 270.83$$

Sample 2

$$\$50 \times (1-35\%) = 32.5$$

$$32.5 \times (1 / (1-1/1.12)) - 32.5 = 303.3 - 32.5, 270.8$$

Sample 3

$$50(1-.35) / .12 = 270.83$$

Sample 4

$$((50/12\%) (1-35\%)) = 270.83 \text{ mil}$$

Sample 5

$$(50)(.65) / 0.12 = 270.8$$

Sample 6

$$\$50 (1-.35) = \$32.5$$

$$\$32.5 / 0.12 = \$271$$

Sample 7

$$\text{Income after tax} = 32.5$$

$$\text{PV of future income of 32.5 in perpetuity} = 32.5 / .12 = 270.83$$

Part c: 1 point

Sample 1

$$\text{Difference between invested capital and PV Future net Income} = 292.5-270.83=21.67$$

$$\text{Cost of liquidation} = 30$$

As the cost of liquidation is higher, it only makes sense for shareholders to continue with the operation of this company.

Sample 2

NPV Income < Invested Capital so company is unprofitable

$$270.83 \quad 292.5$$

$$292.5-270.83 = 21.67 < 30 \text{ so cannot liquidate yet}$$

Sample 3

Shareholders prefer to liquidate the company as the amount they would receive in liquidation (net of liquidation costs) is greater than the company value i.e. $317.5-30=287.5 > 270.83$

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 4

Note – correctly used the results calculated for parts a. and b. even if the answers for parts a. and b. were incorrect.

300.83 (before liq cost)

270.83 > 251.9 do not liquidate profitable.

The income post tax is greater than the inv cap.

EXAMINER'S REPORT

Candidates were expected to calculate the invested capital used for valuation as well as the present value of future net income and relate it to whether shareholders would prefer liquidation or continuous operation.

Part a

Candidates were expected to calculate the invested capital used for valuation of the company

Common errors included:

- Not including a component: UEPR, Surplus, Loss Reserve, DTA
- Miscalculating UEPR or Loss Reserve. For example, using 80% instead of (1-80%) for the Loss Reserve calculation

Part b

Candidates were expected to calculate the after-tax income then use the cost of capital to get NPV.

Common errors included:

- Not doing the present value of the income or incorrect formula
- Not reducing the income for taxes

Part c

Candidates were expected to compare the profitability of the company with the cost of liquidation, then decide if to continue operations or liquidate.

Common errors included:

- Not comparing the company's profitability to the cost of liquidation.
- Drawing the correct conclusion but using assets and liabilities vs. Invested capital and Present Value of Net Income.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 13

TOTAL POINT VALUE: 4

LEARNING OBJECTIVES: C1

SAMPLE ANSWERS

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Ratio of NWP/GWP decreasing: the company is buying more reinsurance than it previously did. While this helps to cover the catastrophe exposure, reinsurance poses collectability and credit risks. Is the company using reinsurance as surplus aid to mask underlying issues? If so, should consider re-examining financials excluding the impact of the surplus aid.
- The company is shifting mix of business into the Property line. Property line includes catastrophe risk depending on the geographical profile of the book. One catastrophe event can create a solvency problem and take a large chunk out of surplus.
- The company has a high aggregation of liability premium. Liability premium is longer tailed, making reserve adequacy harder to estimate. The line is also volatile and exposed to possible mass tort events, which can erode surplus.
- The company is growing overall premium. Premium growth has historically been a leading indicator of insolvency, particularly when the company has a negative underwriting profit. The company may be dealing with adverse selection, or have rates too low in an effort to grow.
- Overall income is negative. Investment gain and other income are not enough to offset the negative underwriting income. With income negative, the company will erode surplus unless additional capital is paid in. It may be difficult to attain more capital when investors know the company is losing money.
- Underwriting income has gotten more negative year over year. This may indicate adverse selection, or insufficient rate levels in an effort to grow. Since underwriting income is the core of the insurance business, this can indicate that the company is not set up well for the future and will eventually erode their surplus.
- Investment gain is too conservative, and causes problems when coupled with negative underwriting income and low other income. It is possible that the insurer has too conservative of an investment strategy, based on three years of consistent low returns. The low investment income leads to low profitability which erodes surplus.
- A high proportion of the assets are deferred agent balances. Deferred agent balances are not as liquid as other assets, and may be uncollectible, particularly in the event of a sudden solvency event when liquid assets are needed immediately.
- The surplus is decreasing. Surplus provides the company with a cushion to protect against variability. Particularly with growth in Property (catastrophe risk) lines and the concentration in Liability (mass tort), it is important to have enough surplus to cover future obligations and remain solvent.
- The company has a high premium to surplus ratio. While the IRIS values are not unusual,

SAMPLE ANSWERS AND EXAMINER'S REPORT

the company writes predominantly liability lines where you'd prefer to see less leverage due to the volatility. The company is increasing premium while decreasing surplus, which results in a more leveraged company. This puts solvency more at risk in a significant surplus event.

- The company is shrinking Net Written Premium. This may imply that the company is not comfortable in its profitability or ability to remain solvent under their current book. It is possible that the company is ceding away profitable parts of its book, and this profit is needed to boost surplus.

EXAMINER'S REPORT

Candidates were expected to identify four areas of concern for the company's financial health, and explain why each item was a concern for health.

Common Errors Included:

- Failure to link why issues would be a concern for financial health. For example, some candidates correctly identified that liability lines were long-tailed, but did not mention that this could cause reserve adequacy and therefore surplus issues. Another example of this is candidates who identified that the company had negative income, but did not identify that this would eventually lead to the company reducing surplus.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 14

TOTAL POINT VALUE: 2

LEARNING OBJECTIVES: C4

SAMPLE ANSWERS

Sample 1

2016

EP = 6500 (no unearned since 1/1 policy)

Inv. Inc. = 6500 * 5% = 325

2016 discounted loss reserve = 7000/1.05 = 6666.67

2016 tax basis income = 6500+325-6666.67 = 158.33

2017

No more EP

Inv. Inc. = (6500 + 325) * 5% = 341.25

Incurred Loss = Paid loss + Δ Reserves = 7000 + (0 - 6666.67) = 333.33

2017 tax basis income = 341.25 - 333.33 = 7.92

Sample 2

2016

Earned Premium = Written Premium - .8 Δ UEPR → Since premium for policy is fully earned as of 12/31/16 there is no UEPR = 6500

Tax basis IL = Paid Loss + Δ Discounted Loss Reserves

SAMPLE ANSWERS AND EXAMINER'S REPORT

Paid Loss = 0

Loss Reserves = $7000/1.05 = 6667$

Investment Income = $6500 * (1.05 - 1) = 325$

Tax Basis Income = $6500 + 325 - 6667 = 158$

2017 EP = $6500 - .8 * 0 = 6500$ (assuming policy renews)

2017 IL = $7000 - 6667 = 333$

Investment Income = $(6500 + 325 + 6500) * 0.05 = 666$

2017 Tax Basis Income = $6500 + 666 - 333 = 6833$

Sample 3

2016

Earned Premium = 6500

IL = 7000

II = $6500 * .05 = 325$

RTI = 158.33

2017

Earned Premium = 6500 (Assume Renewal)

IL = 333.33

II = 325 (Assume only current year's premium is invested, rest distributed to shareholders)

RTI = 6491.67

Sample 4

2016

Earned Premium = 6500

II = $(6500)(.05) = 325$

IL = 7000

PV(Incurred Loss) = 6666.67

Tax Basis Income = 158.33

Assume 35% tax rate $\rightarrow 0.35 * 158.33 = 55.42$ paid at start of 2017

2017

EP = 0

Inv Income = $(6500 + 325 - 55.42)(.05) = 338.48$

Incurred Loss = 333.33

Tax Basis Income = 5.15

EXAMINER'S REPORT

Candidates were expected to know how to calculate the tax basis income, discounting reserves, and interest income. Candidates were expected to carry over the discounted reserve change into the incurred losses for 2017.

Common Errors Included:

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Using the paid loss as the incurred loss for 2017 and not including the reserve change.
- Using the unearned premium reserve formula to carry premium to 2017 when the policy is fully earned in 2016.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 15	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 2.25 points	
<p><u>Sample 1</u> IRIS 5 = 2 Year Loss Ratio + 2 Year Underwriting Expense Ratio – 2 Year Investment Income Ratio Loss Ratio = $(225+154+36+35+27+26+64+13) / (473+402) = .663$ Underwriting Expense Ratio = $(123+113+44+54+55+45+76+66 - (-10-17))/(622+501) = .537$ Investment Income Ratio = $(58+28+47+18)/(473+402) = .173$</p> <p>$.663 + .537 - 17.3 = 1.027$</p>	
Part b: 0.5 point	
<p><u>Sample 1</u> The ratio is $\geq 100\%$, so it is not within the usual values. The regulator will check other IRIS Ratios with more scrutiny to determine if insurer is in good financial standing with enough surplus.</p> <p><u>Sample 2</u> The ratio is higher than 100%, making this an unusual value. The regulator should look at the income for each line of business and determine which lines are driving this value.</p> <p><u>Sample 3 – if part a resulted in a ratio less than 100%</u> The ratio is less than 100% so it is in the usual range. No regulator reaction necessary.</p>	
EXAMINER'S REPORT	
Candidates were expected to demonstrate knowledge of Annual Statement data, IRIS Ratio 5, including the usual range for this ratio and the reaction of a regulator based on whether the ratio was in the usual or unusual range.	
Part a	
Candidates were expected to calculate the IRIS Ratio 5 from the provided annual statement data.	
Common errors include:	
<ul style="list-style-type: none"> • Failing to provide the correct formula for the ratio • Dividing amounts by the incorrect premium (Earned vs Written and vice versa) • Calculating the ratio and then averaging 	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part b

Candidates were expected to demonstrate knowledge of the usual range for IRIS Ratio 5 and the reaction of a regulator based on whether the ratio was in the usual or unusual range.

Common errors include:

- Failing to mention the cut-off of the usual range
- Identifying an incorrect usual range
- Describing a regulator action inconsistent with the finding such as:
 - Limit the insurer's future writings; or
 - Recommend laying off employees to reduce expenses
- Describing a regulator action inconsistent with the finding from a directional standpoint (saying the ratio was in the range, then recommending regulator action, or vice versa).

QUESTION: SPRING 2018 EXAM 6U, QUESTION 16

TOTAL POINT VALUE: 3.25

LEARNING OBJECTIVE: C2

SAMPLE ANSWERS

Part a: 1.25 points

The data provided for this question did not clearly state whether the UEPR figure was for non-affiliates only or included affiliate UEPR. Full credit was available for solutions using the UEPR as given or after making an adjustment for affiliate UEPR.

Sample 1 – assumes all of the UEPR is for non-affiliates

$$\text{Surplus aid} = (7+9)/(40+48) \times 30 = 5.45$$

Assume all of reinsurance premiums ceded to affiliates are earned; all of UEPR is for non-affiliates

$$\text{IRIS Ratio \#4} = 5.45 / 28 = 19.48\% > 15\% \text{ unusual}$$

Sample 2 – assumes the UEPR is for non-affiliates and affiliates combined v1

$$\text{Ceding commission percentage} = (7+9)/(40+48) = .182$$

$$\text{WP percent ceded to unaffiliated: } 48/152 = .316$$

$$\text{Surplus aid} = .182 \times (.316 \times 30) = 1.73$$

$$1.73 / 28 = 6.2\% < 15\% \text{ so this is in the usual range}$$

Sample 3 – assumes the UEPR is for non-affiliates and affiliates combined v2

$$\text{Ceding commission ratio} = (7+9)/(40+48) = .182$$

$$\text{Gross Premium Written} = 152 + 60 + 35 = 247$$

$$\text{Net Premium Written} = 247 - 88 = 159$$

Assume 30 Unearned Premium is Net

$$\% \text{ Unearned} = 30 / 159 = 0.1887$$

SAMPLE ANSWERS AND EXAMINER'S REPORT

Ceded Unearned Premium (non-affiliates) = $0.1887(48) = 9.06$

IRIS #4 = $9.06(.182)/28 = 5.9\% < 15\%$

This is within the usual range. No adjustment needed for other ratios.

Sample 4 – assumes the UEPR is for non-affiliates and affiliates combined v3

Ceding com % = $(7+9)/(40+48) = .182$

$152 + 60 + 35 = 247 = \text{Dir} + \text{Assumed WP}$

$48/247 = 19.4\% \Rightarrow \% \text{ WP ceded to Non-Affiliates}$

$30 \times 19.4\% = 5.83 \Rightarrow \text{Amount UEP from Non-Affiliates}$

Surplus Aid = $18.2\% \times 5.83 = 1.06$

Ratio 4 = $1.06 / 28 = 3.8\% < 15\%$ within normal range

Sample 5 – assumes the UEPR is for non-affiliates and affiliates combined v4

Ceding % = $(7+9)/(40+48) = .182$

Assume unearned premium is proportionate between affiliated / non-affiliated ceded premiums.

Non-Affiliated UEPR = $30 \times 48/(40+48) = 16.36$

Surplus Aid = $16.36 \times 18.18\% = 2.98$

IRIS Ratio 4 = $2.98 / 28 = 10.6\% < 15\%$ within the usual range.

Part b: 1.5 points

Sample 1 – if IRIS 4 found to be usual

Revised PHS = $28 - 5.45 = 22.55$

IRIS 1 = $\text{GWP}/\text{PHS} = (152+60+35)/22.55 = 1095\% > 900\%$ unusual

IRIS 2 = $\text{NWP}/\text{PHS} = (152+60+35-40-48)/22.55 = 705\% > 300\%$ unusual

Sample 2 – if IRIS 4 found to be unusual

IRIS 1 = $\text{GWP}/\text{PHS} = (152+60+35)/28 = 882\% < 900\%$

IRIS 2 = $\text{NWP}/\text{PHS} = (152+60+35-40-48)/28 = 568\% > 300\%$

Adjusted IRIS 1 = $\text{GWP}/\text{PHS} = 882\% / (1-19.48\%) = 1095\% > 900\%$ unusual

Adjusted IRIS 2 = $\text{NWP}/\text{PHS} = 568\% / (1-19.48\%) = 705\% > 300\%$ unusual

Part c: 0.5 point

- Two year overall operating ratio = $50\% + 15\% - 8\% + 2\% = 59\%$ Two year overall operating ratio is much lower than 100% which reflects the insurer has strong profitability so the regulator may not concern its financial health
- Two year operating ratio = $50\% + 15\% - 8\% = 57\%$, remote from 100% so even IRIS Ratio 2

SAMPLE ANSWERS AND EXAMINER'S REPORT

is unusual, the insurer is making a profit which means it can take more risks.

- A large amount of premium is ceded to and assumed from affiliates. This implies it is part of a larger holding company that could be financially stable as a whole.
- The two year operating expense ratio is well below the unusual range of values, even before considering investment income. $65\% < 100\%$. Therefore, although the premiums are high relative to the surplus, the company's operations are profitable.
- IRIS Ratio 5 is well under 100% so it appears profitable.

EXAMINER'S REPORT

The candidate was expected to demonstrate knowledge of calculating and interpreting IRIS Ratios.

Part a

Candidates were expected to calculate the ceded commission percentage and multiply that by UEPR to obtain surplus aid. They were expected to calculate the IRIS Ratio and compare it to the usual range of results.

Common errors included:

- Multiplying the ceded commission percentage by non-affiliates ceded premium instead of UEPR
- Calculating an adjustment to UEPR using both affiliates and non-affiliates as a ratio of some derivation of premium which does not distinguish the UEPR for non-affiliates only
- Calculating the ceded commission percentage incorrectly

Part b

Candidates were expected to calculate IRIS Ratio 1 and 2 with knowledge of adjusting PHS for the surplus aid calculated in part a. They were expected to further compare those ratios to the usual range of results.

Common errors included incorrect calculations of GWP and NWP and overlooking the PHS adjustment.

Part c

Candidates were expected to address operating results that were profitable, irrespective of the IRIS Ratio performances in parts a. and b.

Common errors included:

- Only stating that IRIS Ratios in parts a. and b. were unusual as their rationale with no mention of profitability
- Miscalculating the operating ratio.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 17	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: C3
SAMPLE ANSWERS	
<p>The four functional areas of the governance structure:</p> <ul style="list-style-type: none">• Internal Audit or Audit or Internal Control• Actuarial• Risk Management or Risk or ERM• Compliance or Legal	
<p>Sample Responses for “Internal Audit or Audit or Internal Control”</p> <ul style="list-style-type: none">• Report the shortcomings in compliance with policies and procedures• Report any deficiencies of internal controls	
<p>Sample Responses for “Actuarial”</p> <ul style="list-style-type: none">• Ensure the reasonability of methods and assumptions when calculating the technical provision• Provide opinion on the overall underwriting policy and adequacy of reinsurance• Perform retrospective analysis of best estimates against actual experience• Estimate the technical reserves required by the company based on its exposure• Complete the Statement of Actuarial Opinion (SAO)	
<p>Sample Responses for “Risk Management or Risk or ERM”</p> <ul style="list-style-type: none">• Risk Management should monitor the risk management function of the company• The Risk Management department should maintain an aggregate risk framework of the risks taken on by the insurer• Ensure the integration of any internal model with the risk management function• Creating and implementing the ORSA framework which helps assess the company’s solvency requirements	
<p>Sample Responses for “Compliance or Legal”</p> <ul style="list-style-type: none">• Compliance should insure the internal control system is effective to comply with applicable laws and regulations• The Compliance department should report any regulation compliance issues to the board of directors• Compliance should ensure that the company complies with any requirements of Solvency II regulations• Ensure the compliance with regulations that prescribe ORSA completion	
EXAMINER'S REPORT	
<p>Candidates were expected to identify the four functional areas of the governance structure required by Pillar II of Solvency II and then briefly describe a responsibility of each function that related back to solvency, measuring or monitoring risk, or ensuring methodology or operational</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

risk is not introduced.

Common errors included:

- Providing a broad responsibility that did not relate back to risk and/or solvency such as setting rates or determining reserves for Actuarial
- Discussing Pillar I or Pillar III requirements
- Listing other areas within an insurance company such as claims, underwriting, accounting, etc.
- Providing ORSA as one of the four functional areas
- Switching the responsibilities of Internal Audit with Compliance or vice versa
- Stating that the Internal Audit function checked the data and/or the methodology
- Stating External Audit instead of Internal Audit
- Describing a risk management task rather than monitoring the risk management function
 - Example: "Measuring the company's risk" is a task. The Risk Management functional area is responsible for monitoring the risk management process and ensuring that an aggregate view of risk is maintained.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 18	
TOTAL POINT VALUE: 3.75	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 3.25 points	
<i>Sample 1</i>	
$2016 \text{ RBC} = R_0 + \sqrt{R_1^2 + R_2^2 + R_3^2 + R_4^2 + R_5^2}$ $= R_0 + \sqrt{2^2 + 5^2 + 1.5^2 + 10^2 + 6^2} = R_0 + 12.933M$	
Company LR = Average [(0.9/0.85)*(0.95), (0.95)] = 0.9779	
2017 NWP RBC base charge = 35M*(0.9779*0.96 + 0.25 - 1) = 6.607M	
NWP growth rates:	
2013-2014: (20/18 - 1) = 11.11%	
2014-2015: (21/20 - 1) = 5%	
2015-2016: (30/21 - 1) = 42.86% → capped at maximum of 40%	
2016-2017: (35/30 - 1) = 16.67%	
3-year average: (16.67% + 40% + 5%)/3 = 20.56%	
Cap 3-year average : max(min(40% , 20.56%) , 10%) = 20.56% → no impact in this case	
excess growth: 20.56% - 10% = 10.56%	
RBC charge for excessive growth: (10.56%*0.225*35M) = 0.832M	
Total 2017 R5 = 6.607M + 0.832M = 7.439M	
2017 RBC = R0 + $\sqrt{2^2 + 5^2 + 1.5^2 + 10^2 + 7.439^2}$ = 13.66M	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Change in RBC = 13.66M – 12.933M = **0.727M**

Part b: 0.5 point

Sample 1

- Less insight into new business, so it is harder to underwrite / price the risk

Sample 2

- Excessive premium growth
 - Is a major factor that has historically led to insolvency
 - Is an indication that the insurer has lax u/w standards or is charging bargain rates

Sample 3

- Less insight into new business, so it is harder to estimate unpaid claims

Sample 4

- When growing rapidly the insurer has a smaller margin of error when setting reserves
- Rapid growth may also signify that the insurer is sacrificing commissions and using lax underwriting standards to increase market share

Sample 5

- Less insight into new business, so it may be unprofitable / result in poor underwriting results

Sample 6

- When a book is growing rapidly, you may understate the unpaid claim amounts since the writings are skewed towards the second half of the year

Sample 7

- Rapid growth may indicate the insurer is trying to increase cash flow to pay for current liabilities. This is a short-term solution to the problem and may lead to solvency issues.

EXAMINER'S REPORT

The candidate was expected to calculate RBC and understand why premium growth increases the RBC results.

Part a

Candidates were expected to understand how to calculate RBC, including the impact of excessive premium growth.

Common errors that received deduction of credit included:

- failure to cap the 2015-2016 growth rate at 40%
- failing to use only the portion of the capped, average growth rate in excess of 10%
- not using any growth rate at all in the calculation and just using the 0.225 charge factor

Part b

Candidates were expected to understand why excessive premium growth results in a higher RBC charge

Common errors included:

- Reciting the definition of R5
- Stating that new business loss ratio is worse than renewal business loss ratio

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 19	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE: C3
SAMPLE ANSWERS	
Part a: 0.5 point	
<p><u>Sample 1</u> GAAP Equity = Statutory Surplus + Provision for Reinsurance + DAC Asset $101 = 89 + 1 + 11$</p> <p><u>Sample 2</u> Assuming management's estimate of uncollectible reinsurance equals provision for reinsurance GAAP Surplus = Statutory Surplus + DAC Asset $100 = 89 + 11$</p>	
Part b: 1.5 points	
<p><u>Sample 1</u></p> <ol style="list-style-type: none"> 1) GAAP: Amortized cost SAP: Amortized cost 2) GAAP: min(amortized cost, fair value) SAP: Fair value 3) GAAP: Fair value SAP: Fair value <p><u>Sample 2</u></p> <ol style="list-style-type: none"> (1) SAP: amortized cost GAAP: amortized cost (2) SAP: lower (amortized cost, fair value) GAAP: fair market value (3) SAP: market GAAP: market 	
Part c: 0.75 point	
<p><u>Sample 1</u> SAP values in a conservative way. (1) SAP values high grade bond @ amortized cost, this might be greater than fair value of the bond when the market expectation/demand for this bond deteriorates without/before a de-grade in bond rating → since rating agency tend to delay downgrade to avoid erroneous downgrades</p> <p><u>Sample 2</u> SAP has a conservative viewpoint as it is focused on solvency. Recording bonds at amortized cost instead of market value may overstate the value of the bonds if they were purchased in an environment of rising interest rates. Conservative usually means looking at the lowest yet reasonable possible valuation.</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
<p>Candidates were expected to demonstrate knowledge of the general philosophy of SAP accounting, as well as similarities and differences between SAP and GAAP, including:</p> <ul style="list-style-type: none">• Deferred acquisition costs• Provision for reinsurance• Gross & ceded loss & LAE reserves• Invested assets (bonds and stocks)
<p>Part a</p> <p>Candidates were expected to identify which of the listed balance sheet items impacted surplus differently between SAP and GAAP and to calculate GAAP equity.</p> <p>Common mistakes included applying the wrong sign to the provision for reinsurance or DAC, and adjusting surplus for loss & LAE reserves or UPR from SAP to GAAP.</p>
<p>Part b</p> <p>Candidates were expected to identify the balance sheet carrying value, or income statement treatment, of various classifications of bonds and stocks between SAP and GAAP.</p> <p>Common mistakes included identifying an incorrect carrying value for a particular category, or answering "book value" or "asset". Book value is synonymous with carrying value, with methodology that differs by accounting standard, and is what the question is asking the candidate to describe. Bonds and stocks are indeed assets, however the question is asking for the accounting treatment of these assets.</p>
<p>Part c</p> <p>Candidates were expected to identify the general philosophy of SAP accounting, and explain an example where the accounting treatment of bonds could be considered to differ from this philosophy.</p> <p>A common mistake was to describe a situation where the fair value of a bond is greater than the carrying value, however in such a case, SAP's treatment would be conservative relative to fair value.</p>

QUESTION: SPRING 2018 EXAM 6U, QUESTION 20	
TOTAL POINT VALUE: 3.5	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none">• The actuary's range of reasonable estimation of loss and LAE reserve• Point estimate for loss & LAE reserves• Difference between carried reserve and both range points and point estimate• AOS also includes if 3 or more years had 1-yr adverse development of 5% or greater of prior year surplus. <p><u>OR</u> Discussion on adverse development witnessed in the past 5 years and the cause of it.</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

OR

1 year development/Prior Surplus over the past 5 yrs.

- Statement that the AOS is to remain confidential (not a public document)

Part b: 1 point

- Identification
- Scope
- Opinion
- Relevant Comments

Part c: 2 points

Identification

- Name of Appointed Actuary
- Appointed Actuary's Title
- Appointed Actuary's Qualifications
- The relationship of the Appointed Actuary to the company
- Appointed Actuary's date of appointment
- That the appointment was made by the board of directors

Scope

- Items that are included in the opinion by the actuary/any amounts excluded from the opinion
- Basis of the presentation of reserves (e.g. net or gross of discounting, net or gross of salvage and subrogation, whether or not there is an explicit risk margin, etc.)
- Who provided the data [Name, Title]
- Evaluation of data for reasonableness and consistency
- Reconciliation to Schedule P
- Review Date
- Evaluation Date
- That the Appointed Actuary has examined the assumptions and methods used in determining the reserves
- Description of Intercompany Pooling arrangements
- Exhibit A listing all the RSV on loss, LAE, UEP, gross and net

Opinion

- Type of Opinion for loss and LAE reserves
- Whether the unpaid loss and LAE is computed accordance with accepted actuarial standards and practices/principles
- Whether the unpaid loss and LAE reserve meets the requirements of [insurance] laws of domiciliary state
- If issuing a qualified opinion, disclose what items are qualified and the reason.
- If redundant/deficient then maximum/minimum amount the Appointed Actuary believes

SAMPLE ANSWERS AND EXAMINER'S REPORT

to be reasonable

- Type of Opinion for Unearned Premium Reserves for long duration contracts
- Reliance on the work of another actuary

Relevant Comments

- Whether the actuary thinks there is a risk of material adverse deviation
- Company specific risk factors
- Materiality Standard and its basis
- Reinsurance collectability
- Retroactive or financial reinsurance assumed
- If IRIS 11-13 are unusual, disclose the unusual value and a discussion on what lead to the unusual value
- Discussion of material changes in methodology and assumptions
- Exposure to environmental and/or asbestos liabilities
- Anticipated salvage and subrogation
- Discounting of Reserves (whether discounting is used, what's the amount)
- Voluntary and/or Involuntary underwriting pools and associations agreements
- Extended Reporting Endorsements
- Long Duration Contracts

EXAMINER'S REPORT

The candidate was expected to identify the contents of the Statement of Actuarial Opinion and the Actuarial Opinion Summary.

Part a

Candidates were expected to list two items that are found in the Actuarial Opinion Summary ("AOS") and not in the Statement of Actuarial Opinion ("SAO").

Common mistakes include listing items that are found in the SAO and not in the AOS (such as the Risk of Material Adverse Deviation) and items that are found in both the SAO and the AOS (such as the company carried reserves).

Part b

Candidates were expected to identify the four required sections of the Statement of Actuarial Opinion.

Common mistakes include incorrectly defining a particular section (such as Introduction instead of Identification), listing incorrect sections (such as Methodology or Exhibits), or listing specific disclosures within the SAO (such as RMAD, or IRIS Ratios).

Part c

Candidates were expected to identify two disclosures from each of the four required sections of the Statement of Actuarial Opinion.

Common mistakes include:

- Including a disclosure in the incorrect section (such as including the Reliance on Another

SAMPLE ANSWERS AND EXAMINER'S REPORT

<p>Actuary's Work in the Scope section instead of the Opinion section)</p> <ul style="list-style-type: none"> • Not understanding a disclosure item (for example, the Scope section generally does not include a description of the lines of business reviewed. This is not the same as the reserve items being opined upon, which is the loss and allocated loss adjustment expense reserves, and/or unearned premium reserves for long duration contracts, and/or other reserves) • Inadequately identifying the disclosure item (such as "net or gross" without labeling net or gross of what, or "Reinsurance" without any mention of why it is disclosed like collectability concerns or complexity of terms such as using retroactive or financial reinsurance).
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QUESTION: SPRING 2018 EXAM 6U, QUESTION 21	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
<p>part i</p> <ul style="list-style-type: none"> • Disclose; Identification needs Appointed Actuary's affiliation. • Disclose; Provides context of the actuary's access to Company. <p>part ii</p> <ul style="list-style-type: none"> • Disclose; Stated basis of reserves in the Scope section. • Disclose; Identify the reserve items upon which the actuary is providing an opinion. • Disclose; Opinion section needs to indicate whether the reviewed reserves are net/gross. <p>part iii</p> <ul style="list-style-type: none"> • Do not disclose; Carried reserves are in the actuary's range. • Do not disclose; the actuary only needs to say that the reserves are reasonable. • Do not disclose; Information is proprietary/confidential. <p>part iv</p> <ul style="list-style-type: none"> • Disclose; Reinsurance collectability is a required disclosure in Relevant Comments. • Disclose; Relevant to the solvency of the Company. • Disclose; Company's ceded business is substantial. • Disclose; Collectability of reinsurance recoverables can have a direct impact on surplus. • Disclose; To avoid collectability concerns. <p>part v</p> <ul style="list-style-type: none"> • Do not disclose; \$500K is not material compared to the reserves of the Company. • Do not disclose; Lawsuit is not related to a line of business, could be for a slip and fall. 	
EXAMINER'S REPORT	
<p>Candidates were expected to know what items should be included/disclosed in the Statement of Actuarial Opinion (SAO). Specifically, candidates were expected to know the following:</p> <ul style="list-style-type: none"> • The actuary's relationship to the Company is a required disclosure in the Identification 	

SAMPLE ANSWERS AND EXAMINER'S REPORT

section.

- The Scope section identifies the basis of the reserves that the actuary reviewed/opined on.
- The actuary's range of reasonable reserves is not disclosed since the carried reserve falls within the range (i.e. are reasonable).
- Reinsurance collectability is a required disclosure in the Relevant Comments section, even if there are no collectability concerns.
- Only material items should be disclosed; items not affecting reserves do not relate to a risk of material adverse deviation.
- The actuary should disclose relevant items so that the Opinion is not misleading.

Common mistakes included:

- Indicating that the item needed to be disclosed when it didn't and vice versa.
- Not providing a reason for the item's disclosure/non-disclosure.
- Providing a reason that wasn't related to the item, like shows the actuary judged reasonableness of ceded reserves or reserves are reconciled to Schedule P.
- (Part i) Stating the disclosure was required to review whether the relationship to company results in any potential conflicts of interest. Just stating the relationship does not imply the presence or absence of a conflict of interest. It is possible for conflicts of interest to exist (or not exist) regardless of whether the appointed actuary is internal or external to the company.
- (Part iii) Stating that the range of reserve was not disclosed in the Statement of Actuarial Opinion because it was already being disclosed in the Actuarial Opinion Summary.
- (Part v) Stating that the lawsuit needed to be disclosed because it was material to the company. A \$0.5 million lawsuit on \$125 million of net reserves is not material.
- (Part v) Stating that the lawsuit needed to be disclosed because it could impact profitability. Profitability is not within the scope of the actuarial opinion.
- (Part v) Stating that the lawsuit needed to be disclosed to prevent the actuarial opinion or financial statements from being misleading. These are not misleading since lawsuit is not material.
- (Part v) Stating that the lawsuit needed to be disclosed because it was a subsequent event. Unless the subsequent event was material and could impact the actuary's opinion, it would not need to be disclosed in the opinion.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION SPRING 2018 EXAM 6US, QUESTION 22	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.75 point	
<ul style="list-style-type: none">• The amount of reserves covered by another's analysis<ul style="list-style-type: none">○ Whether the result is material to the total amount of loss & LAE reserve○ Amount covered in another actuary's analysis compared to the total reserves○ Whether the reserves are material (portion of total)○ Impact on total opinion• The nature of the exposure and coverage<ul style="list-style-type: none">○ Nature of the risks included in the analysis○ Nature of exposure○ Consider the line of business another analysis is opining on○ Nature of business• The way in which reasonably likely variations may affect the actuary's opinion on the total<ul style="list-style-type: none">○ The volatility of data/results in the other analysis○ Whether adverse development of these reserves will affect appointed actuary's opinion○ If deviation on the other would cause material deviation in total○ Sensitivity of the analysis to reasonable changes in estimates• The credentials of the individual(s) that prepared the analyses or opinions<ul style="list-style-type: none">○ Another actuary's credentials○ Credential and qualification of the individual○ The qualifications of the other actuary• Understand the intended purpose of the analyses or opinions	
Part b: 0.5 point	
<ul style="list-style-type: none">• Change in methodology/assumption has a material impact on results<ul style="list-style-type: none">○ The company calculated reserves using paid LDFs and now started using Reported LDFs, and the difference between paid and reported method is material.○ A new law goes into effect and the company now expects the impacted claims to close at higher amounts than previously. This change in assumption results in material adverse development. This change would need to be disclosed.○ A new loss development pattern was selected for a specific line that materially impacted the estimated unpaid claims.○ The prior method was based on data that was pulled incorrectly causing estimates to be materially overstated.• New Modeling method added to reserve analysis has a material impact on results<ul style="list-style-type: none">○ If the actuary switches from a traditional loss development method estimate to a catastrophe modeling approach for property exposures and the impact of the change in methodology is material.○ Actuary start to use GLM instead of LDF method for reserve booking, result a 10M reserve increase on a 30M book.	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Replacement of method that was previously heavily relied on because assumptions are no longer valid
 - The claim department strengthened the case reserve so actuarial reserving used methods other than chain ladder. This results in material change in the reserves.
- Segregating data differently (by LOB, loss layer, geography, whatever), which creates a material change in the results
 - When the data of PD and BI coverages are treated separately (Triangles & LDFS) now and before the data was combined as Liability. This caused a material change on estimated reserves.
 - A material portion of the reserves is stated as net of salvage & subrogation, when it was previously state gross of salvage & subrogation.
- Appointed Actuary is unable to review the prior Appointed Actuary's work, must disclose prior assumptions, procedures and methods unknown
- Appointed Actuary is changing assumptions, and/or methods from the prior year and change is not known.
- Appointed Actuary was changed. Changes in assumptions, methods, and procedures likely resulted in a material change

Part c: 0.5 point

- Periodic updating of data, factors or weights based on newly available information
 - There has been a slight change to the severity assumption used to determine reserve estimates. The change is part of the regular review process and therefore need not be discussed.
 - Change in loss development factors based on more recent evidence.
 - Changing new link ratios based on new data.
 - The company assumed a different expected loss ratio as compared to prior year in projection of reserves, but the effect on reserve estimate was immaterial.
 - There was a change in discounting but the impact was immaterial.
 - There has been a change in trend selection that did not have a material impact on the results.
- The actuary is reviewing new reserve segments that were not included in the prior review
 - Adding a new line of business to the reserves. If it is small portion of book, no need to disclose.
- New method is added but impact on results is not material
 - Change in reserve technique that only impacted one small LOB with loss not material according to the material standard chosen.
 - A new procedure is used to calculate reserves (BF method instead of paid development method) and this change has an immaterial impact on the loss reserves estimated.
 - The actuary changes their loss development method from a chain-ladder approach to a modeled claim life cycle approach and the estimate required reserves are identical to the previous method.
 - If actuary relied more on paid method than incurred methods and did not produce materially different estimates from prior review.

SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT

Candidates were expected to understand the components of the SAO, what should be considered when making use of another's analysis, and know when/why changes to the unpaid claim analysis needed to be disclosed in the SAO.

Part a

Candidates were expected to understand the components of the SAO to briefly describe what items should be considered when making use of another's analysis.

Common mistakes included:

- Responses that were not specific enough, such as "methods & assumptions used" or "data quality".
- Providing items that need to be disclosed when making use of another's analysis, such as the affiliation of the other actuary or the relationship of the actuary to the company. These items are not
- Stating "amount of reserve" without context of whether the reserve amount is material.

Part b

Candidates were expected to understand and describe a change in the unpaid claims analysis that would result in a disclosure in the SAO.

Common mistakes included:

- Not describing a scenario, such as only saying "when there is a change in assumptions, procedures or methods" or not noting the materiality.
- Reference a claim practice or data system change as requiring disclosure, but not mentioning an actuarial reserve method or assumption change

Part c

Candidates were expected to understand and describe a change in the unpaid claims analysis that would not result in a disclosure in the SAO.

Common mistakes included:

- Not describing a scenario, such as only saying "when there is a change in assumptions, procedures or methods" or not noting the immateriality.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6US, QUESTION 23	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.75 point	
<ul style="list-style-type: none"> • Different aggregation of data. For example, accident year vs. calendar year vs. policy year vs. discovery year. • Different accounting for salvage and subrogation (net vs. gross) • Schedule P Part 1 may include tabular discounts not included in the data • Some coverages are long tailed and Schedule P only includes 10 years of data • Appointed actuary might use different breakouts than Schedule P (LOB, states, etc) • Sometimes there are manual adjustments in either Schedule P or in the appointed actuary's data • The date of information in the data and Schedule P may differ 	
Part b: 0.5 point	
<ul style="list-style-type: none"> • If the distribution of ultimate losses is skewed the midpoint may not represent the point with the highest probability of occurring. • The appointed actuary's estimate is supposed to be the appointed actuary's best estimate, not necessarily the midpoint of the range. This might happen if the distribution in actuary's analysis is asymmetrical or skewed. • The appointed actuary's point estimate can be derived by traditional reserving methods while the range can be derived from simulations of differing assumptions. The midpoint is not necessarily the same as the central estimate. • If a particular point is more likely (or the likelihood distribution of outcomes is skewed in other words) then the actuary's point estimate will not be in the middle of the range. • If there is a risk of catastrophe losses (low frequency, high severity) the point estimate will most likely be below the midpoint of the range. The high end estimates will need to consider the potential for catastrophes. 	
Part c: 0.5 point	
<ul style="list-style-type: none"> • Reasonable. Because the total reserve is within the range estimate. So even by line it would be redundant for PPA and inadequate for HO the SAO should issue a reasonable opinion for the whole business. • The appointed actuary should issue a reasonable opinion as the opinion is issued for the total reserves not by lines of business. The carried reserves lies within the range of actuary's reasonable estimates, thus is reasonable. • Reasonable opinion. Actuary opines on total aggregate reserves not by line of business and the booked amount of 120m is within range of 105m and 135m 	
EXAMINER'S REPORT	
<p>Candidates were expected to understand reasons why an actuary's Schedule P reconciliation may be challenging, as well as why the actuary's central estimate may differ from the midpoint of the range and what type of opinion should be issued under a specific circumstance.</p>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to describe why it would be difficult to reconcile the data used in the appointed actuary's analysis to data in Schedule P.

Common errors include:

- Not providing a comparison between data in the actuary's analysis and data in Schedule P, but instead stated characteristics of Schedule P or the actuary's data. For example, just stating "discounting" without an explanation of why this may lead to difficulty in performing the comparison.
- Stating that Schedule P or the actuary's data would be distorted by commutation transactions. This is not the case since the company does not buy reinsurance.
- Stating that the actuary's analysis may be done separately for each line of business while Schedule P Part 1 is only shown on an aggregate level. This is not correct since separate Schedule P Part 1 exhibits are created for each line of business.
- Stating that treatment of reinsurance ceding percentages may differ between Schedule P and the actuary's analysis. This is not correct since the company does not buy reinsurance.

Part b

Candidates were expected to explain why the appointed actuary's point estimate may differ from the midpoint of the range of reasonable estimates.

Common errors include:

- Stating that the midpoint (also known as the median) is the average of the distribution. That is only the case if the distribution is symmetrical.
- Stating that because the distribution of the reserves is not uniform, the midpoint is not the most likely selection. This is not correct since there are non-uniform distributions for which the midpoint is the most likely selection (e.g. normal distribution). The most likely point of a distribution is not the midpoint if it is asymmetric.
- Stating that the midpoint of the reserve distribution is selected by management while the point estimate is selected by the actuary. The company may book a reserve amount that does not have to be the midpoint.
- Stating that the actuary can judgmentally select any point within the range without providing further explanation that the selection is motivated by skewness of the reserve distribution.

Part c

Candidates were expected to view the information of the insurer and identify the type of opinion that the appointed actuary should issue. They were also expected to explain the rationale for this selection.

Common errors include:

- Stating that a qualified opinion should be given since the PPA reserves are redundant and the homeowners reserves are inadequate. This is incorrect since the opinion is based on the total

SAMPLE ANSWERS AND EXAMINER'S REPORT

company reserves.

- Providing a separate opinion for each line of business (example PPA is redundant and the homeowners is inadequate). This is incorrect since only one opinion is given and is on the total company reserves.
- Providing a correct opinion without expressing the rationale for the conclusion.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 24

TOTAL POINT VALUE: 3

LEARNING OBJECTIVE: D

SAMPLE ANSWERS

Part a: 1 point

Sample 1

- A. Range of actuary's estimate, net and/or gross
- B. Point estimate, net and/or gross
- C. Company carried reserve, net and/or gross
- D. Difference between company's carried reserve to A and B

Sample 2

- A. Actuary's low end of reasonable range for net L&LAE reserves
- B. Actuary's point estimate for L&LAE reserves (net)
- C. Company carried L&LAE reserves (net)
- D. Difference between carried and actuary point estimate or C-B

Part b: 0.75 point

Sample 1

A regulator can see if development has been excessive in determining if the company has been adequately setting reserves. If there has been consistent under reserving as shown by adverse development >5% in at least 3 of 5 years they may be concerned with solvency strength.

Sample 2

Regulators may use item E to see if the company may be under reserving (indicated by having 3 or more years with 1 year development > 5% of prior surplus). Can also use to see what is driving the adverse development (e.g. asbestos reserves)

Part c: 1.25 points

Sample 1

- 2015: $1600 / 39,400 = 4.1\%$
- 2014: $2400 / 39,950 = 6.0\%$
- 2013: $2050 / 44,520 = 4.6\%$

SAMPLE ANSWERS AND EXAMINER'S REPORT

Since there were not at least 3 years out of the past 5 where development was more than 5% of prior year surplus explanation is not necessary

Sample 2

	2016	2015	2014	2013	2012
Development	-1.6%	4.1%	6%	4.6%	?

The actuary does not need to include an explanatory statement because the 2012 development is negative and there were not 3 or more years where development was >5%, so the actuary does not need to comment.

EXAMINER'S REPORT

The candidates were expected to understand the primary components of the Actuarial Opinion Summary.

Part a

Candidates were expected to understand the information that is include in items A through D of the actuarial opinion summary.

A common mistake included providing two examples of the same part of the AOS (e.g. saying both difference between carried and range, gross, and then difference between carried and range, net)

Part b

Candidates were expected to understanding how a regulator would review Item E when evaluating the financial health of a company.

The most common mistake was not providing enough detail to fully describe the regulator's review. For example, just stating "review the adverse development" is not a full description.

Part c

Candidates were expected to understand the actuarial disclosure required in item E of the actuarial opinion summary including the ratios to test and the threshold for disclosure.

Common mistakes included:

- Dividing the development by current year surplus instead of prior year surplus.
- Incorrectly identifying the triggers (e.g. saying ">" 3 out of 5 years, or ">=" 5% of prior year surplus)

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 25	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE: D
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none">• <u>Sample Responses for the complexity of the concept of materiality</u><ul style="list-style-type: none">○ If the standard will blur the message of the work product○ Will it be misleading for intended users○ Whether the materiality standard is easy to understand○ If it is a highly complicated product, the user may be confused by the methodology used to derive the standard • <u>Sample Responses for the potential importance of the concept to the user</u><ul style="list-style-type: none">○ If it will change the decision made by the user○ Is the standard important to the user?○ Whether the materiality standard is relevant to the user○ Is the standard likely to change the user's understanding of the work product○ Consider how the user will use the materiality standard • <u>Sample Responses for the sophistication of the user who will be receiving the work product</u><ul style="list-style-type: none">○ Intended user's sophistication○ The user's background○ Whether the user will know what materiality is○ Will the user understand the concept of materiality or take it out of context? • <u>Sample Responses for legal or regulatory requirement to disclose the standard</u><ul style="list-style-type: none">○ Is it a required disclosure?○ Is the disclosure required? E.g. the SAO requires disclosure.○ If the corresponding regulations require disclosure	
Part b: 0.5 point	
<ul style="list-style-type: none">• <u>Sample Responses for indirect users of the actuarial work product about whom the actuary cannot possibly be knowledgeable</u><ul style="list-style-type: none">○ It is often difficult to determine exactly what users will do with the actuarial work product (how they will use it) so it is tough to know what may impact their opinion/decision○ The actuary does not always know what sort of omission/understatement/overstatement would cause a change in decision making. The actuary doesn't know if the report will get shared with other users. • <u>Sample Responses for different users may have different expectations regarding materiality</u>	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Materiality standards could be different for different users.
- Because there might be multiple users; regulator has different focus (solvency) vs. management (ongoing/profit drivers).
- The definition of “material” and the level at which someone determines something is material is very different depending on the person.
- Sample Responses for no formula can be developed that will substitute for professional judgment by providing a materiality level for each situation.
 - Determining materiality standard is somewhat arbitrary, as the materiality standard of say 10% of reserves vs. 5% of surplus can be equally good, and it is difficult to justify why one prefers one over the other.
 - There is no formulaic method to determine materiality. It involves a lot of judgment
 - What to base the standard on can be difficult as there are many options, each with pros and cons, but all valid: % of surplus, % of held reserves, next RBC action level.
- Sample Responses for desire to reference a proprietary rating agency model without being able to accurately predict the impact on the model.
 - Because it is hard to estimate an amount that will result in downgrade of financial rating in rating model used by rating agency, which is not available.

Part c: 0.75 point

Full credit responses should include the following information:

- The materiality standard as an amount
- The basis for determining the standard
- The purpose of the standard. That is, wording that addresses the risk of material adverse deviation of the company's reserves.

Example of full credit responses include:

- In forming my opinion, I examined 10% of surplus, \$1.5, to be the materiality standard of my analysis, which would trigger unusual IRIS Ratios. The major factor of material adverse deviation of this company is the unexpected emergence of A&E claims. Considering the existence of this factor, I consider the company has the risk of material adverse deviation.
- The materiality standard was chosen to be 2M. This is the amount which could cause the company to breach the RBC company action level. I believe there is no risk of material adverse deviation associated with this amount.
- My materiality standard is \$X and represents the amount that would lead to the next RBC action level (Company action level). There is RMAD.

EXAMINER'S REPORT

Candidates were expected to know considerations in determining whether to disclose the materiality standard, difficulties in determining the materiality standard, and know the key elements of the RELEVANT COMMENTS paragraph of the Statement of Actuarial Opinion related to the materiality standard addressing the Risk of Material Adverse Deviation in the company's reserves.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to identify two considerations in determining whether to disclose the materiality standard to the intended user of the actuarial work product. The most common mistakes were providing responses that did not relate back to either the materiality standard to its importance to the user, complexity of the concept, sophistication of the user, or a regulatory requirement, such as:

- Intended use of analysis
- Is there a risk of material adverse deviation?
- Who is the intended user?

Part b

Candidates were expected to describe two difficulties with determining a materiality standard, including items such as the focus of materiality on the users of the actuarial work product, the application of judgment over a set formula, and challenges with calculating some materiality standards.

Common mistakes were:

- Confusing materiality with the range of reasonable values in an actuarial estimate
- Confusing difficulty of determining a materiality standard with the inherent uncertainty associated with actuarial estimates
- Failing to adequately describe their example. Responses such as "It's judgmental" do not describe the difficulty.

Part c

Candidates were expected to propose language related to the materiality standard for Risk of Material Adverse Deviation in the RELEVANT COMMENTS paragraph of the Statement of Actuarial Opinion.

Common mistakes were:

- Not including the materiality standard as an amount
- Failing to include the basis for establishing the standard (e.g. percent of surplus, percent of reserves, amount to trigger an event like next RBC level)
- Failing to include risk of material adverse deviation as the purpose for the materiality standard
- Simply concluding that the company does not have a risk of material adverse deviation
- Confusing the disclosure of the materiality standard with the disclosure of the risk of MAD.
- Confusion between risk of material adverse deviation and adverse development of reserves. For example:
 - Stating that there is a potential risk of material adverse deviation as the insurer writes Workers' Compensation policies with high deductibles
 - Stating that the fact that there is no material change in loss and LAE reserves from the prior review means there is no RMAD

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 26	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE: E
SAMPLE ANSWERS	
Part a: 1.5 points	
<p><u>Sample 1:</u></p> <p>Contract 1 $40k \times 1.1 = 44k$ $44+60 = 104$ $104 > 40$ 90th percentile less than 10% chance of at least 10% loss not pass 10-10</p> <p>Contract 2 $1 \times 1.1 = 1.1k$ $38+1.1 = 39.1$ $39.1 < 40$ pass 10/10</p> <p>Contract 3 $21 \times 1.1 = 23.1$ $17+23=40.1k$ $40.1 > 40$ not pass 10-10</p> <p><u>Sample 2:</u></p> <p>90th percentile loss = 40k</p> <p>Contract 1 Net loss = \$0 -> LR $0/40k = 0\% < 110\%$ Does not pass *Also accepted $0/40 - 1 = -100\%$ UW loss < 10%</p> <p>Contract 2 $40K - 38 = 2k$ -> $2/1 = 200\%$ -> $> 110\%$ Pass Test *Also accepted $2/1 - 1 = 100\%$ UW Loss > 10%</p> <p>Contract 3 $40-17=23$ -> $23/21 = 109.5\%$ < 110% Does not pass *Also accepted $23/21 - 1 = 9.5\%$ UW Loss < 10%</p> <p><u>Sample 3:</u></p> <p>Contract 1 $40k \times .1 = 4000$ Prob of loss = 1%</p> <p>Contract 2 $10k \times .1 = 100$ Prob of loss = 10%</p> <p>Contract 3 $21k \times .1 = 2100$ Prob of loss = 5%</p>	
Part b: 0.75 point	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 1

No, the reinsurer is not assuming substantially all of the insurance risk of the primary insurer. They will only lose money under 5% of the loss scenarios. The substantially all exception would be met if the reinsurer took a 100% (very high) quota share percentage of the book.

Sample 2

To qualify for 'substantially all' provision, nearly all of the risk needs to be transferred. This usually only applies to QS contract where a profitable line of business can be reinsured in order for ceding company to increase capacity. This is excess of loss policy. Does not apply.

Sample 3

To fulfill 'substantially all' exception reinsurance must be

- 100% quota share or
- An individual contract with no risk limiting features.

Contract 1 does not meet either of those descriptions. It covers a high excess layer (excess of 60k) and only partially (up to 150k) these are features that limit the amount of risk to the reinsurer.

Sample 4

No. In order for the contract to qualify for 'substantially all' provision, the reinsurer would have to be in substantially the same position as the cedant, as in the case of a quota share agreement.

Given that the insurer retains the first \$60,000, the reinsurer would be in a different economic position than the cedant.

Part c: 0.5 point

Sample 1

The expected reinsurer deficit method does not only look at the loss amount at the 10%-ile. It looks at the losses across all percentiles and calculate the expected deficit (or loss to the reinsurer). If this deficit is greater than or equal to 0.01 of the premium the contract is assumed to pass risk transfer.

Sample 2

The ERD looks at the probability of a NPV loss multiplied by the average severity of a UW loss, and compares to a threshold (usually 1%). If it is higher than threshold, then qualifies for risk transfer.

Sample 3

$\text{Pr}(\text{NPV Losses}) \times \text{Avg Severity UW loss} > 1\%$ risk is transferred.

EXAMINER'S REPORT

The question required candidates to describe different methods of risk transfer testing for reinsurance contracts and evaluate some specific methods of risk transfer testing for specific contracts.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to be able to apply the 10/10 rule to three different reinsurance contracts. This required applying the reinsurance contract limit and attachment to the gross loss at the 90th percentile, calculating the reinsurer's underwriting loss (or gain) at the 90th percentile, and evaluating whether the underwriting loss was greater than 10% of the reinsurance premium.

Alternatively, candidates could calculate the gross loss amount that would produce a 10% underwriting loss for the reinsurer, and evaluate whether that loss was larger or smaller than the 90th percentile gross loss, passing the contract if it was smaller and therefore more likely than 10%.

Common errors include:

- Evaluating the loss to the reinsurer compared to a 10% loss ratio instead of a 10% underwriting loss
- Not taking the contract attachment point into consideration and comparing the gross loss to the reinsurance premium
- Not taking the contract limit into consideration and evaluating the underwriting loss at a full limits loss, even if that full limit loss had a less than 10% chance of happening
- Separate evaluation of whether a contract had a 10% chance of any loss (or any underwriting loss) and whether a contract had a chance of a 10% loss at any percentile, but not evaluating whether a 10% loss happened before the 90th percentile
- Providing pass/fail results for each contract with no explanation of the reason

Part b

Candidates were expected to determine that Contract 1 does not qualify for reinsurance accounting under the "Substantially All" risk transfer provision.

Other common errors include:

- Incorrectly determining that the contract does qualify for reinsurance accounting under the "Substantially All" risk transfer provision
- Mistakenly associating 'substantially all risk' with the largest potential loss covered (assuming 150k of potential limits was 'all' despite it being <10% of happening)
- Applying other tests for risk transfer instead of the "Substantially All" provision
- Failing to fully describe the rationale for the response. For example, "Contract 1 doesn't qualify for the substantially all provision because it does not transfer substantially all the risk" was not a sufficient amount of detail.

Part c

Candidates were expected to provide a description of the calculation of the expected reinsurer deficit and how it is evaluated to determine if risk transfer exists. Candidates were required to know that risk transfer exists if ERD exceeds a specified threshold, but were not required to provide a numerical threshold.

Common errors include:

- Providing a formula for the expected reinsurer deficit, but no discussion of how it's used to determine risk transfer (no comparison to a threshold)

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Providing an incorrect formula for the expected reinsurer deficit
- Incorrectly comparing to the threshold, (e.g. saying risk transfer exists if the ERD < 1%, instead of greater)

QUESTION: SPRING 2018 EXAM 6U, QUESTION 27

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE: E

SAMPLE ANSWERS

Part a: 1.5 points

- NWP has increased substantially from 500 to 1500. The surplus relief from reinsurer has given the company the capacity to write more business.
- The reinsurance contract may have helped the insurer expand operations and gain more market share, evidence by premium increasing 300% year over year from 500 to 1500
- Provided surplus relief most likely due to ceding commissions seen by the decrease in loss reserve / surplus ratio
- Reinsurer may have provided underwriting guidance which helped the insurer lower the loss ratio from 110% to 90%
- Mitigate loss reserves while increasing surplus; surplus increase from 2,000 to 2,710 while net loss reserves remain stable
- Finance increasing NWP (500 to 1500) by sharing the financial burden of its reserves. Since the ceding company is using quota share reinsurance, they are able to write more by sharing premium and loss reserves.

Part b: 0.5 point

- The company has accounted for this contract as prospective reinsurance. With a retrospective contract, the loss reserved would not have been reduced by the ceded amounts
- Prospective as there is no negative write-in liability

EXAMINER'S REPORT

Candidates were expected to understand benefits of reinsurance contracts that were applicable with the balance sheet data given. Candidates were also expected to understand the difference between prospective and retrospective accounting.

Part a

Candidates were expected to identify 3 benefits the of the reinsurance contract and provide a brief explanation.

Common mistakes include:

- Providing a benefit that was not applicable to the situation, such as:
 - Improved loss ratio due to CAT protection or stabilizing loss experience; QS will usually not cap loss ratios due to a CAT event, and an XoL, CAT, or FAC treaty would be more effective in removing large swings in financial results

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Providing support from the balance sheet which was not an improvement to the ceding insurer, such as:
 - Improved the NWP to surplus leverage ratio. The ratio increased from 25% to 55% from 2016 to 2017 which is a deterioration in the ratio.
- Providing only a benefit, but not an explanation of the benefit. For example, just stating “surplus relief” or “ceding commission” as a benefit without expressing surplus relative to the net reserves would only receive partial credit.
- Commenting only on an increase in nominal surplus
- Indicating that it would facilitate withdrawal, which is not applicable because NWP is growing

Part b

Candidates were expected to identify how the reinsurance was accounted for and provide a brief explanation.

Common mistakes include:

- Stating “prospective” without a supporting explanation.
- Stating that the contract was retroactive.