

# Exam 6C



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# Exam 6-Canada

## Regulation and Financial Reporting (Nation Specific)

October 27, 2014

4 HOURS

### INSTRUCTIONS TO CANDIDATES

1. This 73 point examination consists of 34 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, 6C, at the top of each answer sheet. Your name, or any other identifying mark, must not appear.
  - Do not answer more than one question on a single sheet of paper. Write only on the front lined side of the paper – **DO NOT WRITE ON THE BACK OF THE PAPER.** Be careful to give the number of the question you are answering on each sheet. If your response cannot be confined to one page, please use additional sheets of paper as necessary. Clearly mark the question number on each page of the response in addition to using a label such as “Page 1 of 2” on the first sheet of paper and then “Page 2 of 2” on the second sheet of paper.
  - The answer should be concise and confined to the question as posed. When a specified number of items are requested, do not offer more items than requested. For example, if you are requested to provide three items, only the first three responses will be graded.
  - In order to receive full credit or to maximize partial credit on mathematical and computational questions, you must clearly outline your approach in either verbal or mathematical form, showing calculations where necessary. Also, you must clearly specify any additional assumptions you have made to answer the question.
3. Do all problems until you reach the last page of the examination where "END OF EXAMINATION" is marked.

All questions should be answered according to the Canadian statutory accounting practices and principles, unless specifically instructed otherwise. SAP refers to Statutory Accounting Principles, and GAAP refers to Generally Accepted Accounting Principles.

**CONTINUE TO NEXT PAGE OF INSTRUCTIONS**

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.

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.
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 November 17, 2014.

**END OF INSTRUCTIONS**

**EXAM 6 – CANADA, FALL 2014**

1. (3 points)

a. (1 point)

Identify whether the federal regulator, the provincial/state regulator, or both levels of government oversee each of the following roles:

- i. Solvency regulation in Canada
- ii. Solvency regulation in the U.S.
- iii. Rate regulation in Canada
- iv. Rate regulation in the U.S.

b. (0.75 point)

A number of insurance company insolvencies in the 1980s sparked an interest in federal regulation in the U.S. Identify three actions taken by the National Association of Insurance Commissioners that reduced the pressure to introduce federal regulation.

c. (0.5 point)

In 1999, the U.S. Congress passed the Gramm-Leach-Bliley Financial Modernization Act. Describe the position of the Act with respect to insurance regulation.

d. (0.75 point)

Identify and describe one of the two U.S. laws that have been introduced after Gramm-Leach-Bliley that have caused federal encroachment into state regulation.

**EXAM 6 – CANADA, FALL 2014**

2. (1.5 points)

The Property and Casualty (P&C) Minimum Capital Test (MCT) Advisory Committee has outlined the key principles for a new capital framework for Canadian P&C insurers.

a. (1 point)

Identify and briefly describe the two approaches proposed for determining regulatory capital requirements.

b. (0.5 point)

Discuss how risk should be measured across risk categories and products.

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**EXAM 6 – CANADA, FALL 2014**

3. (2 points)

a. (1 point)

Identify two approaches used by Financial Services Commission of Ontario (FSCO) to regulate automobile insurance. For each approach identified, specify the classes of vehicles covered.

b. (0.5 point)

An insurer proposes the following rate level changes to its private passenger automobile insurance business in Ontario.

Territory	Proposed Rate Level Change
1	-5%
2	0%
3	3%
4	-15%
Overall	-4%

Discuss whether the insurer would meet the conditions to use the simplified guidelines for filing these rates with FSCO.

c. (0.5 point)

Provide two reasons FSCO may refuse to approve an automobile insurance rate filing.

**EXAM 6 – CANADA, FALL 2014**

4. (1.5 points)

a. (0.5 point)

Define the term “credit-based insurance score.”

b. (0.5 point)

Discuss a way that a severe economic downturn can affect policyholder premiums determined using credit-based insurance scores.

c. (0.5 point)

Describe how an actuary may respond to the situation described in part b. above.

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**EXAM 6 – CANADA, FALL 2014**

5. (2.5 points)

The cap on non-pecuniary damages was established as a result of the 1978 Trilogy of Supreme Court of Canada decisions.

a. (1.5 points)

Describe three reasons for the cap.

b. (0.5 point)

Briefly describe two exceptions in which Trilogy decisions were ruled not to apply.

c. (0.5 point)

Describe the Supreme Court's argument for allowing exceptions to the cap.

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**EXAM 6 – CANADA, FALL 2014**

6. (2.75 points)

a. (0.75 point)

Identify the three purposes of punitive damages.

b. (0.75 point)

Fully describe the standard of punitive damages award set by the Supreme Court of Canada in the case of *Whiten v. Pilot*.

c. (1.25 points)

Identify five proportionality dimensions that a fair punitive damage award must examine.

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**EXAM 6 – CANADA, FALL 2014**

7. (1 point)

a. (0.5 point)

Contrast Several Liability with Joint and Several Liability.

b. (0.5 point)

Briefly explain how total compensation to plaintiffs will be affected under both regimes in part a. above in the event that trusts replace once-solvent defendants.

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**EXAM 6 – CANADA, FALL 2014**

8. (2.25 points)

The insurance industry supports a reform of key legal principles within the Canadian tort system in order to achieve claims stability and predictability.

a. (1.5 points)

Discuss three amendments to the tort system that may stabilize insurance costs.

b. (0.75 point)

Briefly describe arguments against each of the amendments described in part a. above.

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**EXAM 6 – CANADA, FALL 2014**

9. (2 points)

An insured is in a province that offers a choice of either liability (fault) insurance or injury (no-fault) insurance. Provide arguments to support the insured's selection with respect to the following:

a. (0.5 point)

Financial impact to the at-fault driver

b. (0.5 point)

Proportionality of benefits to injuries

c. (0.5 point)

Timing of compensation payments

d. (0.5 point)

Overall insurance system costs

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**EXAM 6 – CANADA, FALL 2014**

10. (2.5 points)

a. (1.5 points)

Identify and briefly describe three reasons for creating a government-sponsored insurance program.

b. (1 point)

Justify why the government of Canada should not sponsor a flood insurance program.

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**EXAM 6 – CANADA, FALL 2014**

11. (1 point)

a. (0.5 point)

Explain why it is difficult to measure the full costs of an involuntary exit of an insurance company.

b. (0.5 point)

An insured has an automobile policy with a company that has become insolvent.

Given the following:

Policy effective date	July 1, 2013
Policy premium	\$2,500
Deductible	\$1,000
Policyholder outstanding claim	\$275,000
Insolvency date	December 1, 2013

Calculate the amount paid to this policyholder by the Property and Casualty Insurance Compensation Corporation (PACICC).

**EXAM 6 – CANADA, FALL 2014**

12. (2.0 points)

The Agricultural Policy Framework is comprised of two business risk management programs: Production Insurance Program and the Canadian Agricultural Income Stabilization Program (CAIS).

A farmer participates in both programs. A significant frost occurs and results in losses in production to the farmer.

The following information is available:

Historical average yield	100,000 units
Actual yield	50,000 units
Chosen level of coverage	80% production guarantee
Initial price per unit	\$3.00
Final market price at harvest of unit	\$2.25
Claim settlement basis	“at harvest prices”

a. (0.5 point)

Determine the payment from the Production Insurance Program.

b. (1.5 points)

Identify and briefly describe three optional coverages that are available under the Production Insurance Program.

**EXAM 6 – CANADA, FALL 2014**

13. (3 points)

a. (2 points)

Describe four differences between the operations of the Facility Association Residual Market (FARM) and a Risk Sharing Pool (RSP).

b. (0.5 point)

Briefly explain the rationale for the following rules implemented for the Ontario RSP:

- i. The pool covers only 85% of every risk transferred.
- ii. The maximum total allowable transfer to the RSP is 5% of the member's voluntary private passenger non-fleet written exposures.

c. (0.5 point)

A province decides to create a risk sharing pool to offer overland flood coverage for personal property. There are two options considered for determining companies' participation ratios in the results of this newly created pool:

- Option A  
Pool results are shared in proportion to a company's market share in personal property insurance, written by the company in the province.
- Option B  
Pool results are shared in proportion to a company's market share in personal property plus overland flood insurance, written by the company in the province.

Evaluate which option is preferable to achieve equitable sharing of RSP results.



**EXAM 6 – CANADA, FALL 2014**

14. (3.5 points)

The following information is available for a property and casualty insurance company that writes both personal and commercial automobile business. All amounts are in thousands dollars (\$000s).

Assets	Balance Sheet Value	Asset Risk Factor
Bond	200,000	0%
Preferred Stock	50,000	15%
Common Stock	50,000	15%
Mortgage Loans	50,000	5%
Agent Balances Receivables	8,000	5%
Reinsurance Recoverables	40,000	10%

	Commercial Automobile	Personal Automobile
Deficiency Factor	1.05	1.08
Discount Factor	0.89	0.88
Baseline Capital Factor for Loss Reserve	0.38	0.38
Baseline Capital Factor for Premium	0.36	0.39
Company Size Factor	0.95	0.95
Company Stability Factor	1.10	1.15
Company Profit Factor	1.02	1.00

Spread of risk factor	16%
Potential market depreciation of fixed income securities after 120 bps interest rate rise	29,000
Liquid assets	350,000
Gross PML	30,000
Credit Risk	5.4
Net written premium for commercial automobile	11,000
Net written premium for personal automobile	25,000
Carried reserve for commercial automobile	21,000
Carried reserve for personal automobile	77,000
Diversification factor for loss reserves	0.9357
Diversification factor for premium	0.9083
Growth factor	1.0
Adjusted surplus (APHS)	55,000

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**EXAM 6 – CANADA, FALL 2014**

(14 cont.)

Calculate the following under A. M. Best's Capital Adequacy Ratio (BCAR) rules:

a. (1.5 points)

Asset risk

b. (1.25 points)

Underwriting risk

c. (0.75 point)

BCAR ratio assuming there is no business risk and that the risk covariance can reduce capital by 35%.

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**EXAM 6 – CANADA, FALL 2014**

15. (2.75 points)

Earthquake Exposure Sound Practices sets out OSFI's expectations for policies and procedures applicable to insurers that have material earthquake exposure.

a. (0.75 point)

Briefly describe three best practices that insurers are expected to have in order to ensure that their earthquake models are appropriately used.

b. (1.5 points)

Identify and briefly describe three considerations when calculating the Probable Maximum Loss (PML).

c. (0.5 point)

Other than Earthquake Reserves, identify two other financial resources that an insurer can use to support its gross PML exposure.

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**EXAM 6 – CANADA, FALL 2014**

16. (2.5 points)

The following information is taken from page 80.10 of a property and casualty insurance company's P&C-1 as at December 31, 2013. All amounts are in thousands dollars (\$000s).

	Deferred Commissions at beginning of year	Deferred Commissions end of year	Commissions in respect of premiums written			
			Direct	Reinsurance Assumed	Reinsurance Ceded	Net
Auto	30,500	32,100	65,200	0	2,800	62,400
Property	13,400	14,400	?	0	0	?
Total	43,900	46,500	?	0	2,800	?

	Unearned Commissions at beginning of year	Unearned Commissions end of year	Net Commissions attributable to the Period
Auto	2,600	2,900	?
Property	0	0	30,000
Total	2,600	2,900	?

Other financial information from page 80.10:

- Gross contingent commissions = \$11,000.
- Ceded contingent commissions = \$0.
- The company had no gross or ceded other non-deferrable commissions.

Calculate total net commissions as it appears on page 80.10.

**EXAM 6 – CANADA, FALL 2014**

17. (3.5 points)

The following information is available for a property and casualty insurance company as at December 31, 2013. All amounts are in thousands dollars (\$000s).

Accident Year	Gross Cumulative Paid Losses	Gross Case Reserves	Gross Ultimate Losses	Gross Earned Premiums
2012	110,000	12,000	157,500	245,000
2013	80,000	20,000	165,375	255,000

The cumulative accident year payment pattern is as follows:

Age (months)	12	24	36	48
% cumulative paid	50%	70%	85%	100%

- The company began operations on January 1, 2012.
- Assume all payments are made in the middle of the year.
- Discount rate: 3%.
- Margin for Adverse Deviation (MfAD) interest rate: 0.5%.
- MfAD reinsurance recovery: 2.0%.
- The insurer entered into a quota share reinsurance agreement where it ceded 25% of its losses with a date of loss after January 1, 2013 to a reinsurer.
- Net unpaid claims discounted with Provision for Adverse Deviation (PfAD) are \$117,229.
- Future tax rate is 35%.
- The reported reserve is equal to the actuarial reserve (net unpaid claims discounted with PfAD).

a. (2.5 points)

Calculate the MfAD for claims development.

b. (1 point)

Calculate the estimated effect of discounting the asset for future income taxes.

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EXAM 6 – CANADA, FALL 2014

18. (1.75 points)

At December 31, 2012, the Appointed Actuary of a property and casualty insurance company selected the discount rate based on the short term government and investment grade bonds yield rate.

The following information is provided as at December 31, 2013.

Asset class	Book Value	Selected Yield Rate	Average Duration
Government and investment grade bonds			
Short Term	25,000,000	2.0%	2.5
Long Term	10,000,000	3.5%	4.5
Cash and cash equivalents	4,000,000	0.1%	0.2
Net policy liabilities	40,000,000	?	2.5

a. (0.5 point)

Briefly describe one similarity and one difference between the valuation of claim liabilities on an actuarial present value basis and on a fair value basis.

b. (0.75 point)

Fully explain how the Appointed Actuary would select the discount rate as at December 31, 2013.

c. (0.5 point)

Discuss why the interest rate MfAD selected as at December 31, 2013 may change when compared to the prior year's selection.

**EXAM 6 – CANADA, FALL 2014**

19. (2.5 points)

The following information is available for a property and casualty insurance company as at December 31, 2013:

Calendar Year	2009	2010	2011	2012	2013
Expense Ratio	25.5%	25.0%	25.0%	24.5%	25.5%
Investment Yield	3.5%	3.0%	2.5%	2.5%	3.0%
Return on Equity	10.0%	2.0%	-10.0%	10.0%	5.0%

**Cumulative Paid Losses**

Accident Year	Development Month		
	12	24	36
2011	60,000	75,000	175,000
2012	50,000	100,000	
2013	50,000		

**Case Reserves**

Accident Year	Development Month		
	12	24	36
2011	150,000	100,000	0
2012	275,000	250,000	
2013	150,000		

**Provision for IBNR (undiscounted)**

Accident Year	Development Month		
	12	24	36
2011	50,000	25,000	0
2012	50,000	25,000	
2013	50,000		

**Effect of Discounting and PFAD**

Accident Year	Development Month		
	12	24	36
2011	18,000	12,500	0
2012	29,250	27,500	
2013	18,000		

a. (0.75 point)

Calculate the undiscounted excess / (deficiency) ratio for year 2012 as at December 31, 2013.

b. (1.75 point)

Calculate the cumulative discounted excess / (deficiency) ratio for year 2011 as at December 31, 2013.

**EXAM 6 – CANADA, FALL 2014**

20. (1.25 points)

The following information is available for a property and casualty insurance company's December 31, 2013 P&C-1:

<b>Assets</b>	<b>Current Year</b>	<b>Prior Year</b>
Total Investments	315,000	275,000
Receivables		
Unaffiliated Agents and Brokers	10,000	8,000
Policyholders	5,000	4,500
Instalment Premiums	1,000	2,000
Other Insurers	2,000	1,500
Recoverable from Reinsurers		
Unearned Premiums	50,000	40,000
Unpaid Claims and Adjustment Expenses	150,000	135,000
Deferred Policy Acquisition Expenses	14,000	12,000

<b>Liabilities</b>	<b>Current Year</b>	<b>Prior Year</b>
Payables		
Agents and Brokers	1,500	1,000
Policyholders	500	500
Other Insurers	9,000	8,000
Unearned Premiums	90,000	70,000
Unpaid Claims and Adjustment Expenses	285,000	260,000
Unearned Commissions	3,000	2,000
Premium Deficiency	0	0

<b>Statement of Income</b>	<b>Current Year</b>	<b>Prior Year</b>
Total Underwriting Revenue	50,000	35,000
Underwriting Income (Loss)	(20,000)	5,000
Net Investment Income	10,000	8,000
Total Income Taxes	1,000	2,000
Net Income (Loss) for the Year	(11,000)	11,000

Calculate the investment income attributable to the policy liabilities as at December 31, 2013.

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**EXAM 6 – CANADA, FALL 2014**

21. (1 point)

a. (0.5 point)

The difference between the supervisory target and the minimum MCT ratio of 100% is intended to provide for risks not explicitly addressed in the calculation of policy liabilities or the MCT. Identify two such risks.

b. (0.5 point)

Describe OSFI's expectations when a property and casualty insurer anticipates that its MCT ratio will fall below its internal target and remain above the supervisory target.

**EXAM 6 – CANADA, FALL 2014**

22. (2.75 points)

The following information is available from a property and casualty insurance company's December 31, 2013 P&C-1. All amounts are in thousands of dollars (\$000s).

**Liabilities and Equity (Page 20.20)**

Shares issued and paid	900
Contributed Surplus	150
Retained Earnings	720
Reserves	50
Accumulated Other Comprehensive Income (Loss)	200

**Accumulated Other Comprehensive Income (Loss) (Page 20.42)**

Accumulated Gains (Losses) on:	
<b>Available for Sale:</b>	
Loans	10
Bonds and Debentures	90
Equities	45
<b>Other</b>	55
<b>Balance at End of Period</b>	200

Line of Business	Net Written Premium	Net Unearned Premium	Net Unpaid Claims excluding PfAD	Margin on Unearned Premium	Margin on Unpaid Claims
Property	1,500	900	300	8%	5%
Liability	2,500	1,500	1,875	8%	15%

Assume that the following components of Capital Required have a non-zero minimum capital amount:

- Balance Sheet Assets
- Unearned Premiums/Unpaid Claims/Premium Deficiencies

Assume there is no Premium Deficiency.

<< QUESTION 22 CONTINUED ON NEXT PAGE >>

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**EXAM 6 – CANADA, FALL 2014**

(22 cont.)

a. (2 points)

Calculate the capital required for Balance Sheet Assets to achieve OSFI's supervisory ratio.

b. (0.75 point)

In addition to Balance Sheet Assets, Unearned Premiums, Unpaid Claims and Premium Deficiencies, identify three other main components of the Minimum Capital Required formula.

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**EXAM 6 – CANADA, FALL 2014**

23. (4 points)

The following selected information is provided for a property and casualty insurance company's annual return over the last two years. All amounts are in thousands dollars (\$000s).

	2013	2012
Gross Premium Written	61,000	59,000
Gross Premium Earned	60,000	58,000
Ceded Premium Earned	7,000	6,500
Underwriting Income	6,200	250
Net Income (Loss) before Income Taxes	12,700	8,550
Realized Gains (Losses)	500	300
Total Investment Income	6,000	8,000
Income from Subsidiaries	200	200
Total Tax	4,150	2,800
Total Assets	170,000	168,000
Net Loss Reserves	105,000	100,000
Equity	40,000	36,000

a. (3 points)

Calculate each of the following ratios as at December 31, 2013. Provide a brief description of each ratio and note the acceptable ranges for each ratio.

- i. Return on Equity
- ii. Return on Revenue
- iii. Return on Assets
- iv. Net Loss Reserves to Equity

b. (1 point)

Using the ratios calculated in part a. above, opine on the financial health of the company as at December 31, 2013.

**EXAM 6 – CANADA, FALL 2014**

24. (1.5 points)

Identify three potential risk limiting features of a reinsurance contract and briefly describe how each feature of the contract could affect the existence or extent of a risk transfer.

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**EXAM 6 – CANADA, FALL 2014**

25. (3 points)

The following information is available for a property and casualty insurance company that writes only auto insurance. All amounts are in thousands of dollars (\$000).

Line of Business	Gross Earned Premium	Ceded Earned Premium	Gross Unearned Premium	Ceded Unearned Premium	Selected Undiscounted Loss Ratio	Discount Factor to Evaluation Date
Auto	846,200	340,480	422,500	169,000	?	0.91
Facility Association	72,200	0	35,400	0	105%	0.88

Maintenance Expense Ratio	4% of net premium
Internal Adjustment Expense Ratio	12% of net losses
Unearned Commissions	\$2,000
Contingent Commissions	\$3,500
Deferred Policy Acquisition Expenses (DPAE)	\$25,556

The selected undiscounted loss ratios are the same on both a gross and net basis.

a. (2.5 points)

Determine the highest undiscounted loss ratio for Auto that would not require a write-down of the DPAE.

b. (0.5 point)

Briefly describe the DPAE asset and its purpose.

**EXAM 6 – CANADA, FALL 2014**

26. (3 points)

The Appointed Actuary for a company has been asked by senior management to review the current stress testing program. Currently, the actuarial department is responsible for the stress testing program that is based on stochastic models which consider a static set of risks. The model assumptions are reviewed once a year.

a. (0.5 point)

Define the term “reverse stress testing.”

b. (2 points)

Describe four ways to improve the stress testing program currently in place.

c. (0.5 point)

Briefly describe two responsibilities of the Board of Directors with respect to the stress testing process.

**EXAM 6 – CANADA, FALL 2014**

27. (1.25 points)

a. (0.75 point)

Identify three quartile approaches for determining the margins for adverse deviations based on stochastic techniques.

b. (0.5 point)

Describe when stochastic modeling may be more appropriate for modeling premium liabilities.

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**EXAM 6 – CANADA, FALL 2014**

28. (1.5 points)

The following information is available from Page 40.07 Summary of Investments of a property and casualty insurance company's December 31, 2013 P&C-1:

	Fair Value				Amortized Cost (09)	Balance Sheet (01+03+05+07+09) (12)
	Held for Trading (01)	Available for Sale (03)	Hedges (05)	FV Option/ Investment Properties Fair Value (07)		
Bonds and Debentures (1 year or less)	15,000	12,000				27,000
Bonds and Debentures > 1 year and ≤ 5 years		45,000				45,000
Bonds and Debentures > 5 years	12,000					12,000

Describe the impact to the following financial statement items given an increase in the market rates:

- i. Bonds and Debentures
- ii. Actuarial Liabilities
- iii. Other Comprehensive Income

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**EXAM 6 – CANADA, FALL 2014**

29. (1.5 points)

Identify and briefly describe three key elements of the Own Risk and Solvency Assessment (ORSA).

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**EXAM 6 – CANADA, FALL 2014**

30. (1.25 points)

The IFRS 4 Insurance Contracts standard provides guidance on accounting for insurance contracts.

a. (0.5 point)

Identify the two primary requirements of this standard.

b. (0.75 point)

Define the term “insurance contract” as used in this standard.

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**EXAM 6 – CANADA, FALL 2014**

31. (2 points)

a. (0.5 point)

In accordance with the Canadian Institute of Actuaries and Canadian Institute of Chartered Accountants Joint Policy Statement, define the following:

- i. Enquiring professional
- ii. Responding professional

b. (0.75 point)

In the communication between the two professionals, briefly describe three specific actions the enquiring professional would take.

c. (0.75 point)

In the communication between the two professionals, briefly describe three specific actions the responding professional would take.

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**EXAM 6 – CANADA, FALL 2014**

32. (1.75 points)

a. (0.25 point)

Define the term “subsequent event.”

b. (1.5 points)

The Appointed Actuary (AA) of a property and casualty insurance company is valuing policy liabilities as at December 31, 2013. The report date is February 20, 2014. For each of the following scenarios, identify and briefly explain the actions that the AA should take.

- i. The stock market drops by 30% between January 2, 2014 and January 31, 2014. Common shares make up 50% of the company’s investment portfolio as at December 31, 2013.
- ii. The company receives a general liability claim notice from a policyholder on February 1, 2014. The claim occurred on December 8, 2013 and the initial case reserve is set at \$500,000.
- iii. On March 15, 2014, the AA is notified that the claims from the last two weeks of December 2013 were missing in the database that the actuary used for the reserve analysis. The error has been corrected as of March 14, 2014.

**CONTINUED ON NEXT PAGE**

**EXAM 6 – CANADA, FALL 2014**

33. (2.25 points)

a. (1 point)

Briefly describe the four responsibilities of a Fellow of the Canadian Institute of Actuaries before accepting a position as an Appointed Actuary (AA).

b. (1.25 points)

One of the duties of the AA is to identify the types of transactions or conditions which may have a material adverse effect on the financial condition of the company. Briefly describe how the actuary should perform this duty and fully describe the process to be followed when a material adverse event is discovered.

**CONTINUED ON NEXT PAGE**

**EXAM 6 – CANADA, FALL 2014**

34. (1.5 points)

a. (0.75 point)

Briefly describe three objectives OSFI has in requiring peer review of the work of the Appointed Actuary.

b. (0.75 point)

Briefly describe whether the selection of each of the following reviewers is appropriate.

- i. An external actuary who worked at the company as the AA four years ago.
- ii. An actuary working in the company's external audit firm.
- iii. An external actuary who is a member of a consulting firm when a member of the same firm was involved in actuarial work related to the financial statements of the company.

# Exam 6C

## Regulation and Financial Reporting (Nation Specific)

May xx, 200x

### POINT VALUE OF QUESTIONS

QUESTION	VALUE OF QUESTION	SUB-PART OF QUESTION						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	3.00	1.00	0.75	0.50	0.75			
2	1.50	1.00	0.50					
3	2.00	1.00	0.50	0.50				
4	1.50	0.50	0.50	0.50				
5	2.50	1.50	0.50	0.50				
6	2.75	0.75	0.75	1.25				
7	1.00	0.50	0.50					
8	2.25	1.50	0.75					
9	2.00	0.50	0.50	0.50	0.50			
10	2.50	1.50	1.00					
11	1.00	0.50	0.50					
12	2.00	0.50	1.50					
13	3.00	2.00	0.50	0.50				
14	3.50	1.50	1.25	0.75				
15	2.75	0.75	1.50	0.50				
16	2.50	2.50						
17	3.50	2.50	1.00					
18	1.75	0.50	0.75	0.50				
19	2.50	0.75	1.75					
20	1.25	1.25						
21	1.00	0.50	0.50					
22	2.75	2.00	0.75					
23	4.00	3.00	1.00					
24	1.50	1.50						
25	3.00	2.50	0.50					
26	3.00	0.50	2.00	0.50				
27	1.25	0.75	0.50					
28	1.50	1.50						
29	1.50	1.50						
30	1.25	0.50	0.75					
31	2.00	0.50	0.75	0.75				
32	1.75	0.25	1.50					
33	2.25	1.00	1.25					
34	1.50	0.75	0.75					
35	0.00							
36	0.00							
37	0.00							
38	0.00							
39	0.00							
40	0.00							
41	0.00							
42	0.00							
43	0.00							
44	0.00							
45	0.00							
TOTAL	73.00							



## EXAM 6C FALL 2014 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.
- 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.
- Generally, candidates were fairly well prepared for this exam. However, candidates should be cautious of relying solely on study manuals, as some candidates lost credit for failing to provide basic insights that were contained in the syllabus readings.
- The sample answer is from a candidate that received full credit for the question. If there are multiple answers that receive full credit, more sample answers are included.

### EXAM STATISTICS:

- Number of Candidates: 101
- Available Points: 73
- Passing Score: 50.75
- Number of Passing Candidates: 41
- Raw Pass Ratio: 40.59%
- Effective Pass Ratio: 41.84%

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 1

TOTAL POINT VALUE: 3

LEARNING OBJECTIVE(S): A1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 1 point

- i) Both
- ii) State (NOTE: "Both" was also accepted here if the candidate explained that the Federal Reserve system can supervise insurers that are deemed to pose a systematic risk.)
- iii) Federal
- iv) State

**Part b:** 0.75 point

- risk-based capital requirements,
- financial regulation accreditation standards
- An initiative to codify accounting principles.

**Part c:** 0.5 point

- The act concludes that states should regulate the insurance industry.
- The act set out certain minimum standards that state insurance laws and regulations were required to meet or face preemption by federal law.
- The act enabled other financial institutions (e.g., banks) to promote and sell insurance
- The act broke down restrictions against bank / holding company affiliation with insurers

**Part d:** 0.75 point

Either one of the following laws

Patient Protection and Affordable Care Act (PPACA)

- Health benefit plans to be marketed through federally-mandated state-created insurance exchanges. Federally mandated distribution.
- Mandated coverage requirements (prohibiting pre-existing condition exclusions in certain instances and restricting limits on the dollar value of health benefit plans)
- Requires that health insurers maintain specific medical-loss ratios as set by federal law.

Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank")

- Establishes the Federal Insurance Office (FIO). FIO is charged with studying and collecting information on the insurance industry and the state insurance regulatory system, and drafting a federal insurance regulatory framework.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Established Financial Stability Oversight Council (FSOC). FSOC is authorized to require a state regulator to apply heightened financial standards on insurance companies. FSOC may declare that an insurance company poses a systematic risk and require supervision by the US Federal Reserve System.
- Requires single-state regulation of surplus lines insurance placement and requires all states to apply uniform eligibility criteria for surplus lines insurers;
- Mandates certain requirements for reinsurance credits and generally preempts non-domiciliary state laws to insurers with respect to certain reinsurance issues.

### EXAMINER'S REPORT:

#### General Commentary

Overall, this question was answered fairly well despite the non-core nature of the material (US regulation).

#### Part a

This part was answered correctly by most candidates. A common mistake was answering that only the federal government is responsible for solvency regulation in Canada.

#### Part b

This was a fairly difficult question as it referenced actions that were taken in a specific time period (the 1980s). Common mistakes were to describe actions that took place at other times – such as unified contracts and policy forms, model legislation for states to adopt.

#### Part c

-The phrase “with respect to insurance regulation” could have several different interpretations; therefore, a variety of answers were accepted. Candidates who mentioned breaking down barriers between banks and insurance companies received full credit if they explained how this change impacted the regulatory environment. The most common cause of lost points was partial or insufficiently detailed explanations.

#### Part d

Candidates who mentioned the FIO and the FSOC in relation to Dodd-Frank received full credit if they either identified the full name of the organizations or explained their function. Some candidates made factual errors in their description of the Dodd-Frank legislation.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 2

TOTAL POINT VALUE: 1.5

LEARNING OBJECTIVE(S): A2

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 1 point

**A standard approach**, which is to be used by all companies to determine the company's minimum capital requirement and by companies without approval to use internal models to determine supervisory and company target required capital amounts

and

**An internal models approach**, which is to be used by companies with approval to use internal models to determine supervisory and company target required capital amounts, subject to OSFI-defined floors

**Part b:** 0.5 point

Any two of the below:

**The capital framework should use measures that are comparable across risks and products:**

- Consistency of measurement between risks should be maintained if possible.
- The risk measure should be based on statistically credible data.
- The risk measure should establish a time horizon that is common to all institutions.
- The minimum capital framework should be based on a risk measure level (e.g., VAR or CTE 99) that is common to all institutions.
- Companies should hold capital above the regulatory capital target because of economic cycles, desired ratings and differences in risk management; an internal capital target ratio should be established by companies.

**The capital framework should consider all risks:**

- The capital framework should consider all risks within the consolidated group: Insurance (including Catastrophe), Market, Credit, Liquidity and Operational risks.
- Capital requirements should, within a risk category, reflect risk mitigants, reinsurance, interrelationship and diversification/concentration taking account of effectiveness under normal and stress scenarios.
- Risks should be aggregated. No diversification between risk categories is permitted until evidence confirms diversification will hold in a stress situation.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

Candidates are expected to know the key principles for a new capital framework for Canadian P&C insurers.

#### Part a

- Candidates are expected to know the two approaches proposed in OSFI Framework to determine regulatory capital requirement and be able to explain and distinguish the two approaches.
- Some candidates were able to identify the two approaches, but lost points due to failing to mention the approval requirement by OSFI for the internal model approach.

#### Part b

- Candidates are expected to know the key principles and considerations on risk measurement in capital framework.
- A lot of candidates were only able to identify one principle/consideration.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 3

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE(S): A2

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 1 point

Prior approval for private passenger automobile

Prior approval or file and use for commercial and miscellaneous automobiles (also ok to say non-private passenger autos)

**Part b:** 0.5 point

We accepted either of the following two answers:

- Based on 2013 Simplified Filing Guidelines:  
This would not be eligible for simplified filing, because territory 3 > 0% and territory 4 < -10%.
- Based on 2014 Simplified Filing Guidelines:  
This would be eligible for simplified filing, because the increase < 5% and the decrease > -15%.

**Part c:** 0.5 point

Any two of the 3:

- The proposed risk classification system or rates are not just and reasonable in the circumstances
- The proposed risk classification system is not reasonably predictive of risk or does not distinguish between risks
- The proposed rates would impair the solvency of the applicant or are excessive in relation to the financial circumstances of the insurer
- Use prohibited rating variables, e.g., credit score
- Propose more than 55 territories
- Assumptions/methodologies cannot be justified
- No retirement discount offered

### EXAMINER'S REPORT:

#### General Commentary

This question was generally well answered by the candidates.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part a

- Candidates are expected to have a general knowledge of Ontario rate filing guidelines.
- Most candidates received full marks.
- Candidates that loses points due to providing the wrong vehicle classes.

### Part b

- Candidates are expected to know the conditions to use simplified filing.
- Most candidates failed to outline the requirement of overall and territorial rate change to use simplified filing.

### Part c

- Candidates are expected to know why FSCO may refuse to approve an automobile insurance rate filing.
- Most candidates were able to identify two reasons that FSCO may refuse to approve an automobile insurance rate filing.
- Some candidates listed missing items in the filing, such as data, signature or exhibits, which did not receive credit.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 4

**TOTAL POINT VALUE: 1.5**

**LEARNING OBJECTIVE(S): A2**

### **SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 0.5 point

A credit-based insurance score is a numerical score or ranking assigned to an insurance risk based on various attributes found in a typical individual's credit report, which is used for underwriting or pricing.

**Part b:** 0.5 point

When an economic crisis causes every insured's insurance score to worsen, it might lead to unwarranted overall premium increases.

or

When an economic crisis causes a dramatic shift in credit scores, the current relative rates among risks with insurance scores might be disrupted.

**Part c:** 0.5 point

The actuary would observe the distributional shift or change and adjust overall rate levels so that the total premium collected by the insurance company remains the same.

or

The actuary needs to regularly review the data and analyze the indicated rate differentials to reflect the recent changes if any, so that the rates will remain actuarially sound.

or

Discontinue using the credit-based insurance score until model is recalibrated.

### **EXAMINER'S REPORT:**

#### **General Commentary**

This question was answered very well by most candidates.

#### **Part a**

- Candidates are expected to know the definition of "credit-based insurance score".
- Most candidates received full marks.



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Some candidates were able to define “insurance score”, but failed to associate it with credit information. Some candidates were able to define “credit score”, but failed to associate it with insurance risk.

### Part b

- Candidates are expected to know how an economic downturn can affect credit score and therefore affect insurance premium determined using credit-based insurance score.
- Most candidates received full marks.
- Some candidates only mentioned the impact on credit score, but failed to mention the impact on insurance premium.

### Part c

- Candidates are expected to know the actions that an actuary should take to address the issues described in part b. above.
- Most candidates received full marks.
- Some candidates failed to consider the impact on insurance premium as a result of an economic downturn and therefore thought no action is required.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 5

TOTAL POINT VALUE: 2.5

LEARNING OBJECTIVE(S): A3

SAMPLE/ACCEPTED ANSWERS:

Part a: 1.5 point

*Sample 1*

- A severely injured young adult may be entitled to have virtually limitless damages
  - Without an objective measure/benchmark awards will be inconsistent and extravagant
- Non-pecuniary damages are not meant to be compensatory damages
  - No amount of money will compensate, the award is meant more as a means to make life more endurable
- Extravagant awards may put severe social pressure
  - That is unaffordable insurance, insurance availability concerns

*Sample 2*

- Extravagant awards lead to a social burden
- Non-pecuniary damages are really compensatory as no true restitution is possible
- Damages for bodily injuries (general damages) are virtually limitless

*Sample 3*

- Extravagant awards for non-pecuniary damages could lead to an excessive social burden and to affordability problems for insurance
- Economic damages of plaintiffs are fully compensated which is arguably more important
- Non-pecuniary damages cannot be objectively measured which leads to inconsistent and excessive awards

Part b: 0.5 point

*Sample 1*

- Damages for sexual abuse deemed to be exceptional and unlikely to impact premiums
- Damages for defamation (involving Church of Scientology)
  - For similar reasons as above

*Sample 2*

General damages cap was found to not be applicable to cases of defamation and cases of sexual assault

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**Part c:** 0.5 point

*Sample 1*

The cases and damages were deemed exceptional and unlikely to impact insurance prices, thus not a social burden

*Sample 2*

There is no evidence to show that general damages in these types of cases put an additional social burden on society

### **EXAMINER'S REPORT:**

#### **General Commentary**

In general, candidates responded well on this question.

#### **Part a**

Most candidates received full credit for this part.

In most cases, when a candidate did not receive full credit they were overly brief (they only identified, but did not describe the reason). For example, some candidates identified that the cap serves to "reduce social burden" but did not describe how (they merely identified the reason).

#### **Part b**

The majority of candidates were able to recall the appropriate exceptions. For the remaining candidates who did not receive full credit, only 1 exception was provided, or it was left blank.

#### **Part c**

Most candidates received full credit for this part.

Some candidates provided reasonable arguments for allowing exceptions to the cap, however the question specifically asked for the Supreme Court's argument. Arguments that were inconsistent with the Supreme Court's argument were not given credit.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 6

TOTAL POINT VALUE: 2.75

LEARNING OBJECTIVE(S): A3

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.75 point

- Deterrence
- Retribution
- Denunciation

**Part b:** 0.75 point

*Sample 1*

Whiten vs. Pilot

In trial \$1 M in punitive damages

1<sup>st</sup> appeal reduces to \$100 K

Supreme Court reinstates \$1 M award

The court went on to describe that while \$1 M was high, it was not outside the range of reasonability for the action of Pilot. Pilot stopped payments suddenly under an unmerited allegation of arson, the action was perceived to be made to force settlement on Whiten. The Court of Appeal can substitute its own award unless the initial award is not a reasonable one (within a distribution of possible awards). Punitive damages are the exception (for only heinous acts) not the rule.

*Sample 2*

Whiten house burnt down, Pilot (insurer) denied coverage to force plaintiff to enter into an unfair settlement.

Supreme Court restored punitive award of \$1 M for the reprehensible act of the insurer, as insurer breached contract of good faith.

This award is high, which raised the bar for punitive damages. But this award is reasonable considering the proportionality standard used by the court.

*Sample 3*

Supreme Court judge would not have awarded \$1 million in damages, but found it to be reasonable.

Punitive damages should be set at an amount that a reasonable jury, properly instructed, deems adequate, and no less, to punish the defendant.

Must also be proportional to the deplorable actions

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**Part c:** 1.25 points

### *Sample 1*

A fair punitive award should be proportional to:

- Blameworthiness of defendant
- Vulnerability of plaintiff
- Harm done to plaintiff
- Financial gain to defendant
- To the extent that compensatory damages are insufficient to provide deterrence, retribution, and denunciation

### *Sample 2*

Proportionality dimensions of punitive damages

- Amount of harm specifically directed at plaintiff
- Amount of plaintiff's vulnerability
- Consider all other civil and criminal punishments to defendant
- Consider the need for deterrence
- Consider the amount of advantages wrongfully gained by defendant

## **EXAMINER'S REPORT:**

### **General Commentary**

In general, candidates responded well on this question.

Most candidates were able to recall the various components and issues surrounding punitive damages.

### **Part a**

Most candidates were able to identify the 3 reasons.

The most common mistake was not being able to identify the purpose of denunciation.

### **Part b**

Most candidates received full credit on this part.

There were many ways to receive full credit through describing the components of the various court decisions and the reasons behind them.

For candidates not receiving full credit, their response was often too brief or did not describe any reasons behind the decisions. For example, some candidates stated that the insurer acted in "bad faith" and took advantage of the insured, but stopped there. They did not give any additional facts about the case or further explanation of the reasoning used by the court.

### **Part c**

Most candidates received full credit on this part.

## **EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT**

There were many acceptable responses and variations of those responses. For example, there were many ways to receive credit for the blameworthiness proportionality dimension.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 7

TOTAL POINT VALUE: 1

LEARNING OBJECTIVE(S): A4

### SAMPLE/ACCEPTED ANSWERS:

#### Part a: 0.5 point

Under Several Liability: a defendant's liability can be limited to the portion of the harm for which it is responsible.

Under Joint and Several Liability: the plaintiff can recover the entire judgment from any one of the liable defendants.

#### Part b: 0.5 point

Under Several Liability: plaintiff compensation could increase, decrease, or remain unchanged from what it would have been before the trust was established.

Under Joint and Several Liability: total plaintiff compensation should not be affected.

### EXAMINER'S REPORT:

#### General Commentary

##### Part a

- Candidates are expected to know the definition of "Several Liability" and "Joint and Several Liability" and be able to contrast the two regimes.
- Most candidates received full marks.
- Candidates who cannot describe the relationship between liability and degree of fault would not receive credit.

##### Part b

- Candidates are expected to know the impact on total compensation under both regimes in the event that trusts replace once-solvent defendants.
- Most candidates know the impact under Joint-and-Several Liability, but are not able to fully describe the impact under Several Liability.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 8

TOTAL POINT VALUE: 2.25

LEARNING OBJECTIVE(S): A4

SAMPLE/ACCEPTED ANSWERS:

Part a: 1.5 points

*Sample 1*

- Collateral source rule → remove or modify collateral source rule which shields the plaintiffs from disclosing other sources of compensation. This will allow the parties to know how much the plaintiff is getting and therefore cannot be overcompensated
- Gross vs. Net Income → awards are given based on gross income not net income which reflects deductions for taxes and other work related deductions. Therefore, by getting gross income they are being overcompensated
- Vicarious Liability → issue where one party held responsible for actions of subordinate/employee/sublease. Remove this to hold party at fault responsible and therefore stop looking for deep pockets

*Sample 2*

- Introduction of severe penalties for frivolous lawsuits
  - Should reduce defense costs associated with frivolous lawsuits
- Introduction of several liability
  - Should prevent plaintiff from filing lawsuits based on the "deep pocket syndrome"
- Removing pre-judgment interest on non-economic damages
  - Should reduce the size of awards

*Sample 3*

- Eliminate joint and several liability for non-pecuniary damages so that the plaintiff can't seek a defendant with deep pockets
- Eliminate collateral source rule so client can't be over-indemnified by collecting from multiple sources for the same loss
- Eliminate class actions since they are seen as distortion by lawyers rather than a means of compensating the plaintiff

Part b: 0.75 point

*Sample 1*

- Collateral source rule → plaintiff shouldn't have to disclose because should be fully compensated for harm regardless of other sources of recovery



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Gross vs. Net Income → taxation and deductions are not a concern of the defendant, those are government issues. Defendant can't be held responsible
- Vicarious Liability → Need to hold involved parties responsible regardless of amount of liability

### *Sample 2*

- Lawyers are not filing suits they believe they have no chance of winning
- Prevents plaintiffs from being fully compensated for their losses
- Removes an incentive for defendants to settle out of court

### *Sample 3*

- Joint and several liability insures that the plaintiff will be compensated in full, even if some of the defendants are unable to pay
- Collateral source rule ensures the plaintiff is compensated from their view, they might not think that one party's liability should influence the other
- Class actions allow plaintiffs to save on their legal fees when suing a company for the same reason

## **EXAMINER'S REPORT:**

### **General Commentary**

In general, candidates responded well on this question.

The question was specific to the Canadian tort system and the insurance industry. Reasonable amendments that have been enacted/discussed in other jurisdictions were given credit as long as they were not mentioned in the syllabus as something that has already taken place in Canada.

### **Part a**

Most candidates responded well on this part.

Caps on non-economic damages or punitive damages were not given credit as these amendments have already been enacted in Canada and will have minimal impact in improving claims stability and predictability (according to the syllabus).

### **Part b**

Most candidates responded well on this part.

Various reasonable arguments against enacting each amendment were given credit from multiple perspectives (insureds, society, plaintiffs, etc.).

For candidates that did not receive full credit, their argument against the reform was not appropriate. For example, when arguing against the ability of defendants to net payments from collateral sources, some candidates stated that the insured would no longer be "fully compensated". However, this is not

## **EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT**

correct. When collateral sources are not netted, more than full compensation amount can be received, potentially allowing double recovery.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**QUESTION: 9**

**TOTAL POINT VALUE: 2**

**LEARNING OBJECTIVE(S): B2**

**SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 0.5 point

Most no-fault systems retain fault as basis for setting premiums  
Criminal sanctions remain in place if drivers commit a criminal act  
Compensation may be reduced for individuals who caused their own injury in the course of committing particularly invidious kinds of fault, such as driving while intoxicated  
Liability insurance protects most at-fault drivers from having to pay for the very losses they caused, thus eliminating punishment  
There is no distinction between the driver who caused a crash by committing only a the most minor of errors or was a random victim of chance and one who acted in a highly irresponsible matter  
For at-fault drivers, much of their own losses are often covered by other safety nets, such as welfare – so society ends up paying one way or another  
Injury systems compensate victims regardless of fault, while liability systems may not compensate at-fault drivers for their own injuries

**Part b:** 0.5 point

Theoretically the tort liability process can provide highly individualized compensation to injured persons, especially.  
However the valuation may vary considerably from one case to another because of small differences in fact or larger difference in skill of lawyers and witnesses, and the disposition of judges and juries.  
The liability process tends to overcompensate people with temporary or less severe injuries and undercompensate those with permanent and more severe injuries.  
An injury compensation system may tend to overcompensate people with minor injuries and undercompensate those with permanent and more severe if aggregate limits on such things as care and rehabilitation costs are in place and the process is carefully managed.  
An injury insurance system may also tend to undercompensate those with higher income levels.  
Injury insurance tends to provide less highly individualized compensation than does the liability process.  
Injury systems compensate victims regardless of fault (i.e., full proportionality), while liability systems may not compensate at-fault drivers for their own injuries (i.e., no proportionality)

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part c: 0.5 point

Tends to result in significantly delayed compensation for past damages

Once judgment or settlement is reached, compensation for future damages is paid up front

Compensation of economic losses is usually paid within days following an injury

Compensation for future economic losses is not paid until the need to replace those losses actually occurs

In an injury system, compensation is paid by the injured party's own insurer – resulting in faster payments

In an injury system, compensation can be dependent on a set schedule – reducing the time needed to quantify the amount payable

In a liability system, lengthy trials can elongate the settlement process

### Part d: 0.5 point

Because of its adversarial nature, liability insurance attracts significant process or “transaction” costs largely involving lawyers, expert medical and non-medical witnesses, and others

Because of its non-adversarial nature, injury compensation generally attracts lower process and transaction costs

This holds true unless the administration is so bureaucratic and unfriendly to the claimant that lawyers become involved

In an injury system, compensation can be dependent on a set schedule – reducing the cost to quantify the amount payable

In an injury system, losses may be subject to caps – reducing the total amount paid

## EXAMINER'S REPORT:

### General Commentary

Overall, this question was answered fairly well. Due to the open-ended nature of the question, there was no “correct” answer for any of the sub-parts – candidates could receive full credit by selecting either injury or liability insurance, as long as their reasoning was sound.

### Part a

There was a wide variety of accepted responses. Some responses received partial credit due to insufficiently detailed explanations.

### Part b

There appeared to be two different interpretations of the concept of “proportionality”. Under a liability system, at-fault drivers may not receive compensation for their own injuries – thus, proportionality would be zero. This was not the intent of the question; however, it is technically correct so was given credit. The most common mistake was to describe characteristics of injury/liability systems without relating them to the question of proportionality of benefits to injuries.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part c

The most common answer was “delays due to lengthy trials” – this only received partial credit unless candidates provided a second point (e.g., first party paid claims).

### Part d

The most common answer was “litigation costs” – this only received partial credit unless candidates provided a second point (e.g., quicker settlement times under an injury system result in lower claims administration costs).

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**QUESTION: 10**

**TOTAL POINT VALUE: 2.5**

**LEARNING OBJECTIVE(S): B1**

**SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 1.5 points

**Filling insurance need unmet by private insurance**

Governments may offer insurance in markets unserved by private insurance; either because of unavailability or unaffordability.

or

A government may step into situations in which private insurers do not because the government has the financial capacity to subsidize losses.

**Compulsory purchase of insurance**

When purchase of insurance is compulsory, some legislatures felt obliged to offer the insurance to individuals who could not find a private market.

or

The private companies should make only limited profits given the government guaranteed market.

**Convenience**

It appears to be easier for the government to set up a program quickly as a legislature can appropriate funding for the new program

**Greater efficiency**

Some government insurance programs may be established because of the belief that government can provide the service at a lower cost than the private market.

**Social purposes**

Some feel that these social purposes can only be fully achieved within government-owned insurance programs. For example, rehabilitation and vocational training of injured workers are important goals of a workers compensation system and requirements for loss mitigation in catastrophe insurance plans may be more easily accomplished under government insurance programs.

**Part b:** 1 point

- While homeowners cannot purchase insurance for overland flooding in Canada, commercial insurance customers are able to purchase flood insurance from their insurers.
- Home insurance is not mandatory thus the government does not need to regulate it.
- Using government insurance programs only for convenience may not be justified if the private market is willing and able to provide a reasonable market.
- Experience demonstrates that private insurers can more accurately determine prices that appropriately reflect the risks they assume than governments. or

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- International experience shows that prices set by government typically fail to anticipate large loss events and this leads to taxpayer subsidies for public insurance agencies. or
- Catastrophic underpricing by private insurance companies can result in insolvency, providing a strong incentive to ensure adequate prices.
- Builders would continue to build in flood-prone zones
- The program would be unsuccessful because only homeowners in flood-prone areas would participate
- Government program would use non-actuarial rates resulting in cross-subsidization between high-risk and low-risk homes
- Private insurers could bundle flood with homeowners to reduce adverse selection and ensure coverage availability / affordability
- The need for flood coverage is better served by the private market (e.g. they already have infrastructure in place)
- Government programs would limit the growth opportunities for private businesses to increase their volume

### EXAMINER'S REPORT:

#### General Commentary

This question was answered well by most candidates.

#### Part a

This question was answered correctly by most candidates. Candidates who mixed up the definitions of "convenience" and "efficiency" were given credit if their explanations made sense. Candidates who answered "fulfill a social purpose" needed to either explain further or give an example in order to receive full credit.

#### Part b

Due to the open-ended nature of the question, a wide variety of answers were accepted. The arguments did not necessarily have to refer back to the reasons given in part a. Points were lost due to responses that were factually incorrect – e.g. that flood coverage is already offered by the private market in Canada (this is true for commercial property but it is not widely available for personal property).

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 11

TOTAL POINT VALUE: 1

LEARNING OBJECTIVE(S): B2

SAMPLE/ACCEPTED ANSWERS:

Part a: 0.5 point

*Sample 1*

- Not all costs can be accounted for right away
- Policyholders may have claims still being paid
- Third parties may have payments due or company is receiving
- Liquidating assets can lead to fire sales which can significantly reduce the asset price
- PACICC may use compensation fund until all costs are known
- There are insolvency costs that are difficult to determine right away

*Sample 2*

Some costs, such as lost wages, taxes, and expenses incurred by insurers winding up are difficult to evaluate. The economic impact is difficult to assess too.

*Sample 3*

There are many costs associated with it, unearned premium and unpaid claims are easy to evaluate, but not the cost of lost jobs, salary, pension. Neither are the costs of accountants, judicial intervention involved in liquidation.

Part b: 0.5 point

5 months earned premium

7 months unearned premium

$$\text{Unearned Premium} = 2,500 \times \left(\frac{7}{12}\right) \times 0.7 = 1,020$$

$$\text{Maximum payable for unearned premium} = 700$$

$$\text{Min}(700, \text{Unearned Premium}) = \text{Min}(700, 1020) = 700$$

$$\text{Outstanding claim} = 275,000$$

$$\text{Maximum payable for claim} = 250,000$$

$$\text{Min}(250,000, 275,000 - 1000) = 250,000$$

$$\text{Total amount paid} = 250,000 + 700 = 250,700$$



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

In general, candidates responded well on this question.

#### Part a

Candidates responded well on this part.

Many potential responses were accepted as difficult costs to estimate of an involuntary exit. As long as they were reasonable they were acceptable and did not need to be found directly in the syllabus.

Some candidates used claim costs or unearned premium, but these were not accepted as those costs can be calculated as shown in part b of this question.

#### Part b

Candidates responded well on this part.

Examples of common errors were:

- Applying the deductible after applying the maximum claim payment
- Calculating the unearned premium using either 5 or 6 months remaining in the policy term
- Failing to apply the cap on unearned premium

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 12

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE(S): B2

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.5 point

Production Guarantee =  $100,000 \times 0.80 = 80,000$  units

Amount Covered =  $80,000 - 50,000 = 30,000$

$30,000 \times 2.25 = 67,500$

**Part b:** 1.5 points

*Sample 1*

- Unseeded Acreage
  - Coverage for inability or lost opportunity to seed land before covered peril event occurs
- Reseeding Acreage
  - Costs associated with reseeding land after portion of previously seeded land harmed by covered peril
- Loss of Quality
  - Covers cost dropped in amount a commodity can be sold for if the quality is harmed by a covered event or peril

*Sample 2*

- Unseeded Crop
  - Pay for loss of income of an unseeded crop due to moisture
- Stop Loss Peril
  - Pay for loss of income due to specified peril not covered in basic coverage (like hail)
- Emergency Works Benefit
  - Pay for the costs that was incurred by producer to limit the loss of income further by hiring people to help or mitigate damage

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

In general, candidates responded well on this question.

#### Part a

Candidates responded well on this part.

Examples of common errors were:

- Using the Initial price per unit (\$3.00)
- Determining the amount covered (some candidates used 50,000 units)

#### Part b

Candidates responded very well on this part.

Some candidates weren't able to recall 3 of the 5 optional coverages.

A few candidates provided response that are not optional coverages within the Protection Insurance Program such as "yield based", "area based", "livestock".

**EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT**

**QUESTION: 13**

**TOTAL POINT VALUE: 3**

**LEARNING OBJECTIVE(S): B2**

**SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 2 points

	<b>Facility Association</b>	<b>Risk Sharing Pool</b>
Rates charged	Use FA rate	The rates of the insurance carrier
Admission	Only if an agent or a broker is unable to find auto coverage	Follow underwriting rules of the insurance carrier
Customer knowledge	The customer knows that he/she was placed with the FA	Invisible to the customer
Number of customers placed	Could be unlimited	Depends on a province
Coverage requirements	Must have at least minimum auto coverage	Any coverage
Participation ratio	Varies by class of business (there are 5 classes) and accident year	Based on voluntary private passenger, non-fleet, third party liability direct exposures not ceded to the pool
Underwriting & claims administration	Done by a servicing carrier (or a 3 <sup>rd</sup> party administrator for claims)	Done by the ceding companies

**Part b:** 0.5 point

i. The risk exposure is shared with the insurance carrier so that the insurance carrier is incented to manage claims well

The insurance carrier is incented to have adequate underwriting guidelines

The insurance carrier is incented to have adequate pricing

This acts as a risk-sharing mechanism in the same was that a deductible or coinsurance would

ii: The number of ceded risks is limited at 5% to prevent companies from using the RSP as a marketing tool (e.g., The new business costs are typically higher than renewal costs for a policy; with unlimited RSP cessions, a carrier could offer a 35% new business discount for a certain type of cars, e.g. hybrids, and cede all of the new business policies from this program to the risk sharing pool for the first year, when the policies are unprofitable).

The insurance carrier is required to have adequate underwriting and pricing because they can only cede a limited proportion of their portfolio

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part c: 0.5 point

Option A is preferred since it assesses a company based only on its share of the voluntary market. Otherwise, a company would be penalized for writing overland flood insurance, the product which the company would not offer without the existence of the Overland Flood RSP.

OR

Option B is preferred because companies voluntarily writing overland flood insurance should bear a larger proportion of the resulting costs.

### EXAMINER'S REPORT:

#### General Commentary

This question was answered well.

#### Part a

There were many possible correct responses from which the candidate could choose. The most common mistake was giving fewer than four differences. For candidates who submitted more than four reasons, only the first four were considered.

#### Part b

Some candidates gave explanations that were not specific enough to receive full credit (such as "to avoid excessive losses in the pool"). Candidates who simply re-stated the information in the question (e.g., "to limit the number of risks in the pool") did not receive credit.

#### Part c

The open-ended nature of the question allowed for several acceptable responses. The question did not specify whether companies would be writing overland flood insurance on a voluntary basis (in which case option B is more equitable) or offering it on a take-all-comers basis (in which case option A is more equitable). Either answer was accepted as long as the explanation was logical. Candidates did not receive credit for answering "A is better" or "B is better" without justification. Most points lost were for insufficiently detailed explanations.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 14

TOTAL POINT VALUE: 3.5

LEARNING OBJECTIVE(S): C1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 1.5 points

Investment Risk =  $(200*0\%+50*15\%+50*15\%+50*5\%)*(1+\text{Spread of Risk Factor})=17.5*1.16=20.3$

PML/Liquid Assets =  $30/350=8.57\% < 10\%$  of minimum Catastrophe Exposure

Interest Rate Risk = Potential Market Depreciation \* % Catastrophe Exposure =  $29*10\%=2.9$

Minimum Reinsurance Dependence Required Capital = 5.4

Asset Risk = Investment Risk + Interest Rate Risk + Credit Risk =  $20.3+2.9+5.4=28.6$

**Part b:** 1.25 points

Loss and LAE Reserve Required

Capital =  $21*1.05*0.89*0.38*0.95*1.1+77*1.08*0.88*0.38*0.95*1.15=38.17$

(Company Profit Factor is not used for Loss and LAE Reserve Risk)

Growth Factor = 1

Loss and LAE Reserve Risk =  $38.17*1*0.9357=35.72$

Net Premiums Written Required Capital =  $11*0.36*0.95*1.02+25*0.39*0.95*1.0=13.1$

(Company Stability Factor is not used for Net Premiums Written Risk)

Growth Factor = 1

Net Premiums Written Risk =  $13.1*1*0.9083=11.90$

Assume Business Risk = 0

Underwriting Risk =  $35.72+11.90=47.62$

**Part c:** 0.75 point

Gross Required Capital =  $28.6+35.72+11.90=76.22$

Net Required Capital =  $76.22*(1-35\%)=49.54$

BCAR =  $\text{APHS}/\text{NRC} = 55/49.54 = 111\%$

### EXAMINER'S REPORT:

#### General Commentary

- Candidates are expected to understand the composition of the asset risk and identify the associated figures given in the question for calculation. Candidates are also expected to understand and calculate the underwriting risk as well as BCAR ratio formula.
- Candidates generally did better in parts b and c than part a.
- Common mistakes include
  - Missing the spread of risk factor in the calculation of the investment risk;
  - Failing to consider the minimum catastrophe exposure;

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Failing to consider credit risk in asset risk calculation.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 15

TOTAL POINT VALUE: 1.75

LEARNING OBJECTIVE(S): C1

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.75 point

- Document how the use of earthquake models fits within the Company's earthquake risk management process
- Understand current modelling alternatives and why the model used is appropriate for the applicable insurance portfolio
- Ensure there are adequately qualified staff to run the models on a regular basis when models are used in-house
- Have a sound understanding of the key assumptions, methodologies and limitations underlying the model
- Understand the model uncertainty and how this is addressed in determining capital adequacy and related reinsurance arrangements
- Have evidence that the granularity and quality of data used is appropriate
- When more than one model is used and they produce materially different results, be able to identify and explain the key reasons for the differences and explain how this work is reflected in parameterization and adjustments
- In addition, any point related to Model Versions and Model Validation (page 7 of 14 of the OSFI Earthquake Exposure Sound Practices) can be accepted as an appropriate answer

**Part b:** 1.5 points

- Data quality: Management needs to understand the possible impact of data limitations on the results projected by the model and to make prudent adjustments to the model estimates;
- Non-Modelled Exposures and Risk Factors: Insurers need to take an inventory of exposures and risk factors relevant to their business and identify those that are not included in the model used.
- Model Uncertainty: Management needs to prudently factor in a margin of safety to reflect the uncertainty of additional assumptions, when considering its PML as a measure of the potential financial impact.
- Exposures to Multiple Regions: Insurers are expected to take account risks which may result from exposures to more than one region

**Part c:** 0.5 point

- Capital and Surplus
- Reinsurance Coverage
- Capital market financing (CAT Bonds)



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

##### Part a

- The purpose of the question was to have the candidates list best practices so that an EQ model is used properly. There was a large list of different answers accepted for this question.
- Most candidates were able to successfully identify 3 best practices. Points were not awarded when candidates answered with general comments on earthquake models which did not specifically address their appropriate use.

##### Part b

- Candidates were expected to both list and describe 3 different considerations when calculating the PML.
- Most candidates struggled with this part of the question. Most candidates were able to identify that data quality was a consideration. Candidates commonly listed certain best practices listed in Part a as solutions to this part: comments on earthquake models not specifically related to considerations when calculating PMLs did not receive credits.

##### Part c

- Candidates were expected to list two other financial resources that an insurer can use to support its gross PML exposure.
- The majority of candidates were able to correctly identify 2 other financial resources used to support the gross PML.
- Some candidates answered capital injections from the parent company, which do not receive any credit

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 16

TOTAL POINT VALUE: 2.5

LEARNING OBJECTIVE(S): C1

### SAMPLE/ACCEPTED ANSWERS:

Net Commissions attributable to the Period = Net Commissions + (Deferred Commissions at beginning of year – Deferred Commissions at end of year) + (Unearned Commissions at end of year – Unearned Commissions at beginning of year)

Net Commissions attributable to the Period = 62,400 + (30,500- 32,100) + (2,900 – 2,600) = 61,100

Total Net Commissions = Net Commissions attributable to the Period for Auto + Net Commissions attributable to the Period for Property + Gross Contingent Commissions – Ceded Contingent Commissions (no other non-deferrable commissions in question)

Total Net Commissions = 61,100 + 30,000 + 11,000 – 0 = 102,100

### EXAMINER'S REPORT:

#### General Commentary

Candidates expected to demonstrate knowledge of the calculations done on page 80.10 of a property and casualty insurance company's P&C-1. Specifically, being able to determine the bottom line total net commissions given a set of incomplete information.

Overall, there was a large spread in candidate results for this question. While there were candidates with perfect scores, many candidates also left this question blank or did not complete it.

Common errors included calculating unneeded missing information in the original table, or reversing the signs on deferred commissions or unearned commissions.

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QUESTION: 17

TOTAL POINT VALUE: 3.5

LEARNING OBJECTIVE(S): C1

SAMPLE/ACCEPTED ANSWERS:

Part a: 2.5 points

Payout pattern:

AY	2012	2013
<b>Net Unpaid</b>	<b>47,500</b>	<b>64,031</b>
1	50%	40%
2	50%	30%
3	0%	30%

Net Unpaid = (Gross Ultimate Losses – Gross Cumulative Paid Losses) \* 0.75 (if AY = 2013)

$$\begin{aligned} \text{Net Undiscounted} &= (47,500 * 50\% + 64,031 * 40\%) \\ &+ (47,500 * 50\% + 64,031 * 30\%) \\ &+ (64,031 * 30\%) \\ &= 111,531.25 \end{aligned}$$

$$\begin{aligned} \text{Net Discounted} &= (47,500 * 50\% + 64,031 * 40\%) * 1.03^{-0.5} \\ &+ (47,500 * 50\% + 64,031 * 30\%) * 1.03^{-1.5} \\ &+ (64,031 * 30\%) * 1.03^{-2.5} \\ &= 107,575.6 \end{aligned}$$

$$\begin{aligned} \text{Gross Discounted} &= (47,500 * 50\% + 85,375 * 40\%) * 1.03^{-0.5} \\ &+ (47,500 * 50\% + 85,375 * 30\%) * 1.03^{-1.5} \\ &+ (85,375 * 30\%) * 1.03^{-2.5} \\ &= 128,060.29 \end{aligned}$$

$$\begin{aligned} \text{Net Discounted with IR Pfad} &= (47,500 * 50\% + 64,031 * 40\%) * 1.025^{-0.5} \\ &+ (47,500 * 50\% + 64,031 * 30\%) * 1.025^{-1.5} \\ &+ (64,031 * 30\%) * 1.025^{-2.5} \\ &= 108,213.53 \end{aligned}$$

$$\text{Reinsurance Pfad} = (128,060.29 - 107,575.6) * 2\% = 409.69$$

$$\text{IR Pfad} = 108,213.53 - 107,575.6 = 637.93$$

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$$117,229 = 107,575.6 + 409.69 + 637.93 + \text{Dev Pfad}$$

$$\text{Dev. Pfad} = 8,606.05$$

$$\text{Dev. Mfad (\%)} = 8606.05 / 107,575.6 = 8\%.$$

**Part b:** 1 point

Effect = [Reported reserve – 0.95 x min (Reported Reserve, Claim Liability)] x (future tax rate) x (1 – PV factor)

$$\text{PV Factor} = (107,575.6 + 637.93) / 111,531.25 = 0.97$$

$$\text{Effect} = 61.03$$

### EXAMINER'S REPORT:

#### General Commentary

##### Part a

- Candidates were expected to calculate the different components of the actuarial present value of the unpaid claims and adjustment expenses provision. Candidates were first required to calculate the future payment of the outstanding liabilities and then discount using both the discount rate and the discount rate after interest rate PfAD. In addition, candidates needed to know how to apply the reinsurance structure in order to calculate the net liabilities and the reinsurance margin.
- A few of the common errors made by the candidates were as follows:
  - The payment pattern was incorrectly applied to the ultimate losses as opposed to the outstanding losses.
  - Candidates applied the quota share reinsurance treaty to either both years or neither year, when they should have been applying to accident year 2013 alone.
  - The interest rate MfAD was added, instead of subtracted, from the discount rate to calculate the interest rate PfAD.

##### Part b

- Candidates were expected to calculate the effect of discounting the asset for future income taxes. In order to answer to question correctly, candidates needed to know the formula and calculate the various pieces correctly.
- Most candidates were able to answer most of this question correctly, but lost points for failing to correctly state the formula, either by forgetting or misstating components of the formula. For example:

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Failing to identify the minimum of reported reserves and claims liabilities in the calculation
- Failing to reflect the discounting in PV factor
- Failing to reflect the interest rate PFAD in the PV factor

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 18

TOTAL POINT VALUE: 1.75

LEARNING OBJECTIVE(S): C1

### SAMPLE/ACCEPTED ANSWERS:

#### Part a: 0.5 point

Similarity: Both methods recognize the time values of money and risk margin for claim liabilities estimate or discounted claim liabilities including PfADs.

Difference: fair value basis might use different discount rate (which might be either average market yield on a series of Canada strip bonds matching the expected claims payments or average market yield on the selected assets instead of average yield on the carried (book) value of the selected assets under actuarial present value).

#### Part b: 0.75 point

Insufficient investment assets to cover the policy liabilities as of December 31, 2013. Need to include current assets with other sources of revenue. The other sources of revenue are investment income, premium receivables, common shares and preferred shares. Consider cash flows.

#### Part c: 0.5 point

Yes, the interest rate MfAD/PfAD will need to be re-estimated due to the volatility of the long-term bonds and other sources of revenue.

### EXAMINER'S REPORT:

#### General Commentary

- Candidates are expected to be familiar with the different basis of valuation of the claim liabilities and know considerations in selecting discount rate and MfAD used for claim liabilities in a given scenario.
- Some candidates answered the questions without using the actual data given in the question, such as by listing changes in estimated unpaid claims, listing changes in market value of assets. For these answers, only partial credits are given.

#### Part a

- Candidates are expected to describe the similarity and difference between APV and Fair Value basis.

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- Candidates performed well in this sub-part when describing the similarities. Some candidates lost points on giving the answer on the differences if they put no actual trading market for policy liabilities; or APV adds provisions for adverse deviations for claims development, interest rate and reinsurance collectability.

### Part b

- When answering the consideration for discount rate selection, candidates are expected to refer to the sample data given in the question.
- Some candidates received partial points while answering the question based on general knowledge.
- Most candidates failed to point out that the total value of assets given was insufficient to cover the liabilities.

### Part c

- Candidates are expected to discuss reasons causing interest rate MfAD change by referring to the actual data given in the question.
- Some candidates received partial points by answering the questions using general knowledge.
- Most candidates failed to point out the fact that the need to change the asset backing the liabilities comparing to last year, which led to the change in MfAD interest rate.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 19

TOTAL POINT VALUE: 2.5

LEARNING OBJECTIVE(S): C1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.75 point

Ultimate at December 31, 2012:  $50,000 + 275,000 + 50,000 = 375,000$   
Ultimate at December 31, 2013:  $100,000 + 250,000 + 25,000 = 375,000$   
Excess (Deficiency):  $375,000 - 375,000 = 0$

Reserves at December 31, 2012:  $275,000 + 50,000 = 325,000$

Excess (Deficiency) ratio:  $0 / 325,000 = 0\%$

**Part b:** 1.75 points

Ultimate at December 31, 2011:  $60,000 + 150,000 + 50,000 + 18,000 = 278,000$   
Ultimate at December 31, 2013:  $175,000 + 0 + 0 + 0 = 175,000$

Reserves at December 31, 2011:  $150,000 + 50,000 + 18,000 = 218,000$   
Reserves at December 31, 2012:  $100,000 + 25,000 + 12,500 = 137,500$   
Investment Rate in 2012: 2.50%  
Investment Income 2012:  $2.50\% \times \text{Average}(218,000 ; 137,500) = 4,444$

Reserves at December 31, 2012: 137,500  
Reserves at December 31, 2013: 0  
Investment Rate in 2013: 3.00%  
Investment Income 2013:  $3.00\% \times \text{Average}(137,500 ; 0) = 2,063$

Excess (Deficiency):  $278,000 - 175,000 + 4,444 + 2,063 = 109,506$

Reserves at December 31, 2011: 218,000

Excess (Deficiency) Ratio:  $109,506 / 218,000 = 50.2\%$



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

This question was answered poorer than our expectation. Candidates should be able to calculate the excess/deficiency ratio on both an undiscounted and discounted basis. The trick on this question is that the information is laid out in a different way than what candidates see in the syllabus (P&C pages 60.40 and 60.41). The inability of candidates to perform well might imply some candidates may have memorized the formula in the syllabus but may not understand the concept of excess/deficiency ratio.

#### Part a

- The expectation for this question is that candidates will be able to calculate the excess/deficiency ratio on an undiscounted basis, including the calculation of the excess/deficiency as well as the beginning reserves to use in the denominator of the ratio
- Common mistakes observed include the following:
  - Using cumulative paid losses instead of paid losses during the year
  - Applying quota share reinsurance on both 2012 and 2013, instead of on 2013 only
  - Calculating investment income for the undiscounted excess/deficiency
  - Forgetting to calculate the ratio itself (calculating excess/deficiency only)

#### Part b

- The expectation for this question is that candidates will be able to calculate the excess/deficiency ratio on a discounted basis, including the calculation of the excess/deficiency over two years, the investment income earned over two years, and the beginning reserves to use in the denominator of the ratio.
- Common mistakes we have observed include the following:
  - Using cumulative paid losses instead of paid losses during the year
  - Applying quota share reinsurance on both 2012 and 2013, instead of on 2013 only
  - Forgetting to apply discounting and PFAD to the case reserves and IBNR
  - Deducting the discounting and PFAD instead of adding it to case reserves and IBNR
  - Forgetting to add IBNR to come up with the unpaid losses
  - Forgetting to deduct the ending reserve of 0 (in some instances it was not clear that the candidate knew they had to deduct the ending reserve of 0)

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 20

TOTAL POINT VALUE: 1.25

LEARNING OBJECTIVE(S): C1

### SAMPLE/ACCEPTED ANSWERS:

Investment income =	2013	2012	Average	Investment income
+ net unpaid claims	135,000	125,000		
+ net unearned premium	40,000	30,000		
-Gross DPAC	14,000	12,000		
+ Premium Deficiency Provisions	0	0		
+ Unearned Commissions	3,000	2,000		
-Agents, brokers and policyholders	15,000	12,500		
-Installment premiums	1,000	2,000		
Total	148,000	130,500	139250	4802

$$\begin{aligned}\text{Selected Yield Rate} &= \text{Current Investment Income} / (\text{Investments} - \text{Current Investment Income}) / 2 \\ &= 10,000 / (315,000 + 275,000 - 10,000) / 2 \\ &= 3.448\%\end{aligned}$$

### EXAMINER'S REPORT:

#### General Commentary

- Candidates should know the formula for calculating investment yield and investment income attributable to policy liability.
- Candidates performed well in calculating yield rate and knew the components of the investment asset attributable to the policy liabilities.
- Common mistakes include:
  - Some candidates did not consider reinsurance recoverable figures provided in the question to derive Net Unpaid and Net UEP.
  - Some candidates included Receivables from Other Insurers in the receivables calculation.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 21

**TOTAL POINT VALUE: 1**

**LEARNING OBJECTIVE(S): C2**

**SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 0.5 point

Any two of such risks:

Systems, data, strategic, management, fraud, legal, other operational, business risks, volatility in the market, economical condition, innovation, consolidation, international development and reputation.

**Part b:** 0.5 point

Inform OSFI immediately if they anticipate falling below their internal target, and lay out their plans, for OSFI's approval, to return to their internal target.

**EXAMINER'S REPORT:**

#### **General Commentary**

- Candidates are expected to know the risks that are not explicitly addressed by the difference between the supervisory and minimum MCT ratio of 100% as well as the OSFI's expectations when a property and casualty insurer's MCT ratio is anticipated to fall below its internal target but above the supervisory target.
- Candidates in general did well in this question. For part a, they lost points as they can't provide any risk. For part b, candidates lost points by only identifying only one action point.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 22

TOTAL POINT VALUE: 2.75

LEARNING OBJECTIVE(S): C2

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 2 points

$$\begin{aligned}\text{Capital available} &= (\text{Equity} - \text{AOCI}) + (\text{Accumulated gains/losses on bonds} + \text{equities}) \\ &= (900+150+720+50) + (90+45) \\ &= 1820+135 \\ &= 1955\end{aligned}$$

$$\begin{aligned}\text{Capital required for unearned premium} &= 0.08 \times (\max(0.5 \times 1500, 900) + \max(0.5 \times 2500, 1500)) \\ &= 0.08 \times (900 + 1500) \\ &= 192\end{aligned}$$

$$\text{Capital required for unpaid claims} = 300 \times 0.05 + 1875 \times 0.15 = 296.25$$

To meet supervisory target :

$$\begin{aligned}\text{Capital available/ capital required} &= 150\% \\ &= 1955 / (\text{Cap. Required for B/S assets} + 296.25 + 192)\end{aligned}$$

$$\text{Cap. Required for B/S assets} = \$ 815.08 \text{ in ('000s)}$$

**Part b:** 0.75 point

- Interest Rate Risk
- Reinsurance ceded to unregistered reinsurers
- Catastrophes

Other accepted answers:

- Investment risk
- Structured Settlements, Letters of Credit, Derivates and Other Exposures
- Off-balance sheet risks

### EXAMINER'S REPORT:

#### General Commentary

- In general, candidates did well on this question, but only a few got full marks.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part a

- Candidates were expected to know how to calculate MCT based on P&C-1 information. It was also expected that candidates would be able to isolate the capital required for Balance Sheet Assets
- Candidates performed generally well on this question.
- One common mistake was to include the available for sale loans in the capital available.

### Part b

- Candidates are expected to know the main components of Minimum Capital Required.
- Many candidates got full marks on this part.
- The following answers were not given credit:
  - Inflation risk
  - Capital required for registered reinsurers
  - Hedging activities

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 23

TOTAL POINT VALUE: 4

LEARNING OBJECTIVE(S): C1

SAMPLE/ACCEPTED ANSWERS:

Part a: 3 points

i. Return on Equity

Calculation:

Solution 1 using 2013 Equity:  $ROE = \text{Net after tax income} / \text{Equity} = (12,700 - 4,150) / 40,000 = 21.4\%$

Solution 2 using avg of 2012 & 2013 equity:  $ROE = (12,700 - 4,150) / ((36,000 + 40,000) / 2) = 22.5\%$

Either solution is acceptable

Description: The ROE measures an insurer's net income as a percentage of equity. The higher the ratio, the greater the return to shareholders per unit of invested capital.

Acceptable range: Minimum 5.4%

ii. Return on Revenue

Calculation:

$ROR = (\text{Underwriting Income} + \text{Investment Income (excluding gains)} + \text{Income from subsidiaries}) / \text{Gross Written premiums}$

$ROR = (6200 + 6000 - 500 + 200) / 61,000 = 19.5\%$

Description: The ratio measures income generated by an insurer relative to its revenue generating capacity.

Acceptable range: Minimum 6.2%

iii. Return on Assets

Calculation:

$ROA = \text{Net after tax income} / \text{Average beginning and end of year assets}$

$ROA = (12,700 - 4150) / ((168,000 + 170,000) / 2) = 5.1\%$

Description: This ratio measures the efficiency of the company in terms of its ability to convert generate income from its asset base

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

Acceptable range: Minimum 2.6%

iv. Net Loss reserve to Equity

Calculation:

$NLR \text{ to Equity} = \text{Net Loss Reserves/Equity} = 105,000/40,000 = 262.5\%$

Description: Given the inherent uncertainty in assessing unpaid claim liabilities, a high ratio of net loss reserves to equity may expose an insurer to financial distress should provisions prove inadequate. In cases where this ratio is extremely high, small % deviations in outstanding reserves can have devastating effects on solvency

Acceptable range: Maximum 200%

**Part b:** 1 point

The company had a very good year as indicated by the strong results for return on equity, return on revenue, and return on assets. All three of these metrics were well above the acceptable ranges outlined by MSA. That being said, the net loss reserve to equity ratio is extremely high at 262.5% and if the net loss reserves prove to be inadequate, this could be devastating to the insurers solvency. This metric alone is very concerning as it implies that the companies MCT ratio could be quite low. A close look at the companies MCT ratio would be warranted. Favourable results for one year doesn't necessarily mean that the financial health of the insurer is favourable.

### EXAMINER'S REPORT:

#### General Commentary

The candidate is expected to be familiar with MSA ratios and their significance to the financial health of an insurance company.

#### Part a

The candidates are expected to be able to calculate the MSA ratios, know the acceptable ranges and be able to describe them as well.

Common mistakes were using incorrect formulae to calculate MSA ratios or applying incorrect acceptable ranges to the values. For example, some candidates used pre-tax income to calculate ROE or did not exclude gains in the calculation of ROR. A common mistake was to apply an incorrect maximum to the "Net Loss Reserves to equity" ratio, which should be 200% to receive full credit.

#### Part b

The candidate is expected to recognize that the first three measures are a sign that the company has had a profitable year. The candidate is also expected recognize that the high net loss reserves to equity is indicative of capital adequacy issues.

## **EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT**

A common mistake that candidates made was to simply state that 3 out of 4 ratios were good, indicating that the company was in good financial health. Relatively few candidates recognized that the MSA ratios indicated both a profitable year and a concern about potential capital adequacy issues.



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 24

TOTAL POINT VALUE: 1.5

LEARNING OBJECTIVE(S): C1

### SAMPLE/ACCEPTED ANSWERS:

#### Profit sharing

The actuary would be careful when there is a pre-determined expectation of large profit sharing. Such an expectation might be indicative of insufficient risk transfer.

Also, absence of a loss carry-forward provision (used in the determination of the refund amounts) might reflect an expectation of the reinsurer that the possibility of loss in any one accounting period is remote.

And finally, negative experience refunds (i.e., the ceding company makes the assuming company whole for its losses) can negate risk transfer to the assuming company.

#### Adjustability of reinsurance premiums and/or commissions

Adjustable commission on a proportional contract

A swing rate on a non-proportional contract

Limits or caps on loss ratios

Loss corridor provisions on proportional contracts

#### Pre-set limits to timing of payments

Some contract features which restrict the timing of payments may indicate an intention to limit risk transfer

For example, some contracts may contain payment schedules or funds withheld provisions which may indicate such an intention

#### Expected duration of contract

Commutation clauses

#### High front-end reinsurance commissions

#### Counterparties

### EXAMINER'S REPORT:

#### General Commentary

- Candidates are expected to identify the reinsurance features that limit risk transfer and briefly describe the underlying rationale why such features results in limited risk transfer.
- Candidates performed well in identifying these features but were not able to describe the underlying rationales.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 25

TOTAL POINT VALUE: 3

LEARNING OBJECTIVE(S): C1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 2.5 points

Represent the Auto Undiscounted Loss Ratio as X. The highest loss ratio occurs when the equity in the unearned premium (EQUP) equals the preliminary DPAE. Solve for X where EQUP = 25,556

$$\text{Auto Net Unearned Premium} = 422,500 - 169,000 = 253,500$$

$$\text{FA Net Unearned Premium} = 35,400$$

$$\text{Total Net Unearned Premium} = 288,900$$

$$\text{Auto Discounted Claims} = 253,500 * X * 0.91 = 230,685 * X$$

$$\text{Facility Association Discounted Claims} = 35,400 * 1.05 * 0.88 = 32,710$$

$$\text{Maintenance Expenses} = 253,000 * 0.04 = 10,140$$

$$\text{EQUP} = [\text{Net Unearned Premium}] + [\text{Unearned Commissions}] - ([\text{Auto Discounted Losses}] * (1 + [\text{IAE Ratio}])) + [\text{FA Discounted Losses}] + [\text{Maintenance Expenses}] + [\text{Contingent Commissions}]$$

$$25,556 = (288,900 + 2,000) - (230,685 * X * (1 + .12)) + 32,710 + 10,140 + 3,500$$

$$X = 0.8476$$

**Part b:** 0.5 point

The deferred policy acquisition expense (DPAE) is an asset which amortizes the prepaid/acquisition expenses over the policy period, provided such costs are recoverable from expected profits. It better matches the premium and expenses over the remainder of the policy period.

### EXAMINER'S REPORT:

#### General Commentary

The successful candidate is expected to have good knowledge of deferred policy acquisition expense (DPAE) and the concept of equity in unearned premium.

#### Part a

The successful candidate is expected to:

- know the formula for calculating the equity in unearned premium,
- recognize that DPAE asset is written down if EQUP < DPAE, and

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- recognize that Facility Association premium and losses are included in the calculation of EQUIP, but not maintenance expenses or internal adjustment expenses .

Most candidates did well, but some of the common mistakes were:

- Discounting maintenance expenses (no discount required)
- Wrong signs on unearned commissions and contingent commissions
- Not including FA premium and losses in the EQUIP calculation
- Calculating maintenance and internal adjustment expenses for FA
- Assuming that DPAE has to be written down when  $EQUIP \leq 0$ , instead of when  $EQUIP < DPAE$

### Part b

Candidate is expected to know the definition and purpose of the DPAE asset. A significant number of candidates failed to correctly define DPAE or explain its purpose.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 26

TOTAL POINT VALUE: 3

LEARNING OBJECTIVE(S): C2

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.5 point

Sample 1:

Determine how far risk factors need to be changed to drive surplus negative and then determine if it is plausible.

Sample 2 :

It is to determine how far risk factors need to be changed to drive surplus negative and assess if such changes are reasonable.

**Part b:** 2 points

Sample 1 :

Include views from across the organization and include different risk perspective.  
Allows for more comprehensive evaluation of risks.

Have documented policies.  
Describing how programs are to be used and what are the assumptions.

Have robust but flexible infrastructure.  
Flexible enough to be able to make adjustments on a timely manner.  
Robust so outputs can be trusted

Have controls and reviews.  
To assure the program is still appropriate.

Sample 2 :

Flexible  
Make the risks set dynamic.  
Ensure capturing all risks every year.

Constantly update the model.  
More frequently than once a year

Documentation

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

Make sure documentation of process and identification of model assumptions are clearly laid out.

Need perspectives from organization outside Senior Management and actuaries.  
Consider all functioning units perspectives.

Sample 3 :

Include a wide range of perspectives and expertise throughout the organization.

Consider a dynamic set of risks.

Compare to stress test results using deterministic model.

Review assumptions more frequently for changes in markets, assets, reinsurance contracts.

**Part c:** 0.5 point

Sample 1 :

- The Board has the ultimate responsibility of overseeing the stress testing program.
- Must meet with Senior Management to ensure that the stress testing program is adequate.

Sample 2 :

- Oversight of the stress testing policy.
- Knowledge of key threats of organization resulting from stress testing

Sample 3 :

- Responsible for overseeing ultimate program and ensuring management is implementing the program as desired.
- Need to be aware of key findings.

### EXAMINER'S REPORT:

#### General Commentary

- Candidates performed well on part a) and c) but not as well on part b).

#### Part a

- Candidates are expected to know what stress testing is and come out with a proper definition of what reverse stress testing is.
- Candidates did well on this part as it is a basic definition question.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Some candidates forgot to mention that the plausibility of the change in risk factors needs to be evaluated.

### Part b

- A wide range of answers were accepted for this part as there is a long list of possible answers.
- The most common mistake was to write only about how to improve the stress testing models rather than about the stress testing process/program. For example, the following answers were not given credit because they were considered too vague or repetitive:
  - Ameliorate the quality of data or the quality of models
  - Considered ripple effects in your scenarios
  - Considered different scenarios
  - Considered interaction/correlation between risks (if considering different risks or a dynamic set of risk was already mentioned)

### Part c

- Many candidates got full mark on that part.
- The most common mistake was to mix up the roles of the Board and the Senior Management.
- The implementation of the stress testing process and selection of scenarios is really a role of the Senior Management and not of the Board.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 27

TOTAL POINT VALUE: 1.75

LEARNING OBJECTIVE(S): C3

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.75 point

Multiple of standard deviation

Percentile level / confidence level / Value at Risk (VaR)

Conditional Tail Expectation (CTE) / Tail Value at Risk (TVaR)

**Part b:** 0.5 point

Lines of business in which coverage can extend for many years

Lines whose financial results are highly dependent on economic forces (inflation, interest rates, unemployment, etc.)

When there are significant correlations between lines of business

Where aggregation of losses is driven by high frequency related to economic or other circumstances

Skewed loss distributions such as stop loss reinsurance

Low frequency / high severity loss distributions

Loss distributions with high variance

Long tailed lines of business

Catastrophic events

### EXAMINER'S REPORT:

#### General Commentary

Candidates are expected to demonstrate knowledge of stochastic techniques for use in determining adverse deviations and modeling premium liabilities.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### Part a

Candidates had to list all three methods to receive full marks. Most candidates knew at least two of the three methods, though many candidates repeated alternate names for the same methods, such as stating confidence interval and VaR (this only received one credit, not two).

### Part b

Candidates were expected to list any two of the situations in the above list to receive full marks. Many candidates left this section entirely blank.



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 28

TOTAL POINT VALUE: 1.5

LEARNING OBJECTIVE(S): C3

### SAMPLE/ACCEPTED ANSWERS:

- i. When market rates increase, the fair value of the insurance company's bonds and debentures decreases (since HFT and AFS). The value of bonds and debentures in the financial statements would decrease as HFT and AFS investments are booked at fair value.  
  
HFT – Decrease in market value and impact will flow through net income  
AFS – Decrease in market value and impact will flow through OCI
- ii. The discount rate for actuarial liabilities would increase when market rate increase. Thus, the actuarial liabilities would decrease.
- iii. The comprehensive income would decrease as the market value of the AFS bonds would decrease.

### EXAMINER'S REPORT:

#### General Commentary

- The expectation on this question is for candidates to understand how increases in market rates can affect an insurer's financial statements. Candidates are expected to do very well on this question given that this material is the subject of a CIA educational note and the question has been asked multiple times in past exams.
- The most common mistake observed was that for part (i), candidate simply identified the impact without providing a description.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 29

TOTAL POINT VALUE: 1.5

LEARNING OBJECTIVE(S): C3

### SAMPLE/ACCEPTED ANSWERS:

Sample 1 :

- Comprehensive identification and assessment of risk
  - o Should be able to understand and evaluate all possible sources of risk (use of individual and aggregate data)
  
- Relate risk to capital
  - o Would help to better manage capital. If assets are backed by capital indirectly risk should also be.
  
- Monitor and reporting
  - o Frequent report should be sent to the board in a manner that eases their comprehension of risk.
  - o Will help to assess and identify risk.
  - o Should monitor standards and be periodically reviewed.

Sample 2 :

- Relating risk to capital
  - o Need to consider the adequacy of capital to support the risk that is tailed specifically to company
  
- Monitoring and reporting
  - o Need to include risk appetites statement and risk management.
  - o Consider tolerance of the company and risk level willing to undertake.
  
- Responsibilities of Board and Management
  - o Board needs to have the ultimate responsibility and Senior Management helps the Board to implement the decision and objectivity.

### EXAMINER'S REPORT:

#### General Commentary

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- We expected candidates to understand what ORSA is and be able to discuss key elements.
- In general, candidates performed very well on this question.
- Candidates lost partial credits for not providing a proper brief description of key elements. For example, the following descriptions were not given credit as they were only repeating the listed item:
  - Related risk to capital (credit for identifying 1 item)
    - The capital must be related to risks (no credit for briefly describe)
  - Monitoring and reporting (credit for identifying 1 item)
    - ORSA requires frequent monitoring and reporting (no credit for briefly describe)

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**QUESTION: 30**

**TOTAL POINT VALUE: 1.25**

**LEARNING OBJECTIVE(S): C3**

**SAMPLE/ACCEPTED ANSWERS:**

**Part a:** 0.5 point

Any two of the following:

- i. Classification of insurance contract
- ii. Enhanced disclosures in financial statement
- iii. Limited improvements to accounting by insurers for insurance contracts.
- iv. Identifies and explains the amounts in an insurer's financial statements arising from insurance contracts and
- v. Helps users of those financial statements understand the amount, timing and uncertainty of future cash flows from insurance contracts.

**Part b:** 0.75 point

A contract under which

- i. one party accepts significant insurance risk
- ii. by agreeing to compensate the policyholder if a specified uncertain future event
- iii. adversely affects the policyholder

**EXAMINER'S REPORT:**

**General Commentary**

**Part a**

- List any two of such requirements.
- Some candidates could not provide any relevant answer and thus did not receive any credit.
- For the candidates that answered this part, they did well in general.
- Common mistakes include giving general insurance contract definition (transfer insurance risk in exchange for premium); or saying that it requires insurance company to perform liability adequacy test at the end of financial reporting

**Part b**

- Candidates are expected to know the insurance contract definition in the context of IFRS 4 insurance contract.
- Most candidates failed to state the insurance contract definition in the context of IFRS 4.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Candidates used the general insurance definition in explaining the term were not given full credit as this question specifically asked to define as it is used in the IFRS standard. However, candidates are given partial credit for citing transfer significant insurance risk between the parties of contract.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 31

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE(S): D1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.5 point

Sample 1 :

- Enquiring: Professional that relies on the work of the responding professional in the course of its own work.
- Responding: Professional of whom the work is being used by enquiring professional.

Sample 2 :

- Enquiring: The professional (actuary or accountants) who will consider the work of other professional.
- Responding: The professional whose work is being considered by the enquiring professional.

**Part b:** 0.75 point

Sample 1 :

- Communicate with the responding professional on his intention to consider his work.
- Ask if the responding professional is a professional in good standing.
- Ask if the professional was appointed to do the job intended to be considered.

Sample 2 :

- Notify responding professional of the use of its work and the purpose, needs, etc.
- Ask responding professional to confirm that he has respected the professional standards of his profession during the course of his work.
- Ask responding professional to confirm that he has been appointed by Board to do the work being used.

**Part c:** 0.75 point

Sample 1 :

- Discuss any problem with doing the work including a discussion about materiality.
- Give answer to the enquiring professional that he is a professional in good standing.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Confirm he was appointed to do the work intended to be considered.

Sample 2 :

- Confirm that the work can be done/has been done
- Confirm his/her appointment and qualifications
- Should disclose any timing issues with the enquiring professional.

### EXAMINER'S REPORT:

#### General Commentary

- In general, candidates did well on this question.

#### Part a

- Candidates are expected to know what are enquiring and responding professionals.
- Most candidates received partial credit on that part.
- Candidates were less successful with the responding professional definition. Answers such as "It is the person who did the work" or "It is the person who responds/answers to the enquiring professional" did not get credit.

#### Part b

- Candidates are expected to know some actions required when enquiring and responding professionals communicate between each other.
- Candidates performed well on this question as it was asked in prior exams and there was a long list of possible of answers.

#### Part c

- Candidates are expected to know some actions required when enquiring and responding professionals communicate between each other.
- Candidates performed well on this question as it was asked in prior exams and there was a long list of possible of answers.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 32

TOTAL POINT VALUE: 1.75

LEARNING OBJECTIVE(S): D1

SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.25 point

Sample 1 :

A subsequent event is an event that the actuary becomes aware of after the calculation date but before the report date.

**Part b:** 1.5 points

Sample 1 :

- i. This would not be an adjusting subsequent event since it does not provide information on the entity as it was at the calculation date. The actuary would report on the event in a note to the financial statements.
- ii. Given that the claim materially affects the results, it would have to be included in the report.
- iii. Since this is a data defect, the actuary would have to retire his previous report and produce a new, corrected report.

Sample 2 :

- i. Since valuation is to reflect company at Dec 31<sup>st</sup>, 2013, this event is a subsequent as it occurs after calculation date (12/31/2013) and before report date (02/20/2014). It should not be taken into account. However, since common shares do make up 50% of the portfolio, disclose in notes the impact.
- ii. Reflect this since general liability claim occurred before calculation date. So, it is not a subsequent event but it provides info before calculation date. It has to be reflected in the work. Also, the GL claim has a big reserve so it will materially impact the results hence cannot ignore this event. Reflect it.
- iii. Since it's an error, it has to be reflected in data. Reflect it in report. Redo reserve analysis with correct data.

Sample 3 :

- i. It is a subsequent event but because impact held after calculation date it should be categorized as a non-adjusting subsequent event. Because company is different after calculation date, disclose but don't change in report.



## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

ii. It is a subsequent event. It does make the entity different at the calculation date. It is an adjusting subsequent event and should be considered in the report and valuation.

iii. It is not a subsequent event because notified after report date. But because this could invalidate the report depending on the size and nature of the claims, the appointed actuary should withdraw report and amend because it could be material and invalidate report.

### EXAMINER'S REPORT:

#### General Commentary

- Most of the candidates got partial credit on that question.

#### Part a

- Candidates are expected to be able to define what a subsequent event is.
- Candidates did not perform so well on that part.
- The important point in the definition is the timing when the actuary becomes aware of the event and not only when the event occurred. Therefore, an answer such as "A subsequent event is one that has occurred between the valuation date but prior to the report date" was not given credit. The reason for this is that the event can occur between the valuation date and report date, but if the actuary becomes aware of it **after** the report date, by definition, this is not a subsequent event (which is stated in the CIA Ed note). Thus, the timing of the actuary to become aware of it is important.

#### Part b

- Candidates are expected to be able, given an event, to determine whether or not that event is a subsequent event and what actions are required in each situation.
- Most candidates got partial credits. Candidates lost credits for not correctly identifying the proper action for one or more of the situations.
- Many answers were accepted for part b) ii.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 33

TOTAL POINT VALUE: 2.25

LEARNING OBJECTIVE(S): D1

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 1 point

- An actuary should accept and retain an appointment as AA only if the actuary has the necessary qualifications, experience, and knowledge
- An actuary should consult with the previous AA to determine whether there are any professional reasons not to accept the appointment.
- An actuary should ensure that the board of directors, or such other body that makes the appointment, understands the duties of the AA.
- An actuary should ensure that the board of directors, or such other body that makes the appointment, agrees to the requirements needed to fulfill the responsibilities of the AA, including but not limited to, timely access to all necessary and relevant management information, adequate resources and an appropriate venue for presenting the AA's annual report.

**Part b:** 1.25 points

- Establish a monitoring process so that the AA is aware of these transactions or conditions on a timely basis such as DCAT, Stress Testing.
- If, in the opinion of an AA, a transaction or condition causes a material adverse effect on the company's financial condition and requires rectification, the AA should expeditiously report the situation in writing to the chief executive officer and the chief financial officer, or their appointed designates, if actuary of a domestic company, and to the chief agent, if actuary of a foreign company, and provide a deadline for corrective action.
- This report shall also be sent to the board of directors.
- If suitable action is not taken by the date set, the AA should immediately notify the regulatory authority in writing. The notice should contain a summary of the concerns, a copy of the report, a description of events that have occurred since the writing of the report and any additional relevant information.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### EXAMINER'S REPORT:

#### General Commentary

##### Part a

- Candidates are expected to know the responsibilities of a FCIA before accepting a position as an AA.
- Many candidates listed the requirement to consult with the previous AA. Some candidates outlined the qualifications required to be an AA. Both would not receive full credit as the question is asking what should a FCIA do before accepting a position as an AA.
- Some candidates mixed this question with fully describing the qualifications of being an AA.

##### Part b

- Candidates are required to know the duties of the AA to identify a material adverse effect on the financial condition and actions required to respond such events.
- Most candidates described the key actions including reporting to CEO/CFO and the Board, providing a deadline in the report and reporting to OSFI if no action is taken by the deadline.
- Some candidates failed to mention establishing monitoring processes and/or including deadlines in the report.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

### QUESTION: 34

TOTAL POINT VALUE: 1.5

LEARNING OBJECTIVE(S): D1

### SAMPLE/ACCEPTED ANSWERS:

**Part a:** 0.75 point

- Assist OSFI in its assessment of the insurer's safety and soundness: The AA has the responsibility for the valuation of policy liabilities in the financial statements and future financial condition reporting. Actuarial peer review is one tool OSFI uses in its assessment of the safety and soundness of insurers.
- Be of benefit to the AA by providing (i) a source of independent consultation advice, and (ii) an additional source of professional education: This aids in narrowing the range of practice by AA's and improving the quality of their work. OSFI recognizes that this is not the only source of professional development for the AA.
- Maintain and strengthen confidence in the work of the AA by the public, by insurance company management and directors and by supervisory authorities.

**Part b:** 0.75 point

- i) Yes: reviewer may not be an employee of the company or any affiliated companies, and may not have been employed by the company or served as AA of the company during the three years prior to the date of the work being reviewed;
- ii) Yes: A peer reviewer may be an actuary working in the company's external audit firm, but companies are encouraged to not use as a peer reviewer an actuarial specialist who is a member of the audit team for the company.
- iii) No: if he/she is involved in any actuarial work related to the financial statements or financial condition reporting for the company  
Or  
Yes: if he/she is not involved in any actuarial work related to the financial statements or financial condition reporting for the company

### EXAMINER'S REPORT:

#### General Commentary

**Part a**

- Candidates are expected to know the objectives OSFI has in requiring peer review of the AA's work.
- Most candidates received full marks.

## EXAM 6C FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

- Some candidates failed to provide the complete objectives from three different perspectives.

### Part b

- Candidates are expected to know the requirements to be a peer reviewer and able to apply those requirements in different scenarios.
- Most candidates got the first and third scenarios right.
- Some candidates mistakenly thought the guideline requires a peer reviewer outside of the audit firm.