

Exam 6C



CASUALTY ACTUARIAL SOCIETY
AND THE
CANADIAN INSTITUTE OF ACTUARIES



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Exam 6-Canada

Regulation and Financial Reporting (Nation Specific)

October 27, 2015

4 HOURS

INSTRUCTIONS TO CANDIDATES

1. This 71.75 point examination consists of 28 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. Do not use leading zeroes. Your name, or any other identifying mark, must not appear.
 - Do not answer more than one question on a single sheet of paper. Write only on the front lined side of the paper – DO NOT WRITE ON THE BACK OF THE PAPER. Be careful to give the number of the question you are answering on each sheet. If your response cannot be confined to one page, please use additional sheets of paper as necessary. Clearly mark the question number on each page of the response in addition to using a label such as “Page 1 of 2” on the first sheet of paper and then “Page 2 of 2” on the second sheet of paper.
 - The answer should be concise and confined to the question as posed. When a specific number of items is requested, do not offer more items than the number requested. For example, if three items are requested, 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.

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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.

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

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

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

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

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9. Candidates must not give or receive assistance of any kind during the examination. Any cheating, any attempt to cheat, assisting others to cheat, or participating therein, or other improper conduct will result in the Casualty Actuarial Society and the Canadian Institute of Actuaries disqualifying the candidate's paper, and such other disciplinary action as may be deemed appropriate within the guidelines of the CAS Policy on Examination Discipline.
10. The exam survey is available on the CAS Web Site in the "Admissions/Exams" section. Please submit your survey by November 14, 2015.

END OF INSTRUCTIONS

EXAM 6 – CANADA, FALL 2015

1. (4 points)

A pricing actuary is working for a major insurer in the province of Ontario. After meeting with the executive team, he is asked to prepare a Major Private Passenger Automobile Insurance rate filing to Financial Services Commission of Ontario (“FSCO”).

a. (0.75 point)

In preparing the loss data for the overall rate level indication, briefly discuss how each of the following is treated:

- i. reinsurance transactions
- ii. insurer’s cession to the Risk Sharing Pool
- iii. losses incurred on Facility Association Residual Market risks.

b. (1.75 points)

This insurer’s rating algorithm consists of three territories. After reviewing the territorial indication for a given coverage, the following changes are proposed in the rate filing.

Territory	Current Territory Differentials	Indicated Territory Differentials	Proposed Territory Differentials
1	1.10	1.20	1.12
2	1.00	1.06	1.05
3	0.90	0.75	0.75
Overall	1.00	1.00	0.97

Assuming the territorial indications are actuarially sound, demonstrate whether the proposed territorial differentials meet the requirement for approval.

c. (0.5 point)

Briefly describe the two bases of justification that can be used to support proposed changes to its current group discount.

<< QUESTION 1 CONTINUED ON NEXT PAGE >>

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EXAM 6 – CANADA, FALL 2015

d. (0.5 point)

The actuary is proposing to introduce a “Winter Tire Discount” but realized that the insurer’s database has never tracked winter tire related information. Describe appropriate supporting information that can be used by the actuary to justify this discount with FSCO.

e. (0.5 point)

A monthly premium payment plan is being proposed for 12-month term policies. It requires an initial payment equal to 3 monthly installments of the total premium and charges an interest rate of 5 percent of the total premium. Briefly describe two changes to the proposal before obtaining FSCO approval.

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EXAM 6 – CANADA, FALL 2015

2. (1.75 points)

a. (1 point)

Briefly describe four aspects related to the financial soundness of an insurance company with which the federal legislation is particularly concerned.

b. (0.75 point)

Fully discuss the outcome of the case “The Attorney-General for Canada v. The Attorney General for Alberta” with respect to how a provincially incorporated insurer can carry on business in a different province.

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EXAM 6 – CANADA, FALL 2015

3. (2 points)

In September 2013, the Financial Services Commission of Ontario (FSCO) published a Usage-Based Insurance Pricing (UBIP) bulletin that outlines additional considerations and requirements for automobile insurance filings that contain a UBIP component.

a. (1 point)

Identify four elements of the bulletin that demonstrate FSCO's emphasis on transparency to the consumer.

b. (1 point)

Describe two ways the bulletin promotes a competitive Usage-Based Insurance marketplace.

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EXAM 6 – CANADA, FALL 2015

4. (4 points)

In each of the following scenarios, explain a likely outcome for the insurance company and cite any relevant precedents used to support the conclusion drawn.

a. (1 point)

In British Columbia, one personal property policyholder complains to the Privacy Commissioner that their credit score has been collected and used for underwriting by their insurance company without their consent. The insurance company claims that it had obtained their consent with a standard form created by the Centre for Study of Insurance Operations.

b. (1 point)

In Ontario, one personal automobile policyholder struck an infant boy in a motor vehicle accident, causing the boy to suffer severe brain damage. The policyholder's Bodily Injury limit is \$500,000. The boy's counsel advised the policyholder's insurance company that the claim could be settled for \$450,000 without going to trial; however the claims manager of the insurance company believed the claim could be settled for less. The case eventually went to trial, and the boy was awarded damages of \$800,000. The policyholder sued their insurance company for the additional amount.

c. (1 point)

In British Columbia, a firm has a multi-peril property insurance policy. The insured recently made a claim for a loss caused by fire that occurred more than a year ago. However, the claim was made within one year of filing the proof of loss. The firm sued the insurance company for denying coverage.

d. (1 point)

A banker has been accused of fraud, a peril excluded under the banker's professional liability insurance policy. The insurance company is denying any duty to defend the banker for fraud. The banker in turn files a suit against the insurance company, arguing the insurance company has a duty to defend.

EXAM 6 – CANADA, FALL 2015

5. (2.25 points)

a. (1.5 points)

Identify and briefly describe three reasons why Canadian tort laws can be considered too "plaintiff-friendly".

b. (0.75 point)

For each of the reasons identified in a. above, briefly describe a reform to improve the balance between the plaintiff and the defendant.

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EXAM 6 – CANADA, FALL 2015

6. (2 points)

In order for a risk to be insurable:

- i. It should have a sufficiently large number of insureds to make losses reasonably predictable.
- ii. Losses must be definite and measurable.
- iii. Losses must be fortuitous or accidental.
- iv. Losses must not be catastrophic (unlikely to affect a large number of insureds at the same time).

a. (1 point)

Using each of the above criteria, discuss the insurability of Terrorism risk.

b. (1 point)

Using each of the above criteria, discuss the insurability of Flood risk.

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EXAM 6 – CANADA, FALL 2015

7. (3.5 points)

The following information is provided for the risk-sharing pool in Nova Scotia. All amounts are in thousands (\$000s).

	Company A	Province Total
Direct earned exposures (car years) not ceded to the pool	150	1,000
Direct earned exposures (car years) ceded to the pool	20	500
Total Direct earned exposures (car years)	170	1,500
Premium of non-ceded risks	500	1,000
Premium of ceded risks	50	750
Total Premium	550	1,750
Incurring losses for non-ceded risks	300	1,000
Incurring losses for ceded risks	40	1,000
Total Incurred losses	340	2,000

- Expense allowance for the pool in this province is 25%.
- Company A exclusively writes automobile insurance in Nova Scotia.
- Company A is below the risk-sharing pool maximum total allowable transfer limit.

a. (1.25 points)

Calculate the loss ratio for Company A on their share of the risk-sharing pool.

b. (0.75 point)

Calculate the total loss ratio for Company A which includes the results of the risk-sharing pool.

c. (1 point)

Calculate the revised total loss ratio for Company A if they choose not to cede any risks to the risk-sharing pool.

d. (0.5 point)

Propose how the company can use the risk-sharing pool to lower its total loss ratio.

EXAM 6 – CANADA, FALL 2015

8. (1.75 points)

a. (0.25 point)

Briefly describe the purpose of establishing the Property and Casualty Insurance Compensation Corporation (PACICC).

b. (0.5 point)

Briefly describe the key difference with regard to the treatment of dividends when comparing PACICC with other guarantee funds in the United States or the United Kingdom.

c. (1 point)

Briefly describe four company-specific characteristics that play a role in most insurer insolvencies.

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EXAM 6 – CANADA, FALL 2015

9. (3 points)

a. (0.75 point)

Briefly describe the three goals of Terrorism Risk Insurance Act (TRIA).

b. (1.5 points)

Argue whether or not the 2007 version of TRIA has achieved the goals in part a. above.

c. (0.75 point)

Briefly describe three criteria necessary for a company to receive payment from the federal government under the TRIA program.

EXAM 6 – CANADA, FALL 2015

10. (1.5 points)

National Certification Guidelines developed by Agriculture and Agri-Food Canada (AAFC) provide guidance to actuaries in developing an actuarial certification for an agricultural insurance program.

a. (0.5 point)

Briefly describe the following components of pricing yield-based plans:

- Uncertainty margin
- Self-sustainability load

b. (0.5 point)

Briefly explain the need for both an uncertainty margin and the self-sustainability load in pricing yield-based plans.

c. (0.5 point)

Briefly describe two additional considerations that are required for pricing non-yield-based plans as compared to pricing yield-based plans.

EXAM 6 – CANADA, FALL 2015

11. (3 points)

The following information is available for a property and casualty insurance company and its reinsurance contract as at December 31, 2014:

- Estimated undiscounted value of the liabilities to be commuted: \$2,000,000
- Calendar year payment pattern (payments assumed to be made mid-year):

2015	10%
2016	30%
2017	75%
2018	100%

- Risk free rate: 1%
- Required margin: 10%
- Target capital to required capital ratio: 2.5
- Risk cost of capital: 8%

Calculate the commuted value of claims as at December 31, 2014.

EXAM 6 – CANADA, FALL 2015

12. (3.75 points)

The following information is available for a property and casualty insurance company that only writes auto insurance as at December 31, 2014. All amounts are in thousands of dollars (\$000s).

The cumulative accident year payment pattern is as follows:

Age (months)	% cumulative paid
12	25.0%
24	50.0%
36	75.0%
48	100.0%

The following additional information in connection with unearned premium reserve (UPR) is also available:

- Net Unearned Premium Booked at the end of 2014 = \$69,580
- Future expected reinsurance costs = \$4,260
- Undiscounted Expected Net Loss Ratio for 2015 = 98.0%
- Maintenance Expenses = \$4,175
- Discount rate: 3.0%
- Margin for Adverse Deviation (MfAD) Claims development: 10.0%
- MfAD Recovery from reinsurance ceded: 1.0%
- MfAD Investment return rates: 0.5%
- ULAE Reserve = \$3,160
- Gross Present Value of Losses & LAE = \$68,260
- Unearned Reinsurance Commissions = \$1,045

Calculate the Maximum Allowable Deferred Policy Acquisition Expenses (DPAE) and the premium deficiency, if any.

EXAM 6 – CANADA, FALL 2015

13. (2.5 points)

The following information is available from the December 31, 2014 Appointed Actuary's Report for a Canadian property and casualty insurance company. All amounts are in thousands of dollars (\$000s).

Incremental Paid Loss and ALAE

Accident Year	Months of Development			
	12	24	36	48
2011	88,000	24,000	18,000	8,000
2012	90,000	34,000	?	
2013	97,000	40,000		
2014	110,000			

Discounted Outstanding Loss and ALAE

Accident Year	Months of Development			
	12	24	36	48
2011	86,000	58,000	34,000	20,000
2012	95,000	59,000	43,000	
2013	110,000	72,000		
2014	121,000			

The annual yield is 5%.

The cumulative excess on a discounted basis for Accident Year 2012 as of December 31, 2014 is exactly the same as the amount paid in 2014 on Accident Year 2012 claims.

a. (1.75 points)

Calculate the cumulative excess for Accident Year 2012 as of December 31, 2014.

b. (0.25 point)

Calculate the cumulative excess ratio for Accident Year 2012 as of December 31, 2014.

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EXAM 6 – CANADA, FALL 2015

c. (0.5 point)

Briefly describe the two approaches which account for the time value in money when evaluating the runoff of claims liabilities.

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EXAM 6 – CANADA, FALL 2015

14. (4.5 points)

The following information is available for a property and casualty insurance company that only writes auto insurance as at December 31, 2014. All amounts are in thousands of dollars (\$000s).

Here is the composition of the bond portfolio of the company:

Description	Bond #1	Bond #2	Bond #3	Bond #4
Classification	Fair Value Option (FVO)	Fair Value Option (FVO)	Fair Value Option (FVO)	Available for sale (AFS)
Maturity Date	31/12/2015	31/12/2016	31/12/2017	31/12/2017
Annual Coupon Rate	4.00%	4.50%	3.75%	3.75%
# of coupons per year	1	1	1	1
Par value	\$10,000	\$10,000	\$10,000	\$10,000
Effective Yield	3.00%	3.00%	3.00%	3.00%
Market Value	10,097	10,287	10,212	10,212

The calendar year payout pattern of unpaid claims and ULAE is as follows:

Date	% cumulative paid
31/12/2015	33.3%
31/12/2016	66.7%
31/12/2017	100.0%

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EXAM 6 – CANADA, FALL 2015

The following additional information is also available:

- Assume that unpaid claims and coupon payments are made exactly at the end of the year (December 31).
- Net Undiscounted Unpaid Losses including ULAE = \$31,000
- The company matches its Fair Value Option (FVO) bond portfolio with its unpaid claims liabilities.
- Assume that the market value of each bond corresponds to the present value of cash flows discounted at the effective yield.
- There is no reinsurance.
- Margin for Adverse Deviation (MfAD) Claims development: 10.0%
- MfAD Investment return rates: 0.5%
- Assume that there are no taxes.

A sudden change in interest rate occurs on December 31, 2014, which causes the effective yield on the bonds to increase from 3% to 3.5%

Calculate the impact on net income, other comprehensive income and equity due to the interest rate increase.

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EXAM 6 – CANADA, FALL 2015

15. (1.5 points)

A company is performing a cash flow simulation for risk transfer analysis.

a. (0.5 point)

Briefly describe how parameter risk can be accounted for explicitly and implicitly.

b. (0.5 point)

Briefly describe one advantage and one disadvantage of using reinsurance pricing assumptions.

c. (0.5 point)

Explain why it would be reasonable to use an interest rate above risk-free rate and identify one of its flaws.

EXAM 6 – CANADA, FALL 2015

16. (3.25 points)

The following information is available for a property and casualty insurance company as of December 31, 2015. All amounts are in thousands of dollars (\$000s).

East Canada PML500	50,000
West Canada PML500	200,000
East Canada PML 420	30,000
West Canada PML 420	120,000

The company has the financial resources of \$50,000 to support the insurer's earthquake risk.

a. (1.25 points)

Calculate Earthquake Reserves Component.

b. (1 point)

Identify the four financial resources to support the earthquake risk.

c. (1 point)

Identify and briefly describe two principles of earthquake risk management other than *Financial Resources and Contingency Plans*.

EXAM 6 – CANADA, FALL 2015

17. (1.25 points)

The following information is available for a Canadian property and casualty insurance company as of December 31, 2014. All amounts are in thousands of dollars (\$000).

Appointed Actuary's Claim Liability Estimates:

Net Undiscounted Estimate	5,500
Net Discounted Estimate Excluding PfADs	4,700
PfAD – Investment Return Rate	150
PfAD – Claims Development	470
PfAD – Reinsurance Recovery	50

Excerpts from Annual Return page 20.10

Cash	30
Total Investments	12,600
Unearned Premiums - Recoverable	875
Unpaid Claims & Adjustment Expenses - Recoverable	5,650
Other Recoverable on Unpaid Claims*	200

*Comprised solely of Salvage & Subrogation Recoverable

Excerpts from Annual Return page 20.20

Borrowed Money & Accrued Interest	100
Agents & Brokers – Payables	500
Policyholder – Payables	100
Unearned Premiums	4,150
Unpaid Claims & Adjustment Expenses	12,000

Future Income Tax Rate is 35%.

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

EXAM 6 – CANADA, FALL 2015

18. (5.5 points)

The following information is available from the March 31, 2015 P&C-1 of an insurance company. All amounts are in thousands of dollars (\$000s).

Minimum Capital Test: Capital Required and MCT Ratio

	Current Period
Total Capital Available	52,050
Capital Required at Target:	
Insurance Risk:	
Premium liabilities	?
Unpaid claims	?
Catastrophes	2,510
Margin required for reinsurance ceded to unregistered insurers	?
Market Risk:	
Interest rate risk	2,000
Foreign exchange risk	500
Equity risk	6,000
Real estate risk	2,500
Other market risk exposures	100
Credit Risk:	
Counterparty default risk for balance sheet assets	3,000
Counterparty default risk for off-balance sheet assets	1,500
Counterparty default risk for unregistered reinsurance collateral and SIRs	?
Operational risk margin	?

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EXAM 6 – CANADA, FALL 2015

Unpaid Claims Margin

Class of insurance	Net unpaid claims discounted	Pfads (claims)	Risk factor
Personal Property	80,000	7,000	15%
Automobile – Liability and Personal Accident	220,000	30,000	10%

Premium Liabilities Margin

Class of insurance	Net unearned premium	Net premium liabilities	Pfads (Premium liabilities)	Risk factor
Personal Property	10,000	7,000	700	20%
Automobile – Liability and Personal Accident	25,000	23,000	2,500	15%

Unregistered Reinsurance

Insurer Name	Unearned Premiums ceded to assuming insurer	Outstanding losses recoverable from assuming insurer	Reinsurance receivable	Non-Owned Deposits - RSA	Letters of Credit
ABC Re	5,000	3,000	500	8,500	2,200

Operational Risk Margin

	Direct premiums written in the past 12 months	Assumed premiums written in the past 12 months - third party reinsurance	Ceded premiums written in the past 12 months – third party reinsurance
Personal Property	25,000	1,000	4,000
Automobile – Liability and Personal Accident	60,000	2,000	5,000
Risk Factors	2.50%	1.75%	2.50%

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EXAM 6 – CANADA, FALL 2015

Other information:

- The collateral held for unregistered reinsurance exposures is subject to a risk factor of 0.25%.
- The correlation factor between the asset risk and the insurance risk is 50%.
- The growth in gross premiums written in the past 12 months is 7%.
- The company does not have intra-group pooling arrangements.
- The risk factor applied to total capital required, before the operational risk margin and diversification credit for the calculation of the operational risk margin, is 8.50%.
- Capital composition limits are not reflected in the information given above.

a. (0.5 point)

Briefly describe the purpose of OSFI establishing a supervisory target MCT level.

b. (2.25 points)

Calculate the capital required for insurance risk.

c. (0.75 point)

Calculate the capital required for credit risk.

d. (0.75 point)

Calculate the capital required for operational risk.

e. (0.75 point)

Calculate the diversification credit and briefly describe its purpose.

f. (0.5 point)

Briefly discuss how OSFI will likely react based on the company's MCT.

EXAM 6 – CANADA, FALL 2015

19. (2 points)

Identify and briefly describe four considerations for defining the capital available of a company for the purpose of measuring capital adequacy.

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EXAM 6 – CANADA, FALL 2015

20. (3 points)

A monoline property and casualty insurance company that does not purchase reinsurance is testing scenarios for its DCAT report. One of the scenarios modeled is an increase in unpaid claims. The increases in unpaid claims at different percentiles of the modeled cumulative distribution are listed below.

Percentile	Increase in unpaid claims
90.5 th	1%
93.5 th	3%
96.5 th	8%
99.5 th	15%

Modeled results for the first year of projection are shown in the table below. All amounts are in thousands of dollars (\$000s).

Balance sheet	Base Scenario Year 1	Adverse Scenario Year 1
Total Assets	55,800	?
Accounts Payable	2,000	2,000
Unearned Premiums	3,900	3,900
Unpaid Claims and Adjustment Expenses	35,000	?
Premium Deficiency	100	100
Other Liabilities	1,300	1,300
Total Liabilities	42,300	?
Total Equity	13,500	?

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EXAM 6 – CANADA, FALL 2015

MCT ratio and capital required	Base Scenario Year 1	Adverse Scenario Year 1
Capital available	13,500	?
Premium liabilities	800	800
Unpaid claims	3,200	?
Catastrophes	2,200	2,200
Margin required for reinsurance ceded to unregistered insurers	0	0
Interest rate risk	1,200	1,234
Foreign exchange risk	0	0
Equity risk	2,000	2,000
Real estate risk	0	0
Other market risk exposures	0	0
Counterparty default risk for balance sheet assets	600	600
Counterparty default risk for off-balance sheet exposures	200	200
Counterparty default risk for unregistered reinsurance collateral and SIRs	0	0
Operational risk margin	1,942	?
Diversification credit	1,298	1,325
MCT ratio	187%	?

Other information for the operational risk margin		
Direct premiums written in the past 12 months (previous year)	42,500	42,500
Direct premiums written in the past 12 months (current year)	43,000	43,000
Direct premiums written risk factor	2.5%	2.5%
Base capital/margin risk factor	8.5%	8.5%
Cap	30%	30%

Additional assumptions:

- There are no income tax effects.
- There is no impact on paid claims during year 1.
- There is no phased-in capital.

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EXAM 6 – CANADA, FALL 2015

a. (1.5 points)

Construct a plausible adverse scenario and calculate the resulting MCT ratio using the modeled cumulative distribution for the increase in unpaid claims.

b. (0.5 point)

Briefly describe two possible ripple effects of this scenario.

c. (0.5 point)

Briefly describe two corrective management actions the company could take to minimize any major threats from this scenario.

d. (0.5 point)

Evaluate the company's future financial condition, assuming this scenario year 1 MCT ratio is the lowest of all scenarios during the forecast period.

EXAM 6 – CANADA, FALL 2015

21. (1 point)

You are given the following information about a monoline property and casualty insurance company. All amounts are in thousands of dollars (\$000s).

Balance Sheet

	December 31, 2013	December 31, 2014
Cash	5,000	3,000
Bonds and Debentures	34,000	27,000
Equity	3,000	7,000
Real Estate	0	10,000
Accounts Receivable	6,000	7,000
Recoverable from Reinsurers	0	0
Other Assets	2,000	2,000
Total Assets	50,000	56,000
Accounts Payable	3,000	3,500
Unearned Premiums	4,000	5,500
Unpaid Claims and Adjustment Expenses	25,000	28,000
Premium Deficiency	200	1,000
Other Liabilities	2,000	2,000
Total Liabilities	34,200	40,000
Retained Earnings	12,800	12,800
Accumulated Other Comprehensive Income	3,000	3,200
Total Equity	15,800	16,000

Explain which of the two year-ends is likely to have a lower MCT ratio.

EXAM 6 – CANADA, FALL 2015

22. (2.5 points)

You are given the following information about a property and casualty insurance company. All amounts are in thousands of dollars (\$000s).

	December 31, 2013	December 31, 2014
Net Premiums Written	50,000	53,000
Net Premiums Earned	49,000	51,500
Net Claims and Adjustment Expenses	29,400	38,625
Operating Expenses	12,250	12,875
Investment Income	1,600	2,000
Realized Gains (Losses)	1,600	250
Investment Expenses	200	250
Other Revenue Net of Other Expenses	0	0
Other Comprehensive Income	1,000	(2,000)
Income Taxes	2,795	540
Equity	20,000	?
MCT Ratio	225%	205%

a. (0.75 point)

Calculate the equity as at December 31, 2014.

b. (0.75 point)

Calculate the following year-end 2014 financial ratios:

- i. Return on equity
- ii. Underwriting leverage ratio
- iii. Net combined ratio

c. (1 point)

Comment on the company's financial health as at December 31, 2014 based on the information provided and the answer in part b. above.

EXAM 6 – CANADA, FALL 2015

23. (2 points)

a. (1.5 points)

Describe three key elements of an ORSA.

b. (0.5 point)

Comment the following statement:

“All federally regulated companies must implement the same ORSA process.”

CONTINUED ON NEXT PAGE

EXAM 6 – CANADA, FALL 2015

24. (2.25 points)

a. (0.75 point)

Identify three components of the A.M. Best's financial strength ratings.

b. (1.5 points)

Identify and briefly describe three risk categories used in the calculation of A.M. Best's net required capital.

CONTINUED ON NEXT PAGE

EXAM 6 – CANADA, FALL 2015

25. (1.5 points)

The Canadian Institute of Actuaries' Standards Of Practice discusses the margin for adverse deviations.

a. (0.75 point)

Identify the ranges for claims development, recovery for reinsurance ceded, and investment return rates.

b. (0.5 point)

Briefly describe two situations in which a selection of margin for adverse deviation above the range would be appropriate.

c. (0.25 point)

Briefly describe a situation that can support a claim development margin for adverse deviation below the specified range in part a. above.

EXAM 6 – CANADA, FALL 2015

26. (2.25 points)

An actuary is considering the following options for estimating policy liabilities:

- Option A: On a gross and net basis directly; while the ceded policy liabilities will be calculated as the difference between the gross and net.
- Option B: On a gross and ceded basis directly; while the net policy liabilities will be calculated as the difference between the gross and ceded.

a. (2 points)

Identify and briefly describe four considerations that an actuary should contemplate when selecting one of the above options.

b. (0.25 point)

Briefly describe the difference between present value and actuarial present value.

CONTINUED ON NEXT PAGE

EXAM 6 – CANADA, FALL 2015

27. (2.25 points)

A company has acquired a bond that is considered by the actuary to support the policy liabilities.

a. (0.75 point)

For each category below, briefly describe the basis on which the bond is measured on the insurer's financial statements:

- i. Held-to-Maturity;
- ii. Available-For-Sale;
- iii. Held-for-Trading.

b. (1 point)

Describe one advantage and one disadvantage of categorizing the bond as held-to-maturity.

c. (0.5 point)

Assuming the bond is categorized as available-for-sale, describe the impact of a market rate decrease on the balance sheet.

EXAM 6 – CANADA, FALL 2015

28. (2 points)

a. (0.5 point)

Describe the concept of materiality according to the Canadian Institute of Actuaries' Standards of Practice.

b. (1.5 points)

Identify and briefly describe three characteristics of a company that could affect its materiality standard.

END OF EXAMINATION

Exam 6-Canada

Regulation and Financial Reporting (Nation Specific)

POINT VALUE OF QUESTIONS

QUESTION	VALUE OF QUESTION	SUB-PART OF QUESTION						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	4.00	0.75	1.75	0.50	0.50	0.50		
2	1.75	1.00	0.75					
3	2.00	1.00	1.00					
4	4.00	1.00	1.00	1.00	1.00			
5	2.25	1.50	0.75					
6	2.00	1.00	1.00					
7	3.50	1.25	0.75	1.00	0.50			
8	1.75	0.25	0.50	1.00				
9	3.00	0.75	1.50	0.75				
10	1.50	0.50	0.50	0.50				
11	3.00	3.00						
12	3.75	3.75						
13	2.50	1.75	0.25	0.50				
14	4.50	4.50						
15	1.50	0.50	0.50	0.50				
16	3.25	1.25	1.00	1.00				
17	1.25	1.25						
18	5.50	0.50	2.25	0.75	0.75	0.75	0.50	
19	2.00	2.00						
20	3.00	1.50	0.50	0.50	0.50			
21	1.00	1.00						
22	2.50	0.75	0.75	1.00				
23	2.00	1.50	0.50					
24	2.25	0.75	1.50					
25	1.50	0.75	0.50	0.25				
26	2.25	2.00	0.25					
27	2.25	0.75	1.00	0.50				
28	2.00	0.50	1.50					
29	0.00							
30	0.00							
31	0.00							
32	0.00							
33	0.00							
34	0.00							
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 71.75

EXAM 6-CANADA 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: 99
- Available Points: 71.75
- Passing Score: 47
- Number of Passing Candidates: 36
- Raw Pass Ratio: 36.36%
- Effective Pass Ratio: 37.11%

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 1																																															
TOTAL POINT VALUE: 4	LEARNING OBJECTIVE: A2																																														
SAMPLE ANSWERS																																															
Part a: 0.75 point																																															
<ul style="list-style-type: none"> • Sample Response #1 <ul style="list-style-type: none"> I. Reinsurance transactions are not considered, the indication uses direct premiums II. Cessions to the risk sharing pool are kept in the losses as they were never ceded III. Losses incurred by FARM risks are excluded from the loss data • Sample Response #2 <ul style="list-style-type: none"> I. Reinsurance transactions are not included when preparing the loss data for the overall. They're not supposed to affect the price charged to the insured. II. Cessions to the Risk Sharing Pool are considered as "normal" business so you should include them in your loss data. III. FA are priced with their own premiums, so you can't add them to your loss data for the overall indication. IV. 																																															
Part b: 1.75 points																																															
<ul style="list-style-type: none"> • No candidate provided a solution that was awarded full credit. Example of a solution that would have received full credit: 																																															
<table border="1"> <thead> <tr> <th>Territory</th> <th>[4]</th> <th>[5]</th> <th>[6]</th> <th>[7]</th> <th>[8]</th> <th>[9]</th> <th>[10]</th> </tr> </thead> <tbody> <tr> <td align="center">1</td> <td align="center">1.20</td> <td align="center">9.1%</td> <td align="center">1.15</td> <td align="center">5.0%</td> <td align="center">Yes</td> <td align="center">Yes</td> <td align="center">Yes</td> </tr> <tr> <td align="center">2</td> <td align="center">1.06</td> <td align="center">6.0%</td> <td align="center">1.08</td> <td align="center">8.2%</td> <td align="center">Yes</td> <td align="center">No</td> <td align="center">Yes</td> </tr> <tr> <td align="center">3</td> <td align="center">0.75</td> <td align="center">-16.7%</td> <td align="center">0.77</td> <td align="center">-14.1%</td> <td align="center">Yes</td> <td align="center">Yes</td> <td align="center">No</td> </tr> <tr> <td align="center">Overall</td> <td align="center">1.00</td> <td align="center">0.0%</td> <td align="center">1.00</td> <td align="center">0.0%</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								Territory	[4]	[5]	[6]	[7]	[8]	[9]	[10]	1	1.20	9.1%	1.15	5.0%	Yes	Yes	Yes	2	1.06	6.0%	1.08	8.2%	Yes	No	Yes	3	0.75	-16.7%	0.77	-14.1%	Yes	Yes	No	Overall	1.00	0.0%	1.00	0.0%			
Territory	[4]	[5]	[6]	[7]	[8]	[9]	[10]																																								
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<p>[1]: Current Territory Differentials [2]: Indicated Territory Differentials [3]: Proposed Territory Differentials [4]=[2]/[2 Overall] : Rebased Indicated Territory Differentials [5]=[4]/[1]-1: Rebased Territorial Indication [6]=[3]/[3 Overall]: Rebased Proposed Territory Differentials [7]=[6]/[1]-1: Rebased Territorial Proposal [8]: In the Direction of the Indication? ([5] and [7] in the same direction) [9]: Between 0% and the Indication? ([7] lower than [5]) [10]: Less than 10%? ([7] lower than 10%)</p>																																															
Part c: 0.5 point																																															
<ul style="list-style-type: none"> • Sample Response #1 <ul style="list-style-type: none"> I. If competitors are doing proposed changes already II. If lower expenses (i.e. acquisition expenses) for group • Sample Response #2 <ul style="list-style-type: none"> I. Lower acquisition cost II. Lower loss cost 																																															

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- Sample Response #3
 - I. Change can be based on reduce loss cost for the group
 - II. Based on reduced expenses for the group

Part d: 0.5 point

- Sample Response #1
 - I. Use applicable external data that the source can be identifiable and the data are applicable
- Sample Response #2
 - I. The insurer could use industry information or available competitor information and base a credible estimate on this.
- Sample Response #3
 - I. The actuary can use supporting data from another jurisdiction that it has successfully implemented winter tire discount. Data such as : claims data and discount takeup rate.

Part e: 0.5 point

- Sample Response #1
 - I. To have FSCO approved interest rate for a 12 month policy cannot be higher than 3% and the initial payment can be for a maximum of 2 month.
- Sample Response #2
 - I. Only take initial payment of 1 month installment and charge only 3% interest
- Sample Response #3
 - I. For 12 month term,
 - initial payment=2 monthly payment
 - interest rate=3%

EXAMINER'S REPORT

No candidates received full credit for this question. In general, candidates struggled with part b, in particular by not recognizing the requirement to rebase the differentials. Also, some candidates mistakenly linked question c to question b in their response.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

<p>Part a</p> <p>Many candidates received full credit for this part. However, several candidates misunderstood the question and did not provide enough clarity in their response to receive full credit (simply stating include or exclude for part i. and ii.).</p> <p>The most common errors were:</p> <ul style="list-style-type: none">• Reinsurance transactions:<ul style="list-style-type: none">○ Many candidates were too vague in their response, simply stating “exclude” or “include” which is difficult to interpret the meaning for “reinsurance transactions”○ Many candidates said to “include reinsurance transactions” which was interpreted to mean that losses net of reinsurance were used.• Insurer’s cession to the Risk Sharing Pool<ul style="list-style-type: none">○ Many candidates responded that the loss data should include the insurer’s cession to the Risk Sharing Pool• Losses incurred on Facility Association Residual Market risks<ul style="list-style-type: none">○ Several candidates responded that these losses should be included
<p>Part b</p> <p>No candidates received full credit on this part.</p> <p>Most candidates received partial credit for explaining the concepts contained within FSCO territorial regulations. Very few candidates recognized the need to re-base the proposed territorial differentials before applying the regulations on the direction of the proposal vs. the indication, the +- 10% range, and that the proposal should be between no change (0%) and the indication.</p> <p>The most common errors were:</p> <ul style="list-style-type: none">• Not rebasing of the proposed differentials before calculating the proposed changes• Not recalling each of the territorial requirements with respect to comparing the indicated differentials and the proposed differentials• Many candidates did not demonstrate the reasons for their conclusions• Several candidates left this part blank
<p>Part c</p> <p>The majority of candidates received full credit for this part.</p> <p>The most common errors were:</p> <ul style="list-style-type: none">• Several candidates used part b to respond to this part even though the two parts were not related (they attempted to use the territorial differentials in part b to justify changes to the group discount in part c)• Several candidates left this part blank
<p>Part d</p> <p>The majority of candidates received full credit for this part.</p> <p>The most common errors were:</p> <ul style="list-style-type: none">• A few candidates provided a very brief response such as “use industry data” without further support such as identifying the source• Several candidates left this part blank

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Part e

The majority of candidates received full credit for this part.

The most common errors were:

- Stating that interest rate for monthly installment should be lower than $x\%$, x being different than 3%
- Stating that no interest rate can be charged for monthly installment
- Stating that there can't be an initial payment greater than the subsequent monthly payments

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 2	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE: A1, A3
SAMPLE ANSWERS	
Part a: 1 point	
<ul style="list-style-type: none"> • Conditions that insurance companies are required to meet in order to enter the insurance industry/Conditions that must be satisfied to enter business in Canada/Licensing of foreign companies and condition of admission in the market/Requirements for a new insurer to enter the market • Restrictions on the type of investments that the insurance companies can make/Control over investment and calculation of assets. • Filing of financial information/Financial reporting at regular intervals/Periodic report on the financial condition of the insurer • Other matters that can protect the interest of the policyholders/Protection of interest of policyholder/Protect policyholders' best interest outside of the insurance contract. 	
Part b: 0.75 point	
<p>An insurer incorporated in one province was doing business in a different province. The Federal government believes this to fall under their jurisdiction of Trade. However, the Provincial government believed that insurance contracts did not count as trade. The Privy Council took the side of the province and ruled this ultra vires with respect to the Federal government.</p>	
EXAMINER'S REPORT	
Part a	
<p>Only a small number of candidates got full marks. Students seemed to understand the question but couldn't name the four aspects. A common pitfall was to have 2 responses that were the same answer but reworded so only partial credit was given.</p>	
Part b	
<p>Overall candidates did very well and about half got full marks. The question was not challenging and for the most part when students didn't get full marks they had a good understanding but the response was too brief for full marks.</p> <ul style="list-style-type: none"> • The case was based on the federal government believing that provincial insurers had to be federally licensed to operate in a province outside where it is incorporated. • The Supreme Court ruled this not to be true. It was ultra vires since it is not in the federal power to license in province. • A provincially incorporated company can operate in another province as long as that province has granted permission for the company to do so. 	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 3	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: A2
SAMPLE ANSWERS	
Part a: 1 point	
<p>Any four of the following received full credit:</p> <ul style="list-style-type: none">• Recorded measure used in pricing process• Historical information is trackable by insured• Need to explain every time the rating program to the client• The customer should know how to be eligible for discount and max min possible and the insurer should give regular feedback• The customer should have access to his telematics data• The insurer should have consent of use personal data and detail how the personal will be use in the UBIP model• Insurer must disclose the purpose of collecting telematics data• Insurer must disclose how much discount is given due to usage based pricing• Insurers must inform consumers about what personal information is being collected.• Insurers must inform consumers about who may have access to personal information/the circumstances under which personal information could be disclosed to other parties.• Insurers must inform consumers about how personal information is being used.• Insurers must inform consumers about their rights with respect to their personal information.• Insurers must inform consumers of any changes to how personal information is collected, used or disclosed.• Insurers must clearly communicate the rating model (how to qualify for a discount, maximum/minimum discount, period being measured to calculate the discount) to the consumer at all times, beginning prior to enrollment and continuing through policy renewal.• Insurers should provide regular feedback on the driving performance of the consumer.• Insurers must disclose the impact of other operators of the vehicle on the calculated UBI discount.• Consumers should be able to access the data on which their discount is based, and be given opportunities to correct any inaccuracies.• Insurers may be required to make policyholders aware that an affiliated insurer is offering a UBI program with a discount, per UDAP.• Must keep track of consent• Use and disclosure of the information + which circumstances disclose to 3rd parties• For what period data will be used• Require proper customer service must be in place to answer questions, take complains	
Part b: 1 point	
<p>Any two of the following received full credit:</p> <ul style="list-style-type: none">• Insurer must facilitate transfer of an insured's telematics data to another insurer• Insurers should, where possible, facilitate drivers using their personal UBIP data for the purposes of entering into a contract with another insurer, including enrolling in another insurer's UBI program.	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- This guideline advocates for the portability of data that is needed for drivers to transfer their UBI data to other insurers in search of a lower premium and/or better value-added services.
- FSCO is willing to review data and the amount of discount charged in other jurisdictions, even if there is no Ontario-specific data to support a filing.
- This guideline reduces barriers to entry for insurers to enter the UBI marketplace, as they do not have to run an Ontario pilot program to gather Ontario data before submitting a filing.
- Insurers are allowed to treat UBIP start-up costs as part of research and development and not specifically allocate them to the determination of UBI rates.
- This guideline allows insurers to keep UBI premiums low to attract new UBIP customers, rather than being mandated to load in additional expenses into UBI premiums.
- If data is not available immediately, proxy data can be used to analyse possible UBI pricing which would increase availability to insurer who lacks data
- Insurers should have the program available in all territories
- No limitations on discount structure and metrics collections resulting in a more competitive marketplace. Allows companies to be creative, innovate or similar.
- Insurers may be required to make policyholders aware that an affiliated insurer is offering a UBI program with a discount, per UDAP.
- Encourage open communication between industry & government body.

EXAMINER'S REPORT

- The candidates are expected to know the FSCO UBI.
- The candidates did well in part a, but had difficulty in part b.
- The candidates need to understand the article to answer the question.

Part a

- The candidate was expected to identify four elements that demonstrate FSCO's emphasis on transparency to the customers.
- Any four elements related to transparency to customers will obtain full credit.
- Elements related to privacy were not accepted as it is not allowed under privacy law.
- Elements related to transparency to FSCO were not accepted as this is what the question is asking.

Part b

- The candidate was expected to describe two ways the bulletin promotes a competitive UBI marketplace.
- Many candidates did not understand "competitive marketplace".
- Some candidates mistook competitive marketplace for competitive pricing.
- "UBI can be used for discount only" was not accepted as UBI is not only offered as a discount.
- "UBI makes pricing more competitive" was not accepted as this is again just repeating the question.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 4	
TOTAL POINT VALUE: 4	LEARNING OBJECTIVE: A3
SAMPLE ANSWERS	
Part a: 1 point	
Sample #1	
<ul style="list-style-type: none">• BC Credit case: delegate deemed standard form was not sufficient, informed consent was not received• Delegate ordered company to review all consent forms since 2004• Judge ruled it was not within the powers of the delegate (investigating one specific case) to require them to look at all consent forms• Going forward, must provide letter to new/renewing policyholders	
Sample #2	
<ul style="list-style-type: none">• We can check PIPEDA• It finds that the standard form was deficient and misleading• However, the use and collect of credit score for insurance purpose is correct• The insurer should review its consent form so that it explicitly says that credit info could be used for rating	
Sample #3	
<ul style="list-style-type: none">• Consent form might not have been regulated, so not clear and not “by the book”• Would have to clearly explain to consumer the information taken and what purpose it is used for• Plaintiff win, insurer needs to give more details. Case: PIPEDA• Might need to inform all other client if not good form was given	
Part b: 1 point	
Sample #1	
<ul style="list-style-type: none">• Dillon v Guardian: Ruled that in cases where settlement within policy limit is possible & insurer chooses to go to trial, they must pay the entire payout, even if over limit• Why? – Absolute Liability• Should not gamble with insured’s money; do not have to determine if settlement is fair• Likely outcome: insurer pays \$800,000	
Sample #2	
<ul style="list-style-type: none">• The case is Dillon vs. Guardian• The policyholder is likely to win• Since based on the case, the insurer is liable for the exceedance of the limit if it refuses to settle the case below the limit; the insurer should have both benefits and disadvantage of its decision• Also, it “exploited” the insurer to gamble with policyholder’s money• Insurer will have to pay 300,000 to its insured (same as bullet point 2)	
Sample #3	
<ul style="list-style-type: none">• Dillon vs Guardian Insurance	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- Concern of absolute liability; if it is known that insurer did not do everything he can to settle for less than policy limit, he will have to pay insured for excess amount
- Insurer cannot gamble with money of their insured

Part c: 1 point

Sample #1

- KP Pacific Holdings
- No indication that fire losses in multi-peril policies were meant to fall under part 5 of Act
- Falls under part 2 of Act which allows filing claim 1 year after proof of loss
- Likely outcome: insured allowed to file claim

Sample #2

- Case: Pacific Holdings vs. Guardian
- The SC found that multi-peril losses fall under Part II and not under Part V, which treats about multi-peril policies and allow the claim to be made within one year of proof of loss
- The insurance company will have to pay the claim
- Nothing in the law suggests fire claim under multi-peril policy should fall under Part V

Sample #3

- Case: KP Pacific against Guardian
- The fire of a multi-peril is subject to Part II of the Act, not the Part V
- Part V: should be subject to a limit of 1 year since the loss; Part II: should be subject to a limit of 1 year since the proof of the loss
- Insured win and insurer need to pay

Part d: 1 point

Sample #1

- Nichols vs American Home
- The insurer will not have to pay for defense cost
- There is no separate duty to defend and indemnify
- No duty to defend when it is clearly beyond the scope of coverage; fraud is not covered

Sample #2

- Case: Nichols vs. American Homes
- The insured will fail in its attempt, based on this case
- It found out that to have a duty to defend, the insurer must have a probability to pay a claim, which is not the case in this situation
- Fraud is usually excluded from insurance contracts

Sample #3

- Case: Nichols vs American Home; no need of duty to defend as:
- The duty to defend is triggered when there is duty to indemnify
- Fraud is not covered by the insurance contract so no duty to indemnify
- Insured lose and insurer win

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
<p>The candidates were expected to know the specific landmark cases and court decisions relevant for cases presented in this question.</p> <p>Candidates generally scored well as it was a straightforward question to test on knowledge of specific landmark cases. A wide range of answers were accepted; and more than one case was given credit in part a) and d).</p>
Part a
<ul style="list-style-type: none">• Candidates were expected to know the case name and court decision• Full credit was given for reference to the case name, outcome, explanation for the outcome (either two arguments or one fully supported argument)• Common errors made by candidates are: providing only one brief support argument for the outcome; saying that the policyholder's premium need to be retro-rated; saying credit was not allowed to use for pricing
Part b
<ul style="list-style-type: none">• Candidates were expected to know the case name and court decision• Full credit was given for reference to the case name, outcome, explanation for the outcome (either two arguments or one fully supported argument)• Common errors made by candidates are: providing only one brief support argument for the outcome; not citing the case or citing the wrong case, for example, Alie vs Bertrand
Part c
<ul style="list-style-type: none">• Candidates were expected to know the case name and court decision• Full credit was given for reference to the case name, outcome, explanation for the outcome (either two arguments or one fully supported argument)• Common errors made by candidates are: wrong court decision, for example, "multi-peril policy was governed by Fire part of the Insurance Act", "claim should be compensated if insured advise insurer within a reasonable time" ; citing the wrong case, for example, Regal films
Part d
<ul style="list-style-type: none">• Candidates were expected to know the case name and court decision• Full credit was given for reference to the case name, outcome, explanation for the outcome (either two arguments or one fully supported argument)• Common errors made by candidates are: many failed to mention "duty to defend is triggered by the duty to indemnify"; simply restating the question "fraudulent behaviors are excluded under the insurance policy"

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 5	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: A4
SAMPLE ANSWERS	
Part a: 1.5 points	
<p>Sample Response #1</p> <ul style="list-style-type: none"> • Gross income wage replacement: Income replacement is based on gross income and doesn't consider expenses related to holding a job which result in overcompensation for the plaintiff • Vicarious liability: Some party may be held responsible for actions of their subordinate/employees/sublease which make the search for deep pocket possible • Collateral source: There is no need to disclose other source of compensation which may result in double recovery and overcompensation for the plaintiff <p>Sample Response #2</p> <ul style="list-style-type: none"> • Joint and several liability which indemnify fully the injured person without regard to the harm done by the defendant. So if there's 3 defendants and 2 of them are insolvent and the 3rd one is 5% at fault, he gets to pay everything anyway. • The collateral source: it is not mandatory to demonstrate to the court that the plaintiff's been already compensated by a collateral. So there's possibility of double-recovery. • Class action: a group of plaintiffs can sue somebody together so that they can take one big amount of money. But this way, some may be overcompensated for their relatively minor injury when bigger injuries are in the group. <p>Sample Response #3</p> <ul style="list-style-type: none"> • The joint and several liability rule allows plaintiffs to collect from an individual defendant for the collective award owed by defendants, ensures that plaintiffs are still indemnified to the fullest in the event one or more defendant is insolvent, to the detriment of solvent co-defendants. • Collateral benefits rule bars the consideration of other amounts the plaintiff may have already received (e.g. from income continuation or disability plan offered by employer) for the same loss for which the plaintiff is suing damages. In essence, allows plaintiff to double recovery • Economic damages are calculated on gross income basis and leads to plaintiffs being over compensated due to the lack of expenses related to employment and preferential tax treatment of awards. 	
Part b: 0.75 point	
<p>Sample Response #1</p> <ul style="list-style-type: none"> • Change to several liability only: defendant only responsible for degree at fault (proportionate liability) • Eliminate prejudgment interest: defendant should not suffer for reasons beyond their control (usually delays due to volume of cases in court) • Eliminate collateral source: Prevent double recovery and reduce costs to multiple defendants who are paying for the same injury (also reduces costs in overall insurance 	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

system if insured collects from public program)

Sample Response #2

- Collateral source rule: abolish (cannot recover from multiple sources for the same damage)
- Reform to base payment on net basis (prevent plaintiff from making more then not working)
- Eliminate prejudgment interest (avoid high award when cases extend long time)

Sample Response #3

- Joint and several liability: ensures the plaintiff can recover all damages by allowing them to recover the full amount from any of the defendants if they are any part at-fault
- Collateral source rule: the plaintiff does not need to disclose any sources of other recovery creating the potential for over indemnification
- Punitive damages: An award that is meant to punish the defendant for their actions. These awards may be extravagant and unnecessary.

EXAMINER'S REPORT

Candidates scored very well on this question and most candidates received full credit.

Part a

Most candidates received full credit on this part.

The most common errors were:

- Any answer involving "Award for non-pecuniary damages" or "No caps on non-economic damages" as a reason for Canadian tort law being too plaintiff friendly.
 - Canadian tort law are already capping non-economic damages (trilogy)
 - It is reasonable that plaintiff may be compensated for non-pecuniary damages
- Not providing a sufficient description of the reason identified
- Proving less than 3 reasons

Part b

Most candidates received full credit on this part.

The most common errors were:

- Not providing reforms for all 3 of the reasons provided in part a.
- Not describing the reform, example: abolish it, eliminate it, etc.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 6	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: B3
SAMPLE ANSWERS	
Part a: 1 point	
Sample #1	
<ul style="list-style-type: none"> i) Yes this is met as most commercial entities are exposed to terrorism risk and many are required to purchase insurance due to regulations or loan requirements. ii) Likely not as we do not have a credible history of data to predict losses with much accuracy; will have to use models with expert views. iii) No as terrorism is a deliberate act, although not by insured. iv) Depends on aggregation by geography, but likely to be catastrophic. 	
Sample #2	
<ul style="list-style-type: none"> i) Difficult to achieve large enough risk pool since coverage not mandatory or too expensive. ii) Assess ability of losses difficult since lack of historical experience. Low frequency / high severity. iii) Terrorist events are not random as they are intentional acts. Difficult to insure given lack of fortuitousness. iv) Fails criteria: Likely a terrorist event would have catastrophic losses (eg. 9/11) 	
Sample #3	
<ul style="list-style-type: none"> i) It is not a mandatory coverage and only available with commercial property or property and casualty policies, # of insureds are not sufficient. ii) It is not definite and measureable as the amount of exposure is not easy to compute and historical data is lacking which makes the risk hard to measure. iii) It is not fortuitous and accidental since it is caused by man's act. iv) Underwriting policy can make the risk not catastrophic. Insurer usually diversify their risk by geographical ranges. 	
Part b: 1 point	
Sample #1	
<ul style="list-style-type: none"> i) No as not many people in flood-prone areas, and hence unlikely to buy insurance specifically for flood. ii) Given lack of historical industry data, not easy to quantify potential losses. iii) Yes flood losses are fortuitous, however if insured is in flood prone areas, one can argue it is to be expected to have flood and hence not fortuitous. iv) Depends on aggregation of risk by geography, but likely catastrophic as large number of homes in area to be impacted. 	
Sample #2	
<ul style="list-style-type: none"> i) Can have large enough pool if flood coverage is bundled with other perils in policy. ii) Flood models along with flood maps and property exposure details could be used to estimate losses. iii) Floods are fortuitous as caused by random weather events not in control of insureds. iv) Flood coverage can be offered in low/med risk zones but should be excluded from the extreme high-risk zones to deter development in those areas. 	
Sample #3	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

i)	It is sufficiently large # of insureds only by bundling up the flood risk into all home insurance policies.
ii)	It can be definite and measured by using historical events and events from other parts or regions of the world.
iii)	It is fortuitous as it is an event by nature.
iv)	It is catastrophic as event happens usually it is localized at one area.
EXAMINER'S REPORT	
The candidates were expected to demonstrate an understanding of two different risks and how they relate to four ideal characteristics for a risk to be insurable. A wide array of possible answers were accepted for this question. The question required the candidate to state whether or not each condition was met and discuss why. Candidates performed well on this question.	
Part a	
<ul style="list-style-type: none">• Candidates who did not receive full credit commonly did not discuss why the condition was satisfied or not, they simply replied with a "Yes" or "No" answer, which no credits are given.• A few candidates simply restated the question. For example, "Yes, losses can be measured" or "Yes, losses are random"	
Part b	
<ul style="list-style-type: none">• The same common errors from part a were made again in part b.	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 7	
TOTAL POINT VALUE: 3.5	LEARNING OBJECTIVE: B2, B3
SAMPLE ANSWERS	
Part a: 1.25 points	
<p>Earned Premium = 50 Incurred Loss = 40</p> <p>% Participation = (earned car years not ceded) / (total industry) = 150 / 1000 = 15% Ceded business LR = 40 / 50 = 80% Pool LR = 1000 / 750 = 133%</p> <p>LR for share of pool = (share of losses) / (share of premium + allowance for ceded premium) = (1000 x 15%) / (750 x 15% + 0.25 x 50) = 120%</p>	
Part b: 0.75 point	
LR total = (300 + 1000 x 15%) / (750 x 15% + 500 + 0.25 x 50) = 72%	
Part c: 1 point	
<p>Sample #1 Revised Participation Ratio = 170 / (1000 + 20) = 0.16667 Revised Premium = 550 + 0.16667 x (750 – 50) = 666.69 Revised Loss = 340 + 0.16667 x (1000 – 40) = 500.032 Revised LR = 500.032 / 666.69 = 75.0%</p> <p>Sample #2 Participation Ratio = (150 + 20) / (1000 + 20) = 1/6 Assumed premium from pool = (1/6) x (750 – 50) = 117 Assumed losses from pool = (1/6) x (1000 – 40) = 160 Insurer's A loss ratio = (Total losses of Insurer + Assumed Losses) / (Total Premium of Insurer + Assumed Premiums) = (340 + 160) / (550 + 117) = 75.0%</p>	
Part d: 0.5 point	
<p>Sample #1 Since it is below the maximum allowable transfer limit, it could cede more risks to the RSP, business that is currently not profitable, since its LR is lower with the RSP than without.</p> <p>Sample #2 It will lower its LR if it cedes business with higher LR than pool average (riskier business). Also, by using the maximum % allowable to cession, because insurer still assumes part of the pool even if he does not cede the max.</p> <p>Sample #3 Company should cede as many unprofitable risks as possible. This will reduce their participation ratio, increase the expense allowance received from the pool and reduce their non-ceded risk loss ratio.</p>	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
<p>Candidates were expected to show a thorough understanding of how the results of a risk sharing pool are shared amongst the member companies. Additionally, this question tests the candidate's knowledge of how those results impact the overall member company's performance. Most candidates struggled to demonstrate the knowledge tested in this question.</p>
Part a
<ul style="list-style-type: none">• Many candidates were not able to calculate the participation ratio correctly.• Candidates commonly failed to make any adjustment for the risk sharing pool expense allowance.• Candidates who did correctly calculate the amount for the expense allowance often applied it incorrectly in the loss ratio formula.
Part b
<ul style="list-style-type: none">• The most common error was the application of the expense ratio. Most candidates did not make any adjustment for the expense ratio in the total loss ratio of the company.
Part c
<ul style="list-style-type: none">• The most common error was to assume that since the member company stopped ceding risks to the pool their participation ratio would decrease to 0%.
Part d
<ul style="list-style-type: none">• Candidates generally scored well on this part.• Commonly candidates would answer with a vague statement about how ceding "bad risks" or "worse risks" would improve results. Partial credit was given for this response unless the candidate provided a further explanation as to how this would impact the participation ratio or the results of the risk sharing pool.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 8	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE: B1, B2
SAMPLE ANSWERS	
Part a: 0.25 point	
PACICC was established to protect policyholders from undue financial loss in the event that a member insurance company exited the market involuntarily.	
Part b: 0.5 point	
In the United States and the United Kingdom, dividends from liquidated estates are used to reduce current or future assessment needs.	
In comparison, PACICC is required to return liquidation dividends to the solvent members of the industry.	
Part c: 1 point(s)	
<ul style="list-style-type: none"> • Governance and internal controls: management and governance issues lead to decisions or failed processes that caused companies to fail. OR Inadequate pricing, deficient reserving (assuming it's due to failed processes or failure of internal controls) OR Lack of underwriting / prudent risk selection • New entrants: new entrants face strong competition from companies already entrenched in the market and have inexperienced management teams. • Rapid growth: for an insurance company, rapid growth is usually accompanied by deteriorating loss reserves. The incentive to embark on long-term, aggressive expansion strategies tends to increase during periods associated with diminishing capital strength. Companies may also enter new areas of business where they lack expertise. • Firm size: larger companies are less sensitive to financial distress than smaller insurers. 	
EXAMINER'S REPORT	
Part a	
Candidates were expected to know the reasons for PACICC establishment. Almost all candidates received full credit.	
Part b	
Not many candidates received full credit. A lot of candidates confused stockholder dividends with the dividends returned by PACICC to member companies.	
Part c	
Candidates were expected to know most company-specific characteristics of an insolvent insurer. Most candidates were able to provide enough answers to get full or almost full credit. Some confusion arose from describing company-specific characteristics and external characteristics but overall this was well answered.	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 9	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVE: B1, B2
SAMPLE ANSWERS	
Part a: 0.75 point	
<ul style="list-style-type: none"> • Sample Response #1 <ol style="list-style-type: none"> 1. Provide a temporary federal insurance program for terrorism risk to let the market stabilize 2. Protect the customers – ensure availability and affordability of terrorism insurance 3. Preserve state regulation of insurance <ul style="list-style-type: none"> • Sample Response #2 <p>-build a program that shares between public and private – so that the market can stabilize and still be able do business</p> <p>-make sure that TRIA is affordable and available</p> <p>-so state regulation does not need to change and can operate as usual</p>	
Part b: 1.5 points	
<ul style="list-style-type: none"> • Sample Response #1 <ol style="list-style-type: none"> 1. Temporary federal program – No, as the market was not stable enough at that time with not high enough take-up rate or not enough credible data 2. Protect the customers – Yes, terrorism insurance is available for all commercial policyholders with affordable price with federal reinsurance support 3. State regulation – Yes, the act did not interfere with the state regulation power with the exception of the definition of terrorism act or any terrorism state regulation <ul style="list-style-type: none"> • Sample Response #2 <ol style="list-style-type: none"> 1. Temporary federal program – No, it was supposed to be a 3-year program in 2003, so if the 2007 program is still in place (in 2014) then private insurers still need help, they are not ready to insure the whole risk 2. Protect policyholders – Yes, initially prices were relatively high, but have decreased over time and a large proportion of insureds are buying coverage 3. State regulation – Yes, expect for the 2 following exceptions: <ul style="list-style-type: none"> ○ Federal government decides on certified act of terrorism ○ Rate and form approval laws were preempted from enactment to the end of 2003 <ul style="list-style-type: none"> • Sample Response #3 <ol style="list-style-type: none"> 1. Temporary federal program – Yes, government helps insurers to pay for terrorism loss by reinsuring the company. Markets have stabilized and more insurers offer the coverage now. 2. Protect Consumers – Yes, by providing it, more insurers are making terrorism insurance available and premiums have decreased. Insureds with the coverage have increased. 3. State regulation – Yes, state has the authority and can regulate terrorism insurance. State regulation is not controlled by the federal government. 	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Part c: 0.75 point

- Sample Response #1

1. The act must be certified as terrorism act jointly by the treasury department, secretary of state, and the attorney general
2. The act must exceed \$100 million for the federal fund to start
3. Each insurer has a deductible equal to 20% of its corresponding direct earned premium before they start receiving the payment from the federal government

- Sample Response #2

- loss on US soil or against US vessels
- aggregate losses must exceed \$100 million
- terrorist event must be certified by the secretary of state and the attorney general

- Sample Response #3

- Aggregated insured losses from the certified act must exceed \$100 million
- Act must be certified jointly by the secretary of state, secretary of the treasury, and attorney general (loss > \$5 million in US or to US carriers or sea vessel)
- must be commercial property & casualty coverage and not a coverage that is excluded by statute (eg. Crop insurance, title insurance)

EXAMINER'S REPORT

Candidates scored well on this question and a few candidates received full credit. For candidates who did not receive full credit, this was most commonly due to not providing a fulsome explanation in part b) as to whether the goals of TRIA have been met.

Part a

Most candidates received full credit on this part

The most common errors were:

- Providing a lists of reasons why governments get involved in insurance, whereas this part asked for the specific goals of TRIA and not why the government decided to go about creating TRIA
- Of the 3 goals, the most commonly missed goal was preserving state regulation of insurance

Part b

Most candidates did not receive full credit on this part.

Many candidates received partial credit for explaining portions of the goals that were listed in a) but did not provide complete arguments to receive full credit. For any of the 3 goals of TRIA, credit was given to arguments either for or against whether the goal was achieved as long as enough explanation was provided.

The most common errors were:

- Not justifying or arguing whether the goals were achieved
- Justifying one or two of the goals, but not all three goals

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Part c

Half of the candidates received full credit on this part.

Many candidates incorrectly interpreted the \$5 million certification condition as applicable to a specific company whereas it is actually in a broader condition of where insured losses must occur for the act to be certified as an act of terrorism.

The most common errors were:

- Stating that insured losses must exceed \$5 million, either for the specific company or in general
 - I. The \$5 million condition of TRIA is that losses must exceed \$5 million in the United States or to U.S. air carriers or sea vessels for an act of terrorism to be certified
- Several candidates provided 2 conditions and not a third
- Stating that aggregate insured losses must be greater than \$100 billion

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 10	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE: B2
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none"> • Sample Response #1 <p>Uncertainty measure accounts for possible errors in assumptions in the calculation Self-sustainability load recoups any deficits from past operations</p> <ul style="list-style-type: none"> • Sample Response #2 <p>Uncertainty margin is the margin to account for uncertainty in estimates, assumptions, and the model. The self-sustainability load is to account for the volatility and be able to absorb losses or to add to surplus or eventually be able to absorb losses.</p> <ul style="list-style-type: none"> • Sample Response #3 <p>Uncertainty margin: load to account for the limitation in data, assumption, methodologies, and statistical volatility. Self-sustainability load: load to get a certain surplus level for the fund to survive in adverse scenario.</p>	
Part b: 0.5 point	
<ul style="list-style-type: none"> • Sample Response #1 <p>Both are necessary to ensure the program is self-sustainable. Uncertainty creates conservative estimates accounting for the future and the self-sustainability load recovers historical deficits.</p> <ul style="list-style-type: none"> • Sample Response #2 <p>Both loads cover different risks so both are required. The self-sustainability load depends on the current level of the surplus while this does not affect the uncertainty load. Similarly, the factors affecting the uncertainty load don't directly affect the self-sustainability load.</p>	
Part c: 0.5 point	
<ul style="list-style-type: none"> • Sample Response #1 <p>How to measure the amount of loss incurred How to determine whether event has occurred or not</p> <ul style="list-style-type: none"> • Sample Response #2 <p>For weather-based plans, would need to consider historical weather conditions and likelihood of a claim For perennial coverage, need to consider the age/maturity of the perennial plants</p>	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- Sample Response #3

Non-yield based plans don't pay out benefits based on production level. It's based on a pre-determined occurrence of an event, may be weather related. ex. 5-days of consecutive raining.
-hence need third party data to estimate the probability of the event occurring
-another consideration is the estimated benefits which will be paid if the event occurs

- Sample Response #4

-models should account for external factor, such as weather (must predict it)
-should demonstrate that the pricing is in line with historical losses or what historical loss cost would have been.

EXAMINER'S REPORT

Candidates did not score very well on this question and very few candidates received full credit.

Many candidates were able to describe the margin and load in part a) but then were not able to describe how both loads were required and non-overlapping. Most candidates reiterated their part a) answer in part b).

Part a

Many candidates received full credit on this part.

Most candidates were able to describe the self-sustainability load, but many candidates were not able to adequately describe the uncertainty margin.

The most common error was describing the uncertainty margin as a load intended to cover the variability in actual yields

Part b

Most candidates did not receive full credit on this part.

Many candidates received partial credit for explaining the need for the self-sustainability load, but were not able to describe how it is needed in addition to the uncertainty margin.

Some candidates received full credit for explaining that the uncertainty margin is needed for short term uncertainty in models, assumptions, and data, whereas the self-sustainability load is required for maintaining long-term program viability through surplus.

No candidates were able to justify their explanation with an example of how both adjustments are required.

The most common error was:

describing the components (which was part a), but not addressing why both (or either individually) are needed in pricing yield-based plans

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Part c

Most candidates did not receive full credit on this part.

Many candidates answered part a) and b), but left part c) blank.

Most candidates that received full credit responded on the basis of weather-based plans.

For those candidates that responded, the most common errors were:

- Providing considerations which are not unique to non-yield based plans such as:
 - I. Handling of catastrophes
 - II. Deductibles
 - III. Expenses
 - IV. Large losses
 - V. Limits on yield and or production
- Only providing one consideration instead of two

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 11					
TOTAL POINT VALUE: 3			LEARNING OBJECTIVE: C1		
SAMPLE ANSWERS					
Sample Solution #1					
Payment pattern		10%	30%	75%	100%
Estimated Payments in Period	\$2,000,000	\$200,000	\$400,000	\$900,000	\$500,000
Payment Duration Duration Matched		0.5	1.5	2.5	3.5
Risk Free Rate		1%	1%	1%	1%
Present Value Claims	\$1,953,856	\$199,007	\$394,074	\$877,888	\$482,887
Cash Flow Undiscounted Future Payments		\$2,000,000	\$1,800,000	\$1,400,000	\$500,000
Required Margin		10%	10%	10%	10%
Regulatory Capital at 250%		\$500,000	\$450,000	\$350,000	\$125,000
Risk Cost of Capital		8%	8%	8%	8%
Cost of Capital in Period		\$40,000	\$36,000	\$28,000	\$10,000
Duration		1	2	3	4
Discount Rate		1%	1%	1%	1%
Risk Margin	\$111,681	\$39,604	\$35,291	\$27,177	\$9,610
Commuted Value	\$2,065,537				
Sample Solution #2					
Payments discounted = $(0.1 * 2M)/1.01^{-5} + (0.2 * 2M)/1.01^{1.5} + (0.45 * 2M)/1.01^{2.5} + (0.25 * 2M)/1.01^{3.5} = \$1,953,856$					
Year	Payment Remaining	Required margin (10%)	Target Capital (2.5)	Cost of Capital (8%)	
2015	\$2,000,000	\$200,000	\$500,000	\$40,000	
2016	\$1,800,000	\$180,000	\$450,000	\$36,000	
2017	\$1,400,000	\$140,000	\$350,000	\$28,000	
2018	\$500,000	\$50,000	\$125,000	\$10,000	
2019	\$0	\$0	\$0	\$0	
Discounted cost of capital = $40,000/1.01^1 + 36,000/1.01^2 + 28,000/1.01^3 + 10,000/1.01^4 = \$111,691$					
Commuted Value = $\$1,953,856 + \$111,691 = \$2,065,537$					

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT

Candidates did not perform well on this question. It was evident that candidates were unfamiliar with this topic. Vast majority of the candidates were able to correctly calculate the present value of loss payments and earned partial credit on this question. However, most candidates were unable to correctly calculate the discounted cost of capital.

Other than calculation errors, some of the most common errors were:

1. Assuming amount of capital is the same as claim payment made during the year
2. Confusing the Risk Cost of Capital 8% with the Risk Free rate 1% when discounting the amounts to present value: Candidates used risk cost of capital as discount rate.
3. Assuming the period of discounting the cost of capital is the same as claim payment: Candidates discounted cost of capital using the mid-year assumption instead of end of year.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 12							
TOTAL POINT VALUE: 3.75				LEARNING OBJECTIVE: C1			
SAMPLE ANSWERS							
Calculation of PV Factor							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Claims Average Payment (Years)	Cumulative Payment Pattern (Interpolated)	In Year Payment	Present Value Factor @ 3%	Discounted to Time Zero	Present Value Factor @ 2.5%	Discounte d to Time Zero	Age at EOY
0.2929	30.2%	30.2%	0.991	0.299	0.993	0.300	0.707
1.2929	55.2%	25.0%	0.963	0.241	0.969	0.242	1.707
2.2929	80.2%	25.0%	0.934	0.234	0.945	0.236	2.707
3.2929	100.0%	19.8%	0.907	0.180	0.922	0.183	3.707
Total				0.9533		0.9607	

(1) To adjust average payment date for UPR exposure, assume x to be the time to end of the year from the average payment of the UPR. The average payment is the time that would split the UPR triangle in half. The area of the triangle is 72 (12 * 12 / 2). To solve for x, $x^2/2 = 36$. Thus $x = 8.485$ months, which is 0.7071 years. So from the beginning of the year the average payment is at 1-x or 0.2929 years. Also, 1/3 should be accepted since it represents the average accident date for premium liabilities.

(3) Claims are expected occur on average 0.2929 years after the December 31 valuation date. At the end of the first calendar year, claims in connection with unearned premium will be $1.0000 - 0.2929 = 0.7071$ years old on average. The cumulative payment pattern for these claims is therefore interpolated between a cohort of claims that are 0.5 years old (assumed payment pattern at 12 months) and 1.5 years old (assumed payment pattern at 24 months). The cumulative payment pattern is linearly interpolated as follows:

$$[(0.7171 - 0.5)/(1.5 - 0.5)] \times (50\% - 25\%) + 25\% = 55.2\%$$
 The linear interpolation is similar in subsequent years.

$$(3) = (2)_t - (2)_{t-1}$$

$$(4) = (1.03)^t - (1)$$

$$(5) = (3) * (4)$$

$$(6) = (1 + 3\% - 0.5\%)^t - (1)$$

$$(7) = (3) * (6)$$

- Adjusted Net Unearned Premium = Net Unearned Premium Booked – Future expected reinsurance costs = $(69,580 - 4,260) = 65,320$
- Present Value of Loss & LAE = (Adj. Net Unearned Premium x Undiscounted Expected Net Loss Ratio + ULAE Reserve) x PV Factor @3% = $(65,320 \times 0.98 + 3,160) \times 0.953 = 64,016$

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- PfAD for claims Dev. = $10\% \times 64,016 = 6,402$
- PfAD for Reinsurance Ceded = MfAD for Reinsurance Ceded x (Gross Present Value of Loss & LAE – Net Present Value of Loss & LAE) = $1\% \times (68,260 - 64,016) = 42$
- PfAD for Investment return = (PV Factor @ 2.5 % - PV Factor @ 3 %) x (Undiscounted Net Expected Loss & LAE) = $(0.961 - 0.953) \times (65,320 \times 0.98 + 3160) = 537$
- Net APV of Loss & LAE = $64,016 + 6,402 + 42 + 537 = 70,997$
- Policy Liabilities in connection with Unearned Premium = Net APV of Loss & LAE + Future expected reinsurance cost + Maintenance expenses = $70,997 + 4,260 + 4,175 = 79,432$
- Maximum Allowable DPAE for Statement = $\text{Max}(0; \text{Net Unearned Premium Booked} - \text{Policy Liabilities in connection with Net Unearned Premium} + \text{Unearned Reinsurance Commissions}) = \text{Max}(0; 69,580 - 79,432 + 1,045) = 0$
- Premium deficiency = $-\text{Min}(0; \text{Net Unearned Premium Booked} - \text{Policy Liabilities in connection with Net Unearned Premium} + \text{Unearned Reinsurance Commissions}) = -\text{Min}(0; 69,580 - 79,432 + 1,045) = \mathbf{8,807}$

EXAMINER'S REPORT

The candidate was expected to know the method to determine if there is a premium deficiency or not.

Most common errors was:

- Failing to calculate the appropriate PV Factors. Most candidates omitted to calculate the average payment date of the UPR and then, didn't use interpolation to calculate the appropriate PV Factor.
- Failing to adjust the Net Unearned Premium by subtracting the Future expected reinsurance cost.
- Failing to discount ULAE reserve when calculating Net APV of Loss & LAE.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 13	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C1 & D1
SAMPLE ANSWERS	
Part a: 1.75 point	
<p>Sample Solution #1 Cumulative Excess (2012 in 2014) = Discounted Reserve (2012 in 2012) – Paid (2012 in 2013) – paid (2012 in 2014) + investment income (2012 in 2013) + investment income (2012 in 2014) – Discounted Reserve (2012 in 2014)</p> <p>Investment income on AY 2012 in 2013 = $(95,000 + 59,000) / 2 * 5\% = 3,850$ Investment income on AY 2012 in 2014 = $(59,000 + 43,000) / 2 * 5\% = 2,550$</p> <p>Cumulative Excess (2012 in 2014) => $95,000 - 34,000 - x + 3,850 + 2,550 - 43,000 = x$ $2x = 24,400$ $x = 12,200$</p> <p>Sample Solution #2</p> <p>Investment Income for AY 2012: 2013 CY = $((95000 + 59000) / 2) * 0.05 = 3850$ 2014 CY = $((59000 + 43000) / 2) * 0.05 = 2550$</p> <p>Excess on Disc Basis: $x = (95000 + 3850 + 2550) - (34000 + x + 43000)$ $2x = 24,400$ $x = 12,200$</p> <p>Cumulative Excess for AY 2012 (Undiscounted) = $95000 - (34000 + 12200 + 43000) = 5800$</p>	
Part b: 0.25 point	
<p>Sample Solution #1 Cumulative excess ratio (2012 in 2014) = $12,200 / 95,000 = 12.84\%$</p> <p>Sample Solution #2 Cumulative excess ratio = $5,800 / 95,000 = 6.1\%$</p>	
Part c: 0.5 point	
<p>Sample Solution #1</p> <ol style="list-style-type: none"> Discounting the amounts paid during the year (time t) as well as the later period's claim liabilities (time t) back to the original period (t-1). Subtract a term for the portion of the investment income earned during calendar year t on assets supporting the liabilities. <p>Sample Solution #2</p> <ol style="list-style-type: none"> Incorporate investment income like in this example Discount all values to time 0 	

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Sample Solution #3

1. Add investment income to the amount of excess of deficiency
2. Discount the value of claim liabilities and paid amounts to the start of the period, i.e. end of AY 2012 (t-1 if one year horizon)

Sample Solution #4

1. Calculate investment income in each period and adjust paid claims by the same amount
2. Discount all future cash flows/liabilities to a common point such as $t = 0$ to allow apple to apple comparison

Sample Solution #5

1. Discounting the amounts paid during the year (time t) as well as the later period's claim liabilities (time t) back to the original period (t-1).
2. Subtract a term for the portion of the investment income earned during calendar year t on assets supporting the liabilities.

Sample Solution #6

1. Discount the outstanding loss & LAE and paid to the same time point
2. Subtract investment income from outstanding loss & LAE

EXAMINER'S REPORT

The candidates were expected to show understanding of the claims run-off with discounted liabilities. They were also required to show familiarity with the two approaches that can be used to account for time value of money.

Candidates performed very well on this question overall.

For part a) candidates could earn full credit for calculating the discounted or undiscounted cumulative excess.

Part a

Most candidates earned full credit. The candidates were expected to be able to calculate the investment income for the two calendar periods and set up the equation for the cumulative excess. The most common errors were calculation errors in this question. Some candidates were not able to set up the problem correctly or recognize that "Cumulative Excess" appears on both side of the equation.

Part b

Almost all of the candidates scored full marks for this part of the question. The candidates were expected to calculate the cumulative excess ratio. Full credit was given to candidates who used the response from part a) and divided by the correct reserve amount (95,000). Therefore, candidates were not penalized for an incorrect response in part a). The most common error was that some candidates divided by average reserve amounts.

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Part c

Candidates did not perform well on this part of the question. We accepted all answers that highlighted the key aspects of the two approaches. One of the common mistakes made in this question was that candidates omitted key information to answer the question. For example: omitting that outstanding reserves and payments from time t need to be discounted back to original time $t - 1$.

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$$\text{Interest Rate PFAD at 3.5\%} = \text{PV Liabilities (at 3\%)} - \text{PV Liabilities (at 3.5\%)} = \\ 29,288.04 - 28,949.31 = 278.73$$

$$\text{Claims Development PFAD at 3\%} = \text{PV Liabilities (at 3\%)} * 10\% = \\ 29,228.04 * 10\% = 2,922.80$$

$$\text{Claims Development PFAD at 3.5\%} = \text{PV Liabilities (at 3.5\%)} * 10\% = \\ 28,949.31 * 10\% = 2,894.93$$

APV of Liabilities = PV Liabilities + Interest Rate PFAD + Claims PFAD

$$\text{APV of Liabilities (at 3\%)} = 29,228.04 + 283.25 + 2,922.80 = 32,434.10$$

$$\text{APV of Liabilities (at 3.5\%)} = 28,949.31 + 278.73 + 2,894.93 = 32,122.97$$

$$\text{Change in APV of Liabilities} = 32,122.97 - 32,434.10 = -311.12$$

Impacts

Net Income: Change in Price of FVO Bonds - Change in APV of Liabilities = $-287.68 - (-311.12) = 23.44$
(increase)

Other Comprehensive Income: Change in Price of AFS Bonds = -141.96
(decrease)

Equity: Change in Net Income + Change in Other Comprehensive Income = $23.44 - 141.96 = -118.52$
(decrease)

EXAMINER'S REPORT

In general candidates did well on the question. Most candidates understood the concept of calculating the present value of claims and bonds at the two interest rate levels. The calculation of PFADs for claims development and investment return was also well made in general. Most candidates understood that changes in price of AFS bonds should impact Other Comprehensive Income while changes of FVO bonds affect Net Income.

Common mistakes included:

- Assuming that the losses were paid mid-year when discounting them despite question stating that all payments were made at the end of the year.
- Treating a decrease in APV of unpaid claims as a decrease in net income (a decrease in APV of unpaid claims increases net income)
- Some candidates used duration to estimate the impact of changes in interest rates. This is a valid approximation and partial points were given, but a common mistake was to use undiscounted cash flows to estimate the duration instead of discounted cash flows. Some used bond duration to estimate changes in present value of claims instead of calculating duration for claims.

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QUESTION 15	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE: C1
SAMPLE ANSWERS	
Part a: 0.5 point	
Explicit: By including a distribution of the parameter and doing a Monte Carlo analysis/distribution around each of the parameters	
Implicit: By increasing the parameter by a PfAD/higher expected loss or increase volatility of losses/ be conservative when selecting parameter	
Part b: 0.5 point	
Advantage: More in line with reinsurer's view on the risk transfer, and incorporates market view of the risk/Provides view as how reinsurer or market see the contract	
Disadvantage: Pricing assumption is more market driven and hard/soft market stage will impact pricing assumptions, but should not impact risk transfer analysis/ Risk transfer shouldn't fluctuate based on market conditions	
Part c: 0.5 point	
Reasonable: Because reinsurer's average rate of return is above the risk free rate	
Flaw: Investment strategies of different reinsurers should not have impact on the risk transfer itself as it may result in different conclusions drawn for reinsurers with good or bad investment strategies./An analysis of risk transfer shouldn't take into account the reinsurer's investment strategy.	
EXAMINER'S REPORT	
Part a	
This was a very challenging question with many candidates receiving no credit. Only a few candidates received full marks and a few received partial credit. A common error was for candidates to have mixed the implicit/explicit concepts. Some candidates were confused by the concept of deterministic versus stochastic models.	
Part b	
This was a very challenging question with many candidates receiving no credit. Only a small number received full marks.	
Part c	
Candidates performed better on this part compared to parts a) and b). Most candidates could explain why a higher rate was reasonable but often had trouble identifying a flaw.	

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QUESTION 16	
TOTAL POINT VALUE: 3.25	LEARNING OBJECTIVE: C1 & C2
SAMPLE ANSWERS	
Part a: 1.25 points	
<ul style="list-style-type: none"> • Sample 1: Country wide PML 500 = (east Canada PML 500 ^{1.5} + West Canada PM: 500 ^{1.5}) = 216,377 ERC = 216,377 – 50,000 = 166,377 • Sample 2: Country wide PML 500 = (east Canada PML 500 ^{1.5} + West Canada PM: 500 ^{1.5}) = 216,377 Country wide PML for 2015 = 216,377 * ((year-2014)/8) + MAX(East Canada PML 420, West Canada PML 420)*((2022-year)/8) = 132, 042 ERC = 132,042 – 50,000 = 82,042 	
Part b: 1 point	
<ul style="list-style-type: none"> • Capital and surplus • Earthquake premium reserve • Reinsurance coverage • Capital market financing 	
Part c: 1 point	
<p>Sample Example #1:</p> <p>PML estimate: A PML estimate should reflect the expected ultimate cost including data quality, non-modeled exposure, safety margin for the model uncertainty, multi are exposure. Earthquake exposures risk management: Should have a sound and comprehensive earthquake exposure risk management policies oversight by board and implement by management.</p> <p>Sample Example #2:</p> <p>Data quality & control: Ensure proper geocoding of risks and track construction type, age of home, etc. Validate and assess data regularly. Have internal controls to avoid taking on too much risk or concentration (Eg underwriting guidelines and controls)</p>	
EXAMINER'S REPORT	
The question did not specify that the company is phasing to PML 500. Thus, for part a), we accepted both the answer with and without phasing.	
Part a	
The candidates did fairly well on this question. Generally, candidates either knew the formula and got full credit or did not know the formula and received no credit. Some candidates forgot to subtract the financial resources and lost partial credit.	
Part b	
Candidates did extremely well on this question with the vast majority getting full marks. Some candidates lost credit by not providing 4 responses or providing duplicated responses.	

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Part c

Candidates generally did very well on this question. Most of the candidates were able to identify the principles, but some lost credit due to insufficient description.

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QUESTION 17	
TOTAL POINT VALUE: 1.25	LEARNING OBJECTIVE: C1 & D1
SAMPLE ANSWERS	
Sample Solution #1	
<p>Net Claim Liability = Net Discounted Estimate excl PfADs + PfAD Investment Return Rate + PfAD Claims Development + PfAD Reinsurance Recovery = 4,700 + 150 + 470 + 50 = 5,370</p>	
<p>Net Reported Reserve = Gross Liabilities carried by ins – S&S recoverable – Reinsurance recoverable = 12,000 – 200 – 5,650 = 6,150</p>	
<p>Present Value Factor = (Net Discounted Estimate excl PfAD + PfAD Investment Return Rate)/Net Undiscounted Estimate = (4,700 + 150) / 5,500 = 0.8818</p>	
<p>Estimated Effect of Discounting the Asset for Future Income Taxes = (Reported Reserve – 95% of lesser of Reported Reserve and Claim Liability) x Future Income Tax Rate x (1 – Present Value Factor)</p>	
<p>Actuarial estimate of claim liability < reported reserve, so use 5,370 as the lesser of the two</p>	
<p>Estimated Effect = (6,150 – 95% x 5,370) x 35% x (1 – 0.8818) = 43.38</p>	
Sample Solution #2	
<p>Net Claim Liability = (Net Discounted Estimate excl PfADs – S&S) + PfAD Investment Return Rate + PfAD Claims Development + PfAD Reinsurance Recovery = 4,700 – 200 + 150 + 470 + 50 = 5,170</p>	
<p>Net Reported Reserve = Gross Liabilities carried by ins – S&S recoverable – Reinsurance recoverable = 12,000 – 200 – 5,650 = 6,150</p>	
<p>Present Value Factor = (Net Discounted Estimate excl PfAD – S&S + PfAD Investment Return Rate)/Net Undiscounted Estimate = (4,700 – 200) + 150) / 5,500 = 0.8455</p>	
<p>Estimated Effect of Discounting the Asset for Future Income Taxes = (Reported Reserve – 95% of lesser of Reported Reserve and Claim Liability) x Future Income Tax Rate x (1 – Present Value Factor)</p>	
<p>Actuarial estimate of claim liability < reported reserve, so use 5,170 as the lesser of the two</p>	
<p>Estimated Effect = (6,150 – 95% x 5,170) x 35% x (1 – 0.8455) = 66.98</p>	
Sample Solution #3	
<p>PV Factor = (4700 + 150)/5500 = 88.18%</p>	
<p>Reported Claims Liability = 12000 – 5650 – 200 = 6150</p>	
<p>Actuary's estimate of claims liability = 4700 + 150 + 470 + 50 = 5370</p>	
<p>Minimum of above = 5370</p>	

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Effect of discounting future tax asset = $(6150 - 95\% * 5370) * 35\% * (1 - 88.18\%) = \43.37

EXAMINER'S REPORT

Candidates performed very well on this question. Candidates were expected to calculate the Net Claim Liability, Net Reported Reserve and the Present Value Factor before they could calculate the effect of discounting the asset for future income taxes.

The most common mistakes made by candidates involved using an incorrect formula for the Net Claim Liability and/or Net Reported Reserves. Calculation errors made by candidates were only penalized once.

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QUESTION 18	
TOTAL POINT VALUE: 5.5	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>The supervisory target level is 50% higher for the following reasons:</p> <ul style="list-style-type: none"> • Allow for an early warning signal. • The supervisory target level allows for all the risks specified in the MCT, as well as provides a margin for other risks. • Create a threshold for OSFI intervention and/or supervision. • Allow companies to access capital markets to regain financial strength. 	
Part b: 2.25 points	
<p>Net written premiums (NWP) calculation =</p> <p>Direct written premium in the past 12 months +Assumed written premium in the past 12 months -Ceded written premium in the past 12 months</p> <ul style="list-style-type: none"> • Personal Property NWP : $25,000 - 4,000 + 1,000 = 22,000$ • Automobile NWP : $60,000 - 5,000 + 2,000 = 57,000$ <p>Premium liabilities nets of PFADs calculation = Net premium liabilities – PFADs</p> <ul style="list-style-type: none"> • Personal Property: $7,000 - 700 = 6,300$ • Automobile: $23,000 - 2,500 = 21,500$ <p>Capital required for premium liabilities = MAX(30 % NWP; Premium liabilities nets of PFADs)</p> <ul style="list-style-type: none"> • Personal Property = $\text{Max}(30\% \times 22,000, 6,300) \times 20\% = 1,320$ • Automobile = $\text{Max}(30\% \times 57,000, 20,500) \times 15\% = 3,075$ <p>Capital required for unpaid claims= (Net unpaid claims discounted – PFADs) * risk factor</p> <ul style="list-style-type: none"> • Personal Property = $(80,000 - 7,000) \times 15\% = 10,950$ • Automobile = $(220,000 - 30,000) \times 10\% = 19,000$ <p>Letters of Credit limit = $30\% \times (\text{Unearned premiums ceded} + \text{outstanding losses recoverable})$</p> <p align="center">$= 30\% (5,000 + 3,000) = 2,400$</p> <p align="center">Because the Letters of Credit is less than the limit ($2,200 < 2,400$), can use all the amount</p> <p>Capital required for reinsurance ceded to unregistered insurers =</p> <p align="center">$\text{MAX}[1.15 \times (\text{Unearned premiums ceded} + \text{outstanding losses recoverable})$ $+ \text{Reinsurance receivable} - \text{Non-Owned deposits} - \text{Letters of Credit}; 0]$</p>	

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$$= \text{MAX}[1.15 \times (5,000 + 3,000) + 500 - 8,500 - 2,200; 0] = \text{MAX}[-1,000; 0] = 0$$

Capital required for insurance risk =

- Capital required for premium liabilities
- + Capital required for unpaid claims
- + Claims for Catastrophes
- + Margin required for reinsurance ceded to unregistered insurers

$$=(1,320 + 3,075) + (10,950 + 19,000) + 2,510 + 0 = 36,855$$

Part c: 0.75 point

Calculate Excess collateral =

$$\text{MAX}[\text{Non-Owned deposits} + \text{Letters of Credit} - \text{Reinsurance receivable} - 1.15 \times (\text{Unearned premiums ceded} + \text{outstanding losses recoverable}); 0]$$

$$=\text{MAX}[8,500 + 2,200 - 500 - 1.15 \times (5,000+3,000); 0] = 1,000$$

Reduction in capital required for excess collateral = Excess collateral / Total collateral

$$= 1,000 / (8,500 + 2,200) = 1,000 / 10,700 = 9.35\%$$

Capital required for Counterparty default risk for unregistered reinsurance collateral and SIRS

$$= (\text{Non-Owned deposits} + \text{Letters of Credit}) \times \text{risk factor} \\ * (1 - \text{reduction in capital required for excess collateral})$$

$$=(8,500 + 2,200) \times 0.25\% \times (1 - 9.35\%) = 24.25$$

Capital required for credit risk =

- Capital required for Counterparty default for balance sheet assets
- + Capital required for Counterparty default risk for off-balance sheet assets
- + Capital required for Counterparty default risk for unregistered reinsurance collateral and SIRS

$$= 3,000+1,500+24.25 = 4,524.25$$

Part d: 0.75 point

Total Capital required (CR) =

- Capital required for insurance risk + Capital required for market risk
- + Capital required for credit risk

$$= 36,855 + 2,000 + 500 + 6,000 + 2,500 + 100 + 4,524.25 = 52,479.25$$

Capital required for operational risk =

$$\text{Min}[30\% \times \text{CR}, 8.50\% \times \text{CR} + 2.5\% \times (\text{total direct written premium} \\ + 1.75\% \times (\text{Total assumed written premium}) + 2.5\% \times (\text{Total ceded written premium})]$$

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$$= \text{Min}[30\% \times 52,479.25, 8.50\% \times 52,479.25 + 2.5\% \times (25,000+60,000) + 1,75\% \times (1,000+2,000) + 2.5\% \times (4,000+5,000)] = 6,863$$

Part e: 0.75 point

$$A = \text{Capital required for Market risk} + \text{Capital required for Credit risk} \\ = 2,000+500+6,000+2,500+100+4,524.25 = 15,624.25$$

$$I = \text{Capital required for Insurance risk} \\ = 36,855$$

$$\text{Diversification credit} = A+I - (A^2+I^2+2 \times 0.5 \times A \times I)^{0.5} = 5,808$$

Purposes:

- Risk categories considered in the MCT are not perfectly correlated
- A company is not likely to incur the maximum possible loss for each risk simultaneously.
- Credit for diversifying risk across insurance and market/credit.
- Statistical independence of risk categories.

Part f: 0.5 point

Capital required at target =

$$\text{Capital required for insurance risk} + \text{Capital required for market risk} \\ + \text{Capital required for credit risk} + \text{Capital required for operational risk} \\ - \text{Diversification credit}$$

$$= 36,855 + 2,000+500+6,000+2,500+100+4,524.25 + 6,863 - 5808 = 53,534.25$$

$$\text{MCT} = \text{Capital available} / \text{Capital required at target}/1.5$$

$$= 52,050 / (44,871.25/1.5) = 146\%$$

OSFI reaction:

- Likely to increase its supervisory attention on this company which would generally include an early warning intervention status.
- OSFI is more likely to intervene

EXAMINER'S REPORT

Candidates were expected to show an understanding of the calculation of the MCT ratio and how OSFI should react if that ratio is below the supervisory target of 150%. Overall, they did well on this question.

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Part a
<ul style="list-style-type: none">• The candidates were expected to provide two elements to explain why OSFI sets its target at 150% instead of 100%.• Candidates performed well on this part.• Common errors made by candidates were:<ul style="list-style-type: none">○ They gave incomplete answers such as:<ul style="list-style-type: none">▪ Provide a buffer▪ Give a cushion▪ Cover unexpected losses○ Some candidates explained what will happen if the MCT is below 150%.
Part b
<ul style="list-style-type: none">• Candidates were expected to know how to compute the capital required for premium liabilities, the capital required for unpaid claims and the capital required for insurance risk.• Candidates were expected to calculate each component of insurance risk to get full credit.• Candidates performed well on this part.• Common errors made by candidates:<ul style="list-style-type: none">○ Calculation errors.○ Forgot to exclude PFADs to net premium liabilities and to net unpaid claims discounted.○ Forgot to compute the capital required for premium liabilities as the maximum of 30% of the net written premium and premium liabilities minus PFADs.○ Used the unearned premium reserve or direct written premium instead of net written premium in the calculation of capital required for premium liabilities.○ Forgot to add a margin of 15% to the sum of unearned premium ceded outstanding losses cede to unregistered reinsurers.○ Forgot to include the capital required for catastrophes which is given.
Part c
<ul style="list-style-type: none">• Candidates were expected to know how to calculate the capital required for reinsurance collateral before excess reduction and total capital required for credit risk.• Candidates were expected to calculate adequately the total capital required for unregistered reinsurance collateral including the reduction of excess collateral and the total capital required for credit risk to get full mark.• Candidates performed pretty well on this part. The most common error was to forget to calculate the reduction in capital required for excess collateral. Other errors include:<ul style="list-style-type: none">○ Calculation errors.○ Forgot to calculate the total capital required for credit risk.
Part d
<ul style="list-style-type: none">• The candidates were expected to know that the capital required for operational risk is function of direct written premium, assumed written premium, ceded written premium and the sum of capital required for insurance, market, credit risks.• To get full credit, candidates needed to calculate the capital required for operational risk using the formula.• Candidates performed very well on this part.• Common errors made by candidates:<ul style="list-style-type: none">○ Calculation errors.

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- Forgot to use the sum of capital required for insurance risk, credit risk and market risk in the calculation.
- Forgot to use the capital required for insurance, market and credit risk in the calculation.
- Subtracted the capital required for ceded written premium instead of adding it.
- Forgot to compute operational risk as the minimum of the two components.

Part e

- The candidates were expected to know that the diversification benefit is a function of the capital required for insurance risk, market risk and credit risk. Also, the candidates should know the purpose of the credit.
- To get full credit, candidates needed to calculate the diversification credit with the right formula and explain why that credit is used.
- Candidates performed very well on that part. The most common error was that the formula was not correctly stated. Most other errors were calculation errors.

Part f

- The candidates were expected how to compute the MCT ratio and provide OSFI reaction.
- To get full credit, candidates needed to calculate the MCT ratio and describe how OSFI should react based on that ratio.
- Candidates performed well on this part.
- Common errors made by candidates:
 - Used the wrong formula for MCT
 - Write that OSFI will take control if $MCT < 100\%$.
 - Provided the reactions of the insurer instead of those from OSFI.

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QUESTION 19	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
<ul style="list-style-type: none">• availability: the extent to which the capital element is fully paid in and available to absorb losses;• permanence: the period for, and extent to which, the capital element is available;• absence of encumbrances and mandatory servicing costs: the extent to which the capital element is free from mandatory payments or encumbrances;• subordination: the extent to which and the circumstances under which the capital element is subordinated to the rights of policyholders and creditors of the insurer in an insolvency or winding-up	
EXAMINER'S REPORT	
<p>The candidate was expected to know the primary considerations that define the capital available for the purpose of measuring capital adequacy.</p> <p>Most candidates were able to identify and describe at least 2 considerations.</p>	

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QUESTION 20	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 1.5 points	
<p>Sample #1:</p> <ul style="list-style-type: none"> • Select between the 95th and 99th percentile (accept more conservative answer) for a plausible adverse scenario, in this case it's 8% • Calculate capital available: $13500 - 0.08 * 35000 = 10700$ • Calculate unpaid claims capital required: $3200 * (1.08) = 3456$ • Calculate operational risk margin: $Operational\ risk: 1942 + (0.08 * 3200 + 1234 - 1200) * 0.085 = 1967$ $800 + 3456 + 2200 + 1234 + 2000 + 600 + 200 = 10490$ $Cap = 10,490 \times 30\% = 3147$. The cap doesn't apply; the final operation risk margin is 1967 • Calculate the MCT ratio: $10700 / ((800 + 3456 + 2200 + 1234 + 2000 + 600 + 200 + 1967 - 1325) / 1.5) = 144\%$ <p>Sample #2:</p> <ul style="list-style-type: none"> • Select above 99th percentile, in this case it's 15% • Calculate capital available: $13500 - 0.15 * 35000 = 8250$ • Calculate unpaid claims capital required: $3200 * (1.15) = 3680$ • Calculate operational risk margin: $Operational\ risk: 1942 + (0.15 * 3200 + 1234 - 1200) * 0.085 = 1986$ $800 + 3680 + 2200 + 1234 + 2000 + 600 + 200 = 10714$ $Cap = 10,714 \times 30\% = 3214$. The cap doesn't apply; the final operation risk margin is 1986 • Calculate the MCT ratio: $8250 / ((10,714 + 1986 - 1325) / 1.5) = 109\%$ 	
Part b: 0.5 point	
<ul style="list-style-type: none"> • Post-event inflation (i.e., a significant temporary increase in the cost of labour and materials) following a catastrophe resulting in increases to the ultimate cost of unpaid claims as well as future claims; • Post-event inflation in regions not directly affected by the catastrophic event; • Forced sale or liquidation of assets; • Increased Property and Casualty Insurance Compensation Corporation (PACICC) assessments resulting from failure of other insurers • Rating agency downgrade • Insolvency of one or more reinsurers accounting for a significant portion of the insurer's reinsurance coverage • Increases in the policy liabilities related to current reinsurance contracts that are swing-rated, have variable commission, or require reinstatements • Loss of reinsurance coverage for remainder of term • Increases in reinsurance rates or non-availability of reinsurance at the next renewal 	

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Part c: 0.5 point
<ul style="list-style-type: none">• Reviewing reinsurance coverage, type, or contract terms at renewal• Implementing rate increases, where possible• Restricting writing in hazard-prone areas• Reviewing the target mix by line of business or jurisdiction• Reviewing the type of products offered, such as writing more subscription policies• Selling or reinvesting assets• Reviewing claim processing (not for pay claim faster)• Reviewing the current reserving methodology
Part d: 0.5 point
The financial condition of the insurer is satisfactory since throughout the forecast period, under the base scenario and all plausible scenarios, the <u>statement value of the insurer's assets is greater than the statement value of its liabilities (or at a minimum, to maintain an MCT ratio of 100%),</u> and under the <u>base scenario, the insurer meets the supervisory target capital requirement of 150%.</u>
EXAMINER'S REPORT
Part a
In the paper, it was suggested that testing the adverse scenario using a level between 95% to 99% as a plausible scenario. We also accepted selecting a level of 99.5% as the paper only provides a suggestion. Any level below 95% was not considered as adverse. Candidates generally performed well on this part. Common errors include: <ul style="list-style-type: none">• Forgot to adjust the capital available• Assumed there would be impact on the asset (e.g. need to sell investments after the reserves increase)
Part b
Candidates were expected to know what a ripple effect is. Some confused ripple effect and management actions. Some candidates stated ripple effect that is related to reinsurers. Although the question did mention that there is no reinsurance for this company, we still gave credit for these ripple effects.
Part c
Candidates were expected to know what management could do in this scenario. Most candidates were able to come up with a least one management action.
Part d
We expected candidates to know satisfactory conditions for a DCAT. Most candidates performed well on this part. An error that the candidates made is that they thought OSFI would intervene when the MCT fell under the regulatory limit under the adverse scenario.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 21	
TOTAL POINT VALUE: 1	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
<ul style="list-style-type: none">• The equity is fairly similar between the two dates, so the differences in MCT ratios will mainly be driven by differences in capital required OR equities have increased• Real estate has increased• Premium liabilities have increased• Claim liabilities have increased• Operational risk margin has increased• Insurance risk increased or Capital required for unearned premium/claims liabilities• Effect of change in the above on capital required• Capital available should stay relatively the same since total equity hasn't changed much	
The MCT ratio is likely to be lower at December 31, 2014.	
EXAMINER'S REPORT	
Candidates earned full credit as long as a number of elements were stated on the impact of capital required. Most candidates earned full credit and understood the concepts in this question. .	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 22	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Net Income for the year = $51,500 - 38,625 - 12,875 + 2,000 + 250 - 250 - 540 = 1,460$</p> <p>Other comprehensive income for the year = $-2,000$</p> <p>Equity at December 31, 2015 = $20,000 + 1,460 - 2,000 = 19,460$</p>	
Part b: 0.75 point	
<p>Return on equity:</p> <p>MSA method = $1,460 / 19,460 = 7.5\%$</p> <p>P&C-1 method = $2 \times 1,460 / (20,000 + 19,460) = 7.4\%$</p> <p>Underwriting leverage ratio</p> <p>NWP / Equity = $53,000 / 19,460 = 272\%$</p> <p>Net combined ratio = (Net incurred losses + operating expenses) / Net earned premiums</p> <p>Net combined ratio = $(38,625 + 12,875) / 51,500 = 100\%$</p> <p>Also accepted two-year combined, and combined ratio where operating expenses are divided by written premium.</p>	
Part c: 1 point	
<ul style="list-style-type: none"> • poor underwriting performance, as evidenced by the net combined ratio of 100%. • No income was generated from underwriting operations in 2015. However, the company had net realized investment gains during the year, leading to a favorable return on equity for the year ended December 31, 2015 • the company had unrealized investment losses which outweighed the realized investment gains during the year, resulting in a decrease in equity. Overall, the financial performance in the year was weak. • The MCT ratio decreased, signalling a decrease in the capital available relative to the capital required to support the company's operations • The equity decreased during the year, which has resulted in an increase in the company's leverage ratio. The company's financial condition has likely deteriorated. • ROE Acceptable range is $> 5.4\%$; meets the standard. • The recommended maximum for Net U/W Leverage is 300%; meets the standard. • The net combined ratio is a measure of underwriting performance. A ratio of 100% indicates that there was no underwriting profit or loss for the year. 	
EXAMINER'S REPORT	
<ul style="list-style-type: none"> • The candidate was expected to know how to calculate equity and key financial metrics based on information provided. • Candidates generally scored well on this question. <ul style="list-style-type: none"> ○ Some candidates had difficulty calculating the equity. 	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a
<ul style="list-style-type: none">• The candidate was expected to know how to calculate equity based on prior year-end equity, net income and other comprehensive income.• The candidate was expected to calculate net income correctly to obtain full credit.• Some candidates forgot to consider other comprehensive income when calculating equity.• Some candidates incorrectly calculated net income by missing some elements in the formula.• If the candidate included other comprehensive income in net income, they will still get the correct equity, but that would lead to incorrect ROE in part b). We did not penalize twice the candidates in this situation.
Part b
<ul style="list-style-type: none">• The candidate was expected to know how to calculate ROE, net underwriting leverage ratio and net combined ratio.• The most common error was that some candidates did not know the definition of the metrics, therefore could not calculate them correctly.
Part c
<ul style="list-style-type: none">• The candidate was expected to comment on the company's financial health based on information provided and metrics calculated in part b.• Any reasonable answer was accepted.• If the candidate made a mistake in part b), they could still get full credit in part c) as long as the comment is consistent with the answer from part b) and is reasonable.• If the candidate mentioned the MSA threshold but quoting the wrong threshold, the answer was not accepted.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 23	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 1.5 points	
<i>Any combination of the following were accepted, provided that different key elements were described:</i>	
<ul style="list-style-type: none">• <i>Accepted answer 1</i> Identify and Assess Risk ORSA is a tool to help an insurer with identifying and assessing risk that could have a material impact on its financial health. Relate Risk to Capital Each company determines its own potential risks and the capital it should hold for each of them, if any. An insurer should set its own internal capital ratio. Monitor and Report Insurer should use a model with an understanding of its underlying assumptions, methodologies and assumptions. It should report to the Board at least once a year stating the most material risks, the risk appetite, the potential management actions, etc.• <i>Accepted answer 2</i> Comprehensive Identification and Assessment of Risks Consideration of system-wide impacts and concentration/interaction of risks stress scenarios. Know measurably foreseeable and emerging risks that may have an impact of the company's ability to continue operations. Relating Risk to Capital Tailored to the nature, scale and complexity of the insurer. Determining capital requirements (how much capital for each risk, aggregation/diversification), setting internal targets and integration with other business areas. Internal Controls and Objective Review Internal controls to ensure risk appetite is being adhere to. Objective reviews of ORSA to ensure its integrity, accuracy and completeness.• <i>Accepted answer 3</i> Relate Risk to Capital Depending on the nature, scale and complexity of the operations, the insurer will need a different level of capital. It must set its required capital and see at what level of internal target it could operate to minimize OSFI intervention and let management react to adverse events.	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Board Oversight and Senior Management Responsibility

It is important to have Board supervising the ORSA process and ensuring that Senior Management implements it correctly. The Board should be able to understand decisions and plans integrated by Senior Management.

Reporting and Monitoring

There should be a report made to the Senior Management that is complete and allows the management to understand key risks and their trends, the assumptions made, analyze if capital is adequate and sufficient and that would let them analyze future capital needs.

- *Accepted answer 4*

Comprehensive Identification and Assessment of Risks

All risks should be identified and assessed under normal and stressed situations. Risk mitigation and reinsurance should also be assessed.

Relating Risk to Capital

Using standard approach or internal model approach (depending on the risk), capital should be charged for each risk. Also internal target should be calculated so the company doesn't fall below Supervisory Target. Stress testing and DCAT should be used to determine the internal target.

Board Oversight and Senior Management Oversight

Board has the ultimate responsibility and Senior Management should implement and manage the ORSA process and report key findings to the Board.

- *Accepted answer 5*

Comprehensive Identification and Assessment of Risk

Insurer should identify, define and assess all know, reasonably foreseeable, emerging and other relevant risks that has the potential of impacting operations, under both normal and stressed situations.

Relating Risks to Capital

Internal Targets should be set to reflect the insurer's risk profiles, regarding its scope and nature of operations.

Reporting and Monitoring

ORSA should be assessed periodically so that risks are consistently evaluated and plans are prepared to mitigate risks.

- *Accepted answer 6*

Relating Risks to Capital

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

Insurer should consider all the reasonably foreseeable risks that it may face that threatens its financial position. Insurer can use scenario/sensitivity testing to identify capital required to support the risks.

Internal Audit and Objective Review

ORSA should be subject to regular audit and review for effectiveness, reasonableness of results, appropriateness of assumptions and to see if it fits in risk appetite framework. The review should be done by a person of high competence, who did not directly participate in the part of ORSA being reviewed.

Board Oversight and Senior Management Responsibilities

Board oversees the whole ORSA. It must understand the impact of adverse events on financial condition and know what Senior Management implements, plans. It probes, questions and seeks assurance that what Senior Management is doing is consistent with what's envisioned and approved by the Board. Senior Management implements the ORSA at an operational level and makes sure there are adequate controls. It also answers to Board's questions.

- *Accepted answer 7*

Board Oversight and Senior Management Responsibility

The insurer's Board should review and discuss the ORSA as well as any changes to the ORSA. The Board should understand the decisions, plans and policies being undertaken by Senior Management with respect to the ORSA and its potential impacts on the insurer.

Monitoring and Reporting

The ORSA should be performed on a regular basis so that it continues to provide relevant information for an insurer's management processes. It should be clearly and formally documented in a report to the Board at least annually.

Internal Controls and Objective Review

ORSA must have a review process to ensure that the risks identified haven't changed and the process to quantify risks is still adequate. ORSA must have internal control to ensure it is appropriate with risk appetite framework. It must be verified by an external reviewer not involved in ORSA internal process.

Part b: 0.5 point

Any of the following was accepted:

- *Accepted answer 1*

The statement is not correct. The ORSA is an internal assessment process, tailored to an insurer's own risk profile and appetite, and reflective of the nature, scale and complexity of the insurer.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

- *Accepted answer 2*

Not true as ORSA is meant to be an internal assessment of own risks. It allows insurer to enhance understanding of the relationship between its risk profile and capital needs. The ORSA is tailored to the size, scale, complexity and operations of the insurer.

- *Accepted answer 3*

Although the targets and risks will be different for each company, each needs to complete the ORSA according to the same guideline. "Same process" is appropriate way to describe ORSA process.

- *Accepted answer 4*

The statement is in relation to the overall framework and intention. The ORSA is not subject to approval and will vary by company based on business strategy, risk appetite, risk profile, capital structure and nature, scale and complexity of business. However, all ORSA should be forward-looking, consistent with capital and financial strategies and allow management to understand capital implication of risk profile.

- *Accepted answer 5*

Caution needs to be exercised on "same", because ORSA process is principle-based and designed to be unique based on the complexity and risk profile of insurer. No one set of procedures will fit all insurers and this not the intended purpose of ORSA.

- *Accepted answer 6*

This statement does not make sense as the ORSA is tailored to the company and must therefore vary for each company based on the company's characteristics, including risk appetite, nature of the business and diversification of business.

- *Accepted answer 7*

The principles of ORSA are the same for all companies but the specific way in which ORSA is implemented should differ by company, since each company has a different risk profile.

- *Accepted answer 8*

The overall process in broad terms is the same but the whole point in ORSA is to assess your own risks and understand their relationship to capital requirements, relative to the Board's approved risk appetite and tolerance and company's business and strategic plans which would vary by company.

- *Accepted answer 9*

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

The ORSA differs by individual company because the underlying risks are different and the financial resources available are also different. The process is not the same but each company should complete its ORSA evaluation.

- *Accepted answer 10*

This is incorrect.

OSFI does not prescribe any specific ORSA process. ORSA is principle-based. ORSA is meant for company to establish their internal target capital requirement that reflects its own risk profile and risk appetite. Companies can determine how they pursue the ORSA process based on their own evaluation of their total risks. OSFI simply provide comments and recommendations on the company's ORSA process.

EXAMINER'S REPORT

Candidates generally performed well on this question.

Candidates were expected to show overall knowledge of principles-based solvency regulation, namely, ORSA.

Part a

Candidates performed well on this part and many were able to properly describe at least two key elements of ORSA. Candidates were expected to have general knowledge of the elements of ORSA process and be able to describe some of them. Candidates lost credit for not providing three elements or for providing too brief descriptions.

Part b

Candidates performed well on this part and most of the answers received at least partial credit. Candidates were expected to express their point of view of the statement and either recognize that ORSA should be tailored to the company and/or that ORSA is principles-based. Both points of view (statement true or false) could get full credit as long as the arguments were sufficiently detailed.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 24	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>The following three items, or a similar idea, were required to get full credit:</p> <ul style="list-style-type: none">• Balance sheet strength• Operating performance• Business profile	
<p>The following was accepted in place of balance sheet strength:</p> <ul style="list-style-type: none">○ BCAR○ Underwriting leverage○ Financial leverage○ Asset leverage○ Balance sheet risk○ Underwriting risk, credit risk and market risk○ Capital and surplus○ Capital adequacy○ Adjusted surplus○ Soundness of balance sheet	
<p>The following was accepted in place of operating performance:</p> <ul style="list-style-type: none">○ Operational management○ Operating risk○ Financial leverage○ Asset leverage○ Earning performance○ Operational risk○ Operational strength○ Historical results and stability	
<p>The following was accepted in place of business profile:</p> <ul style="list-style-type: none">○ Qualitative management e.g. ERM practice○ Evaluation of company's risk management○ Quality of risk management○ Enterprise risk management policies (qualitative assessment)○ Company structure and size○ Quality and experience of management	
Part b: 1.5 points	
<p>Candidates obtained full credit for identifying the three risk categories and providing a brief description for each from the following:</p> <ul style="list-style-type: none">• Investment risk or Market risk or Liquidity risk or Asset risk<ul style="list-style-type: none">○ Three main risk components: fixed-income securities, equities and interest rate.○ Risk arising out of change in interest rate, foreign exchange rate, equity, real estate	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

<p>and other.</p> <ul style="list-style-type: none">○ Capital charges are applied to different asset classes based on the risk of default, illiquidity and market-value decline.○ It is the risk of loss resulting from decrease of investments value. <ul style="list-style-type: none">● Credit risk<ul style="list-style-type: none">○ Capital charges are applied to different receivable balances to reflect third-party default risk.○ Counterparty is not able to pay or does not pay what he was supposed to. i.e. possibility of default on obligations.○ It is the counterparty default risk that pertains to the collection of receivables.○ The risk that receivables or recoverables are uncollectible.● Underwriting risk or Insurance risk<ul style="list-style-type: none">○ Capital charges are applied to loss and loss-adjustment expense reserves and the net premiums written.○ Measure how the company is exposed to adverse claim development and underwriting risk.○ Pricing and reserving risk from selling insurance including, as components, net loss reserves and net written premiums.

EXAMINER'S REPORT

Candidates were expected to know what A.M. Best considers when determining companies' financial strength ratings. Very few candidates obtained full marks and part a. was generally not well answered. The question required a certain level of comprehension of A.M. Best overall rating process and not only knowledge of BCAR formula.

Part a

Candidates were expected to know that A.M. Best considers financial and non-financial information when determining companies' financial strength ratings. This part was not well answered as most of the candidates only focused on balance sheet related items, which is only one of the components of A.M. Best's analysis of a company.

Part b

Candidates generally scored well on this part. The most common errors were to provide two risks that were part of the same category and to not properly describe the risk categories identified.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 25	
TOTAL POINT VALUE: 1.5	LEARNING OBJECTIVE: C1 & D1
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Claims Development = 2.5% - 20%</p> <p>Recovery For Reinsurance Ceded = 0% - 15%</p> <p>Investment Return: 25 – 200 BP</p>	
Part b: 0.5 point	
<ul style="list-style-type: none"> • Reinsurer financial distress/failure/insolvency resulting in risk of not recovering ceded claims. • Hyperinflation causing steep increases in the cost of claims • A new line of business / lack of data to use when reserving • A change in a tort system or regulatory regime affecting future claims • A change in internal benefit levels or retention levels that renders past experience obsolete • Economic recession / volatile financial market causing high investment return risk • Estimate of unpaid claims is unusually low and MfAD is applied as a percentage • A significant degree of uncertainty in the assumptions used • Stochastic model suggests abnormally high volatility, the deterministic limit may be inappropriate • When company experience has been especially volatile and leads to uncertainty in the estimate • Abnormally high inherent risk on the future development for a line or an abnormally large number of pending legal cases (Asbestos) 	
Part c: 0.25 point	
<ul style="list-style-type: none"> • A reinsurer is in runoff where all remaining treaties are commuted • Insurer has stop loss coverage that is reserved at the stop loss limit • Line of business where all payments are certain or subject to a schedule, including structured settlements • The line of business has been commuted to a reinsurer and is in runoff 	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
Candidates were expected to recall the most recent ranges for the margins for adverse development and be able to identify the appropriate scenarios where these ranges should not apply. Generally, candidates did quite well on parts a) and b), but poorly on part c). Generally, candidates identified situations that warranted a lower margin within the range, but not extreme enough to deviate from the range.
Part a
Candidates were expected to be able to quote the most recent ranges for the margins for adverse deviation. Ranges needed to be correct (using either percentage or basis points) to receive full credit. Common errors involved using outdated ranges from before the changes a few years ago, or confusing percentages and basis points in the response.
Part b
Candidates were expected to identify which extreme situations could justify using a margin above the ranges stated in part a. A wide range of extreme situations were accepted, so long as they resulted in a very high degree of uncertainty in the reserve estimates. Some candidates' situations weren't quite extreme enough, such as simply saying a longer tailed line of business.
Part c
Candidates were expected to identify an extreme situation where the stated ranges would be too high. This was more difficult for candidates, and many gave examples of lower-risk reserve estimates that were not extreme enough to warrant a selection below the range. For example, a business in runoff or with a lower reserve level.

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 26	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: D1
SAMPLE ANSWERS	
Part a: 2 points	
<p>Availability of data: if ceded data is very sparse and not credible, may use option A Discount rate: if use different discount rate for ceded and net, may want to use option B Change of reinsurance program: if reinsurance program has changed significantly over the period, may want to use option A Payment Pattern: If payment pattern is very different between ceded business and retain business use option A</p>	
Part b: 0.25 point	
<p>PV considers only the time value of money while APV adds a margin for development on claims, recovery from reinsurance and investment rate of return.</p>	
EXAMINER'S REPORT	
Part a	
<p>Few candidates received full marks on this question but most received partial credit. A common error was that candidates thought that ceded data would not be available rather than realizing ceded data has to be available but may be sparse or limited. Overall, candidates seemed to understand the question and concepts but didn't provide enough information to get full marks. Candidates often did not provide four considerations or the descriptions were missing or incorrect.</p>	
Part b	
<p>Most candidates received full credit.</p>	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 27	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE: D1
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Sample Answer 1</p> <p>Held-to-Maturity are measured on an amortized cost in the financial statement Available for sale are measured on a fair value Held-for-trading are measured on a fair value</p> <p>Sample Answer 2</p> <p>i = measured at Book Value ii = measured at Fair value iii = measured at fair value</p> <p>Book Value and Amortized Cost were both accepted for i. Fair Value and Market Value were both accepted for ii and iii. Additional detail on the initial measurement basis of the asset was not required.</p>	
Part b: 1 point	
<p>Advantage awarded full marks:</p> <ul style="list-style-type: none"> Asset value / net income not affected by changes in fair value, reducing volatility and adding stability. <p>Disadvantages awarded full marks:</p> <ul style="list-style-type: none"> If more than an insignificant amount of the assets are sold, the category is tainted and all held-to-maturity assets must be reclassified as available-for-sale for 2 years Reduced flexibility in managing the portfolio for rebalancing or strategic benefit Creates significant reporting challenges if asset sale/redeployment becomes attractive Does not allow for an effective hedge of the liability portfolio, creating swings in net income when there are changes to the interest rate 	
Part c: 0.5 point	
<p>Sample Answer 1</p> <p>Market rate down -> IRR down Bond value up so OCI up PV of Liab up so Net Income down</p> <p>Sample Answer 2</p> <p>Market rate down -> Asset Value up -> Policy Liability up</p> <p>So the increase in asset will be in other comprehensive income while the change in policy liability in net income. So OCI up and net income down the overall impact to equity is uncertain due to the offset in OCI and net income.</p>	

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
<p>Candidates were expected to recall the basis of measuring the bond categories and to demonstrate knowledge of the implications of these measurement bases including effects on the balance sheet accounts.</p> <p>Overall, candidates did very well on this question. Nearly all candidates correctly identified all three measurement bases on part a, with a good performance on parts b and c.</p>
<p>Part a</p> <p>Candidates were expected to be able to recall the various measurement bases for the three bond categories. Candidates performed extremely well on this question. A common error was to provide Original Cost or Historical Cost where Amortized Cost was the appropriate response.</p>
<p>Part b</p> <p>Candidates were expected to clearly describe any advantage and disadvantage for the Held-to-maturity category. Performance was good on this part. One common error was to simply say that a disadvantage was that the bond would not gain from interest rate decreases or an advantage as the bond would not have losses from interest rate increases. This response simply does not display enough insight into the implications of the category.</p>
<p>Part c</p> <p>Candidates were expected to detail the effects on the assets, liabilities and equity components of the balance sheet as a result of the market rate decrease. Performance was good on this part. Common errors involved omitting some of the impacts (for example, describing asset and liability impacts without mentioning equity at all), or misreading the question and responding as if it was an interest rate increase. Both of these situations were awarded partial credit.</p>

EXAM 6-CANADA SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 28	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: D1
SAMPLE ANSWERS	
Part a: 0.5 point	
<p>Sample #1 Materiality is a defined threshold that is the minimum deviation required to change the decision of the individual considering the work.</p> <p>Sample #2 An omission, understatement or overstatement is material if in the opinion of the actuary, it could materially impact the user's decision making process or its expectations.</p>	
Part b: 1.5 point	
<p>Size of the company: The bigger the company, the less impact a small variation will have on the estimate and its interpretation/ For a small company 10 million might be very large as materiality standard but for a large company it is not high enough/ Small company less access to capital</p> <p>Type of business: The materiality level is going to change depending on the type of business</p> <p>Maturity of a company: A mature company has a better understanding of what is material. A new company may choose to be more conservative at first in selecting a materiality standard.</p> <p>Net retention: Material standard will vary depending on reinsurance arrangements and the portion the insurer keeps.</p>	
EXAMINER'S REPORT	
Part a	
Candidates did well on this part. Some candidates lost credit due to putting an incomplete definition.	
Part b	
Candidates were able to identify the 3 characteristics but had difficulty describing them. They often had the answer reversed, e.g. a higher dollar materiality standard was more conservative, rather than less conservative. Candidates often made the error of assuming a company's financial condition impacted their materiality.	