Exam 7-Canada
Annual Statement, Taxation, and Regulation

May 7, 2003

INSTRUCTIONS TO CANDIDATES

1. This 100 point examination consists of 59 questions divided into two sections. Section I contains 20 multiple choice questions worth 1 point each. Section II contains 39 problem and essay questions worth a total of 80 points.

2. To answer the multiple choice questions, use the short-answer card provided and a number 2 or HB pencil. Mark your short-answer card during the examination period. No additional time will be allowed for this after the exam has ended. Please make your marks dark and fill in the spaces completely. Fill in that it is Spring 2003, and the exam number, 7-Canada.

Darken the spaces corresponding to your Candidate ID number. Five rows are available. If your Candidate ID number is fewer than 5 digits, include leading zeros. (For example, if your Candidate ID number is 987, consider that your Candidate ID number is 00987, enter a zero on the first row, 0 on the second row, 9 on the third row, 8 on the fourth row, and 7 on the fifth [last] row.) Please write in your Candidate ID number next to the place where you darken the spaces for your Candidate ID number. Your name, or any other identifying mark, must not appear on the short-answer card.

For each of the multiple choice questions, select the one best answer and fill in the corresponding letter. One quarter of the point value of the question will be subtracted for each incorrect answer. No points will be added or subtracted for responses left blank.

3. For the problem and essay questions, the number of points for each full question or 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 other colors.

Write your Candidate ID number and the examination number, 7C, at the top of each answer sheet. Your name, or any other identifying mark, must not appear.

Do not answer more than one question on a single sheet of paper. Write on only the lined side of the paper, and be careful to give the number of the question you are answering on each sheet.

CONTINUE TO NEXT PAGE OF INSTRUCTIONS
The answer should be concise and confined to the question as posed. **When a list of a specific size is requested, do not offer more items in your list than the number requested.** For example, if you are requested to list three items, only the first three responses will be graded.

**In order to receive full credit or to maximize partial credit on mathematical and computational questions, you must clearly outline your approach in either verbal or mathematical form, showing calculations where necessary.** Also, you must clearly specify any additional assumptions you have made to answer the question.

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

5. 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.

6. 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.

7. At the beginning of the examination, check through the exam booklet for any missing or defective pages. The supervisor has additional exams for those candidates who have defective exam booklets.

8. **Candidates must remain in the examination center until two hours after the start of the examination.** 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.

9. At the end of the examination, place the short-answer card and all answer sheets in the Examination Envelope. Please insert your answer pages in your envelope in question number order. Insert a numbered page for each question, even if you have not attempted to answer that question. **BEFORE YOU TURN IN THE EXAMINATION ENVELOPE TO THE SUPERVISOR, BE SURE TO SIGN IT IN THE SPACE PROVIDED ABOVE THE CUT-OUT WINDOW.**

Anything written in the examination booklet will not be graded. Only the short-answer card and the answer sheets will be graded.

10. If you have brought a self-addressed, stamped envelope, you may put the examination booklet and scrap paper inside and submit it separately to the supervisor. It will be mailed to you. (Do not put the self-addressed stamped envelope inside the Examination Envelope.)

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

**CONTINUE TO NEXT PAGE OF INSTRUCTIONS**
Candidates may obtain a copy of the examination by contacting the CAS Office.

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

11. 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 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.

12. An examination survey and postage-paid reply envelope are included with the examination. No postage is necessary for surveys mailed within the United States. Candidates mailing the survey outside the United States should use the courtesy reply envelope distributed by your exam supervisor. Please complete the survey and leave it with the examination supervisor, or take the survey and envelope with you when leaving the examination center. Please submit the survey to the CAS Office by May 27, 2003. Please do not enclose the survey in the Examination Envelope.

END OF INSTRUCTIONS
EXAM 7 - CANADA, SPRING 2003 - SECTION I

SECTION I, QUESTIONS 1- 20. MULTIPLE CHOICE QUESTIONS (1 POINT EACH)

1. Which of the following are defences to strict liability?

   1. Act of God
   2. Deliberate Act of Third Person
   3. Consent of the Plaintiff

   A. 1 only
   B. 3 only
   C. 2 and 3 only
   D. 1, 2, and 3
   E. None of A, B, C, or D

2. In personal injury cases, special damages refer to which of the following?

   A. All non-pecuniary losses only
   B. All pre-trial non-pecuniary losses only
   C. All pecuniary losses only
   D. All pre-trial pecuniary losses only
   E. None of A, B, C, or D

3. In The Attorney-General for Canada v. The Attorney-General for Alberta (1916), the Judicial Committee of the Privy Council decision concluded which of the following, with respect to the licensing provisions of the federal Insurance Act of 1910?

   1. The provisions were “intra vires.”
   2. A company incorporated in a province could operate in other provinces without permission from the federal government.
   3. The legislation could be enacted under the federal government’s general powers.

   A. 1 only
   B. 2 only
   C. 3 only
   D. 1 and 2 only
   E. 2 and 3 only

CONTINUED ON NEXT PAGE
4. The duty of disclosure applicable to fire insurance differs in the rules that evolved through case law and the “statutory condition” found in most Canadian provinces. One such difference is that in the statutory condition:

A. It is irrelevant whether the information not disclosed is material to the loss.
B. An omission will always void the contract.
C. For a misrepresentation, the customer’s intent is irrelevant.
D. The entire contract is rendered void due to nondisclosure or misrepresentation.
E. The insured must prove that the omitted facts were not relevant to the insurance.

5. In the case of Fletcher v. Manitoba Public Insurance Corporation, what was the issue raised with regards to government insurers?

A. The lack of competition.
B. The minimum amount of compulsory insurance.
C. The responsibility to inform customers about the type of coverage available.
D. The type of insurance coverage that should be offered.
E. Whether private insurers should be allowed to offer coverage over the minimum compulsory coverage.

6. According to Ettlinger et al, State Insurance Regulation, which of the following statements is most accurate about the differences between noncompetitive rating laws and competitive rating laws in U.S. states?

A. Studies have shown that noncompetitive rating law states have higher loss ratios than competitive rating law states.
B. The absence of a noncompetitive rating law generally leads to excessive rates for insurance.
C. Competitive rating laws tend to narrow the range of price dispersion for personal lines.
D. Evidence shows the existence of a regulatory lag in noncompetitive rating law states.
E. Regulation of rates is unnecessary in noncompetitive markets.
7. According to Ghezzi, "Actuarial Perspective on Property/Casualty Redlining Issues," when considering a refinement of pricing to help minimize redlining issues, which of the following is the most appropriate approach to take?

A. Devise more homogeneous classes.
B. Use rating classifications already used in the industry.
C. Use urban/rural split to classify risks.
D. Identify correlations between risk characteristics and loss propensity.
E. Review underwriting guidelines.

8. After a major earthquake in Big City, the Prime Minister declares the city a disaster area and establishes a program that provides low-interest loans for Big City's residents. Which category best describes the nature of this program?

A. Government Indemnity
B. Government Insurance
C. Federal Compulsory program
D. Social Welfare
E. Social Insurance

9. Which of the following statements about automobile assigned risk plans is true?

A. If an insurer makes a profit from a policy written as part of the program, the insurer keeps that profit.
B. If an insurer suffers a loss from a policy written as part of the program, the insurer is reimbursed for that loss from the government.
C. The servicing of claims for insureds participating in the program is handled by a central organization for all insurers.
D. High-risk drivers covered in these plans typically subsidize the rates of non-high-risk drivers.
E. The insurer can choose the premium to charge for the policies written as part of the program.
10. Which of the following is an eligibility requirement for being a Servicing Carrier of the Facility Association in Ontario?

1. The Servicing Carrier must service Facility Association policies from an office located in Ontario.
2. The Servicing Carrier must have voluntary market policies in force in Ontario.
3. The Servicing Carrier must have claims facilities in Ontario.

A. 1 only  
B. 2 only  
C. 3 only  
D. 2 and 3 only  
E. None of 1, 2, and 3

11. For which of the following costs are insurers entitled to a full reimbursement from the Groupement des Assureurs Automobiles, with respect to transferred risks under the Market Availability Program?

1. General operating expenses  
2. Fees paid to independent claim adjusters  
3. Costs incurred for the use of their own claim adjusters

A. 1 only  
B. 2 only  
C. 1 and 3 only  
D. 2 and 3 only  
E. 1, 2, and 3

12. In Canada, which of the following types of policies are generally included in the Property and Casualty Insurance Compensation Corporation’s plan?

A. Accident & Sickness  
B. Credit  
C. Employers’ Liability  
D. Marine  
E. Medical Malpractice

CONTINUED ON NEXT PAGE
13. Which of the following are generally true with regards to statutory surplus for general liability insurers in the United States?

1. A decrease in non-admitted assets, given a fixed amount of total assets, is a charge to policyholders’ surplus.
2. An increase in the “excess of statutory reserves over statement reserves” reduces policyholders’ surplus.
3. Invested capital is greater than statutory surplus.

A. 1 only  
B. 2 only  
C. 3 only  
D. 1 and 2 only  
E. 2 and 3 only

14. When calculating the capital tax base for the federal large corporations tax of a Canadian property and casualty insurance company, which of the following items must be deducted?

A. Retained earnings  
B. Carrying value of tangible property  
C. Certain long-term debt  
D. Deferred tax debit balance  
E. Contributed surplus

15. Which of the following are true regarding the taxation of a Canadian property and casualty insurance company?

1. General insurers are treated in the same manner as private corporations as far as special tax provisions are concerned.
2. Resident general insurers are subject to Canadian income tax on their worldwide income.
3. General insurers may not distribute special tax-free capital dividends to their shareholders.

A. 1 and 2 only  
B. 1 and 3 only  
C. 2 and 3 only  
D. 1, 2, and 3  
E. None of A, B, C, or D
16. Which of the following are within the scope of the Actuary's Report on Policy Liabilities for federally registered property and casualty insurance business in Canada?

1. Marine insurance
2. Accident and Sickness insurance
3. Self-Insured Retention plans

A. 1 only
B. 2 only
C. 1 and 2 only
D. 2 and 3 only
E. 1, 2, and 3

17. Which of the following are required practices for the appointed actuary of a Canadian insurance company with regards to Dynamic Capital Adequacy Testing?

1. The actuary should consider a scenario of two concurrent events if their joint probability is approximately 1 in 100.
2. The actuary should consider the possible management response of settling claims faster for a scenario with a significant increase to general inflation.
3. The actuary should consider at minimum a 100-year return period for an earthquake event.

A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2, and 3
E. None of A, B, C, or D
18. Which of the following are required of an actuary before accepting the role of appointed actuary for a Canadian insurance company?

1. The actuary should have been a Fellow of the Canadian Institute of Actuaries for at least three years.
2. The actuary should ensure that the Board of Directors understands the duties of the appointed actuary.
3. The actuary must communicate with the company's prior appointed actuary.

A. 1 and 2 only  
B. 1 and 3 only  
C. 2 and 3 only  
D. 1, 2, and 3  
E. None of A, B, C, or D

19. The appointed actuary of a Canadian insurer must ensure which of the following, with respect to using the work of an auditor to verify data used in the Actuarial Report?

1. The auditor will be using the same materiality level as the actuary.
2. The auditor will consider the effect of an event subsequent to the valuation date that is known before the date of the report.
3. The auditor's report will be available before the Actuarial Report is due.

A. 1 only  
B. 2 only  
C. 3 only  
D. 1 and 2 only  
E. 2 and 3 only

20. The creation of an Earthquake Reserve Complement will always have which of the following impacts on a company's P&C-1 financial statements, all else being equal?

A. An increase in Total Liabilities.  
B. An increase in Reserves Required.  
C. A decrease in Net Income.  
D. A decrease in Total Capital, Surplus, and Reserves.  
E. An increase in the Future Tax asset.

CONTINUED ON NEXT PAGE
SECTION II, QUESTIONS 21-59, WRITTEN ANSWER QUESTIONS

21. (1.5 points)

Contrast the application of the Rylands v. Fletcher rule with the rule of negligence law with respect to the type of activity involved.

22. (1.25 points)

With regards to tort law in personal injury cases:

a. (0.5 point)

Identify two potential problems arising from the use of lump sum awards.

b. (0.5 point)

Identify two potential problems arising from the use of structured settlements.

c. (0.25 point)

Under what condition might the court impose a structured settlement?

23. (2 points)

In some jurisdictions, public entities have been given special consideration under tort law. These special considerations include imposing a cap on non-economic damages in suits against public entities.

a. (1 point)

Briefly describe two arguments in favor of imposing such a cap.

b. (1 point)

Briefly describe two arguments against imposing such a cap.
24. (2.5 points)

A client desiring restitution provides a personal injury lawyer with the following details of an accident:

- The client slipped and fell on some ice outside a shopping mall.
- As a result of the fall, the client suffered a broken nose and bruises.
- There were multiple witnesses to the accident.
- Snow and ice at the entrance to the mall, from a snowfall the prior day, was not cleared.
- At the time of the accident, the mall manager provided assistance and first aid to the client.
- The mall manager was sympathetic to the client when arriving on the scene.
- The client’s first visit to a doctor was three weeks after the accident.
- The client’s retirement watch was irreparably damaged in the accident (value $200).
- The client was not wearing winter footwear at the time of the accident.

a. (1.5 points)

Briefly explain the likelihood of the following categories of damages being awarded in this case and why:

1. Contemptuous damages
2. Punitive damages
3. Aggravated damages

b. (0.25 point)

Why do special damages require a greater proof of certainty by the court over general damages respecting the amount claimed?

c. (0.25 point)

Briefly describe the principle of “restitutio in integrum.”

d. (0.5 point)

From the accident details above, what facts might limit the application “restitutio in integrum” in this client’s damages claim?
25. (1.5 points)

In the latter part of the nineteenth century, Canadian insurance regulations focused on the financial solvency of insurers.

a. (0.75 point)

Briefly describe three reasons why the insurance industry was singled out for such unusual public oversight during this time.

b. (0.75 point)

Briefly describe three types of legislation that were introduced to guarantee the financial solvency of insurers during this time.

26. (1 point)

Select one of the three cases listed below to answer both a. and b.:

R v. Anderson and Teskey
R v. Parks
Gray v. Kerslake

a. (0.5 point)

Briefly describe the selected case.

b. (0.5 point)

Based upon the case selected in part a. above, briefly describe one of the reasons why it was important to know if the contract in question was characterized as insurance.
27. (4 points)

It has been argued that jury awards in County X have risen at an excessive rate and are out of control. This is supported by the statistic that jury awards have increased from $86M in 1998 to nearly $280M in 2000.

The following represents the most recent data available regarding lawsuits that have been completed in County X ("M" = million):

<table>
<thead>
<tr>
<th>Year of Lawsuit</th>
<th>Size of Lawsuit</th>
<th># of Lawsuits</th>
<th># of Awards</th>
<th>Total Awarded ($000)</th>
<th>Ratio Paid/Awarded (after appeal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>&lt; $1M</td>
<td>750</td>
<td>450</td>
<td>20,250</td>
<td>90.0%</td>
</tr>
<tr>
<td></td>
<td>&gt;= $1M</td>
<td>100</td>
<td>33</td>
<td>66,000</td>
<td>65.0%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>850</td>
<td>483</td>
<td>86,250</td>
<td>70.9%</td>
</tr>
<tr>
<td>1999</td>
<td>&lt; $1M</td>
<td>863</td>
<td>475</td>
<td>22,800</td>
<td>86.0%</td>
</tr>
<tr>
<td></td>
<td>&gt;= $1M</td>
<td>125</td>
<td>56</td>
<td>128,800</td>
<td>68.0%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>988</td>
<td>531</td>
<td>151,600</td>
<td>70.7%</td>
</tr>
<tr>
<td>2000</td>
<td>&lt; $1M</td>
<td>992</td>
<td>496</td>
<td>25,792</td>
<td>80.0%</td>
</tr>
<tr>
<td></td>
<td>&gt;= $1M</td>
<td>219</td>
<td>96</td>
<td>253,920</td>
<td>60.0%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>1,211</td>
<td>592</td>
<td>279,712</td>
<td>61.8%</td>
</tr>
</tbody>
</table>

The following information is also available:

Population growth:

1998 – 1999: 7.50%
1999 – 2000: 6.00%

The growth in the number of vehicles mirrors the growth in the population.

General Inflation was 5% annually from 1998 to 2000.
Medical Cost Inflation was 8% annually from 1998 to 2000.

The < $1M lawsuits are predominantly automobile and the >= $1M claims are predominantly product liability.

Given the information above, do you agree with the statement that juries and/or the civil justice system are out of control in County X? Provide details to defend your conclusions.

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28. (1.5 points)

Describe three differences between private insurance and social insurance.

29. (1.5 points)

One of the rules of insurance contract interpretation developed through the courts is the doctrine of “reasonable expectations.” Compare and contrast the use of this rule in Canadian courts and in courts in the United States.

30. (1 point)

One of the underlying principles of insurance is “utmost good faith.”

a. (0.5 point)

Briefly describe how this principle can be used to protect the insurer.

b. (0.5 point)

Briefly describe how this principle can be used to protect the insured.

31. (2 points)

With regards to the case of Dillon v. Guardian Insurance Co., answer the following:

a. (0.5 point)

How was the standard of absolute liability for claim settlement defined?

b. (1.5 points)

Identify and briefly describe three reasons why the standard of absolute liability was the appropriate standard.
32. (2 points)

An Ontario insurer charging young male operators higher rates for insurance than equivalent adult operators is concerned that its rating program may be exposed to a challenge under the Ontario Human Rights Code.

Based upon the results of Zurich Insurance Company v. Ontario Human Rights Code, what should the company do to prepare for this potential challenge?

33. (2 points)

Based upon the Financial Services Commission of Ontario, Section 410 Filing Guidelines, answer the following:

a. (1 point)

Compare and contrast the Expedited Approval process and the File and Use process.

b. (1 point)

Describe how one would reflect the profit/loss resulting from use of the Facility Association in a Prior Approval filing.

34. (1.25 points)

When discussing the redlining issue, insurance companies and federal agencies, such as the Department of Housing and Urban Development in the United States (HUD), focus on either "disparate treatment" or "disparate impact."

a. (0.5 point)

Explain the difference between disparate treatment and disparate impact.

b. (0.5 point)

How would insurance company practices be evaluated using each of these two perspectives?

c. (0.25 point)

Which perspective describes HUD’s approach?
35. (2 points)

As established in the Canada Health Act, identify and briefly describe four conditions for federal assistance with respect to provincial health care plans.

36. (4.5 points)

Liability and injury insurance systems are commonly classified as fault (i.e., tort) or no-fault.

a. (1.5 points)

Identify and describe three ways in which a no-fault system maintains accountability for drivers causing automobile accidents.

b. (1 point)

With respect to a fault-based auto insurance system, discuss the validity of the following statement:

"A tort based insurance system is an effective mechanism to deter negligent operation of an automobile."

c. (2 points)

Fraudulent insurance claims represent an added cost to both insurance systems. Briefly describe one strength and one weakness for each insurance system in terms of its ability to prevent fraud.
37. (2.25 points)

KPMG, et al., “Motor Vehicle Insurance in British Columbia – At the Crossroads, Volume II: Options and Choices,” discuss a number of key factors affecting the nature of benefits provided by an insurance system.

a. (0.75 point)

Compare and contrast the treatment of collateral benefits under fault systems (i.e., tort) and no-fault systems.

b. (0.5 point)

Give two disadvantages to an insurer of being designated as “second payer” of benefits in a no-fault system.

c. (1 point)

Compare and contrast the bases of income replacement benefits under fault systems and no-fault systems.

38. (2 points)

Based upon KPMG et al., “Motor Vehicle Insurance in British Columbia - At the Crossroads. Volume I: The Case for Change,” answer the following:

a. (1 point)

Describe two factors that are present in British Columbia that should tend to reduce observed Automobile Bodily Injury loss cost trends, but do not appear to have done so.

b. (1 point)

Describe two manifestations of social inflation that may explain the increasing Automobile Bodily Injury loss cost trends in British Columbia.
39. (3 points)

Answer the following with regards to health care in Canada:

a. (1.5 points)

    Based on Hall. “Mercer Handbook of Canadian Pension & Benefit Plans”, identify and briefly describe the three main drivers behind the high increase in costs for Extended Health Care in the early 1990s.

b. (1.5 points)

    Compare and contrast the main drivers described in part a. above to those identified by the Canadian Institute of Actuaries in its submission to the Commission on the Future of Health Care in Canada.

40. (1.5 points)

    There is a common misconception in Canada that a role for the private sector jeopardizes Medicare. Identify and describe three examples of how the private sector serves a major role in the delivery of medically necessary services in Canada.

41. (1 point)

    Briefly describe the “intergenerational transfer” aspect of Social Security.
42. (1.75 points)

With respect to the Groupement des Assureurs Automobiles’ (GAA) Risk Sharing Plan and the categorization of automobile residual market mechanisms in Hamilton and Malecki, *Personal Insurance: Property and Liability*, answer the following:

a. (1 point)

Regarding rates, sharing of premiums/losses/expenses, and/or assignment of risks, identify two differences between GAA’s Risk Sharing Plan and Assigned Risk Plans.

b. (0.75 point)

Identify the category of automobile residual market mechanisms whose operation most closely matches that of GAA’s Risk Sharing Plan. Justify its choice by identifying two common points.

43. (1.5 points)

Calculate the book value adjustment and effective yield for each of years 1 and 2 for the bond described in the table below, using the following methods. Show all work.

a. (0.75 point)

Effective yield - Scientific method

b. (0.75 point)

Effective yield - Pro-rata method

<table>
<thead>
<tr>
<th>Par Value</th>
<th>$1,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years to Maturity</td>
<td>5</td>
</tr>
<tr>
<td>Coupon Rate</td>
<td>8.0%</td>
</tr>
<tr>
<td>Cost of Bond</td>
<td>$1,200.00</td>
</tr>
</tbody>
</table>
44. (1 point)

Based upon the Office of Superintendent of Financial Institutions Canada, "Guideline on Accounting for Reinsurance of Short-Term Insurance Contracts by Property and Casualty Insurance Enterprises," what is the definition of "Insurance Risk"?

45. (3 points)

Using the information in the tables below, answer the following questions with respect to P&C-1, page 60.40:

a. (1 point)

Calculate the excess/deficiency amount and the excess/deficiency ratio for accident year 2001, as at the end of 2002. Show all work.

b. (2 points)

Assuming that the 2002 calendar year incurred loss ratio is equal to the 2002 accident year incurred loss ratio, calculate the value of A. Show all work.

<table>
<thead>
<tr>
<th>Net Claims and Adjustment Expenses</th>
<th>Run-Off - Total Business ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2000</td>
</tr>
<tr>
<td>2000 Paid During Year UCAE, end of year</td>
<td>125,000</td>
</tr>
<tr>
<td>2000 IBNR, end of year</td>
<td>50,000</td>
</tr>
<tr>
<td>2001 Paid During Year UCAE, end of year</td>
<td>50,000</td>
</tr>
<tr>
<td>2001 IBNR, end of year</td>
<td>175,000</td>
</tr>
<tr>
<td>2002 Paid During Year UCAE, end of year</td>
<td>25,000</td>
</tr>
<tr>
<td>2002 IBNR, end of year</td>
<td>150,000</td>
</tr>
<tr>
<td>A</td>
<td>15,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Earned Premium ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>385,000</td>
</tr>
<tr>
<td>2001</td>
<td>475,000</td>
</tr>
<tr>
<td>2002</td>
<td>500,000</td>
</tr>
</tbody>
</table>

CONTINUED ON NEXT PAGE
46. (3 points)

Using the following information, calculate the capital available for a Canadian property and casualty insurer under the Minimum Capital Test. The insurer’s shares are all from the same company. The insurer’s bonds are all from the same issue. Show all work.

<table>
<thead>
<tr>
<th>Item</th>
<th>$ in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonds Book Value</td>
<td>80</td>
</tr>
<tr>
<td>Bonds Market Value</td>
<td>90</td>
</tr>
<tr>
<td>Shares Book Value</td>
<td>100</td>
</tr>
<tr>
<td>Shares Market Value</td>
<td>60</td>
</tr>
<tr>
<td>Real Estate Book Value</td>
<td>50</td>
</tr>
<tr>
<td>Real Estate Market Value</td>
<td>70</td>
</tr>
<tr>
<td>Subordinated Indebtedness</td>
<td>5</td>
</tr>
<tr>
<td>Deferred/Future Income Taxes</td>
<td>2</td>
</tr>
<tr>
<td>Reserves Required</td>
<td>5</td>
</tr>
<tr>
<td>Capital Stock issued and paid</td>
<td>6</td>
</tr>
<tr>
<td>Contributed Surplus</td>
<td>10</td>
</tr>
<tr>
<td>Earned Surplus</td>
<td>200</td>
</tr>
<tr>
<td>General &amp; Contingency Reserves</td>
<td>7</td>
</tr>
</tbody>
</table>

47. (2 points)

In the Insurance Bureau of Canada’s “Direct Expense Report, Instructions, Forms and Results,” expense accounts are grouped into four major functions (excluding Investment) on the Expense Reporting Schedule.

a. (1 point)

Identify the four major functions.

b. (1 point)

For each of the major functions in part a. above, give one example of an expense account that would be included within it.

CONTINUED ON NEXT PAGE
48. (1 point)

Property and casualty insurers in Canada with significant amounts of discounted claim liabilities may wish to adopt an alternative statement of income and retained earnings presentation that moves away from the traditional practice.

a. (0.25 point)

Briefly describe the traditional practice.

b. (0.75 point)

Describe the principal reason why property and casualty insurers with significant amounts of discounted claims liabilities may wish to adopt an alternative practice.

49. (1.5 points)

The Office of the Superintendent of Insurance in Canada has recently required the discounting of all loss reserves in 2003 for property and casualty insurance companies. Briefly describe three management benefits of discounting that will be realized with this change.

50. (3 points)

Based upon Canadian Insurance Accountants Association, “Fair Value of Claims Liabilities,” answer the following:

a. (2 points)

Briefly describe the four different bases in valuing general insurance liabilities in Canada.

b. (1 point)

Which method in part a. above is the logical choice and why?
51. (2 points)

a. (0.75 point)

Using the information in the table below, determine the Deferred Policy Acquisition Expense that should be recorded in this Canadian P&C insurer’s Balance Sheet. Assume no reinsurance and no investment income. Show all work.

<table>
<thead>
<tr>
<th>Gross Unearned Premiums Reserves (UPR)</th>
<th>$25,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Loss Ratio underlying the Gross UPR</td>
<td>85%</td>
</tr>
<tr>
<td>Expected Internal Adjustment Expense Ratio underlying the Gross UPR (as a % of premium)</td>
<td>1%</td>
</tr>
<tr>
<td>General Expense Ratio (as a % of premium)</td>
<td>12%</td>
</tr>
<tr>
<td>Ratio of Maintenance Expenses to General Expenses</td>
<td>25%</td>
</tr>
<tr>
<td>Contingent Commission Ratio (as a % of premium)</td>
<td>3%</td>
</tr>
<tr>
<td>Deferrable Expense Ratio (as a % of premium)</td>
<td>10%</td>
</tr>
</tbody>
</table>

b. (0.5 point)

Identify two examples of premium liabilities arising from policies already expired

c. (0.75 point)

Before finalizing the actuarial report calculation of the Equity in the Gross UPR, a very unusual and large loss occurs on January 25, 2003 on a policy in-force as of December 31, 2002. Should the calculation be revised to account for this event in the actuarial report? Explain your answer.
52. (1.5 points)

Describe one difference between SAP and GAAP for each of the following items:

a. (0.5 point)
   
   Assets

b. (0.5 point)
   
   Investments

c. (0.5 point)
   
   Expenses

53. (2 points)

Given the following information for a Canadian property and casualty insurer, determine the amount of the following reserves to be used for tax purposes. Show all work.

<table>
<thead>
<tr>
<th>Claim Liability</th>
<th>$500 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported Claims Reserves</td>
<td>$510 million</td>
</tr>
<tr>
<td>Unearned Portion of reinsurance ceded commission</td>
<td>$15 million</td>
</tr>
<tr>
<td>Ceded Reinsurance commission rate</td>
<td>25%</td>
</tr>
<tr>
<td>Reported Premium Deficiency Reserve</td>
<td>$8 million</td>
</tr>
</tbody>
</table>

a. (1 point)

   Outstanding Claims Reserve

b. (0.5 point)

   Unearned Reinsurance Commission Reserve

c. (0.5 point)

   Premium Deficiency Reserve
54. (2 points)

The Dynamic Capital Adequacy Testing of a Canadian property and casualty insurer, as at December 2002, indicates the following surplus and minimum asset test ratios (MAT) under the four most adverse scenarios:

<table>
<thead>
<tr>
<th>Lowest in forecast period</th>
<th>Base Scenario</th>
<th>Frequency/Severity (single catastrophe)</th>
<th>Misestimation of Policy Liabilities (unpaid claims)</th>
<th>Interest Rate (increase)</th>
<th>Reinsurance Risk (insolvency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surplus</td>
<td>$150,000</td>
<td>$25,000</td>
<td>$45,000</td>
<td>$55,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>MAT</td>
<td>25%</td>
<td>12%</td>
<td>4%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Based upon the information above, answer the following:

a. (0.5 point)

Is the insurer’s financial condition satisfactory? Explain your answer.

b. (0.5 point)

Under which scenario is the Office of the Superintendent of Financial Institutions most likely to intervene? Explain your answer.

c. (0.25 point)

For the frequency/severity scenario (single catastrophe), identify one potential ripple effect.

d. (0.25 point)

For the reinsurance risk scenario (reinsurer insolvency), identify one potential ripple effect that is different from the one you identified in part c. above.

e. (0.5 point)

Identify two potential management responses applicable to both the misestimation of policy liabilities scenario (unpaid claims) and the interest rate scenario (increase).
55. (4 points)

Based on the following information for a Canadian P&C insurer, calculate the gross unpaid claims liability as at December 31, 2002, according to accepted actuarial practice, as defined by the Canadian Institute of Actuaries. Show all work.

Valuation as at December 31, 2002

<table>
<thead>
<tr>
<th>Accident Year</th>
<th>Paid Loss ($000)</th>
<th>Case Reserve ($000)</th>
<th>Incurred Loss ($000)</th>
<th>Ultimate Loss ($000)</th>
<th>Earned Premium ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>5,700</td>
<td>300</td>
<td>6,000</td>
<td>6,000</td>
<td>7,000</td>
</tr>
<tr>
<td>2001</td>
<td>5,200</td>
<td>1,000</td>
<td>6,200</td>
<td>6,500</td>
<td>7,500</td>
</tr>
<tr>
<td>2002</td>
<td>4,000</td>
<td>2,000</td>
<td>6,000</td>
<td>8,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Total</td>
<td>14,900</td>
<td>3,300</td>
<td>18,200</td>
<td>20,500</td>
<td>22,500</td>
</tr>
</tbody>
</table>

Discount Rate 5.0%

Provisions for Adverse Deviation (PFAD):
Interest Rate PFAD 1.0%
Claims Development PFAD 5.0%

Accident Year Payment Pattern:
Percentage Paid at 12 months 50%
Percentage Paid at 24 months 80%
Percentage Paid at 36 months 95%
Percentage Paid at 48 months 100%

Assume that all payments are made in the middle of the year.
56. (1 point)

Why should an appointed actuary select a specific standard of materiality for claims liabilities versus other policy liabilities?

57. (1.5 points)

a. (0.5 point)

Identify two sources of industry loss development experience.

b. (1 point)

For each of the sources identified in part a. above, describe a situation where one might use that source, either instead of or as a supplement to a company's own loss development experience.
58. (1.5 points)

Using the following information for a Canadian insurer from pages 20.30 and 20.40 of its P&C-1, calculate the P&C-1 items specified in parts a. to f. Show all work.

<table>
<thead>
<tr>
<th>P&amp;C-1, page 20.30 / 20.40 item</th>
<th>Amount ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Premiums Written</td>
<td>400</td>
</tr>
<tr>
<td>Decrease (increase) in Net Unearned Premiums</td>
<td>(50)</td>
</tr>
<tr>
<td>Service Charges</td>
<td>15</td>
</tr>
<tr>
<td>Net Claims and Adjustment Expenses</td>
<td>360</td>
</tr>
<tr>
<td>Commissions</td>
<td>40</td>
</tr>
<tr>
<td>Taxes</td>
<td>20</td>
</tr>
<tr>
<td>General Expenses</td>
<td>25</td>
</tr>
<tr>
<td>Net Investment Income</td>
<td>100</td>
</tr>
<tr>
<td>Total Income Taxes</td>
<td>10</td>
</tr>
<tr>
<td>Dividends declared to Shareholders</td>
<td>35</td>
</tr>
<tr>
<td>Decrease (increase) in Reserves Required</td>
<td>(15)</td>
</tr>
</tbody>
</table>

a. (0.25 point)

Total Underwriting Revenue

b. (0.25 point)

Total Claims and Expenses

c. (0.25 point)

Underwriting Income (Loss)

d. (0.25 point)

Income (Loss) before Income Taxes and Extraordinary Items

e. (0.25 point)

Net Income (Loss) for the year

f. (0.25 point)

Net increase (decrease) in Earned Surplus during the year
59. (5.5 points)

Given the following information for a Canadian insurer from its P&C-1 for 2002, evaluate the insurer's financial health. Show all work.

<table>
<thead>
<tr>
<th>P&amp;C-1 Item</th>
<th>P&amp;C-1 page</th>
<th>Amount ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Premiums Written</td>
<td>20.30</td>
<td>4,000</td>
</tr>
<tr>
<td>Net Premiums Written</td>
<td>20.30</td>
<td>3,000</td>
</tr>
<tr>
<td>Net Premiums Earned</td>
<td>20.30</td>
<td>2,900</td>
</tr>
<tr>
<td>Total Acquisition Expenses</td>
<td>20.30</td>
<td>600</td>
</tr>
<tr>
<td>General Expenses</td>
<td>20.30</td>
<td>450</td>
</tr>
<tr>
<td>Net Investment Income</td>
<td>20.30</td>
<td>75</td>
</tr>
<tr>
<td>Direct claims incurred, including adjustment expenses</td>
<td>60.20</td>
<td>2,800</td>
</tr>
<tr>
<td>Net claims incurred, including adjustment expenses</td>
<td>60.20</td>
<td>2,100</td>
</tr>
<tr>
<td>Bonds and Debentures</td>
<td>20.10</td>
<td>800</td>
</tr>
<tr>
<td>Common Shares</td>
<td>20.10</td>
<td>350</td>
</tr>
<tr>
<td>Receivables from Agents and Brokers</td>
<td>20.10</td>
<td>200</td>
</tr>
<tr>
<td>Recoverables from Reinsurers, Unpaid Claims and Adj. Expenses</td>
<td>20.10</td>
<td>300</td>
</tr>
<tr>
<td>Recoverables from Reinsurers, Unearned Premiums</td>
<td>20.10</td>
<td>0</td>
</tr>
<tr>
<td>Deferred Policy Acquisition Expenses</td>
<td>20.10</td>
<td>0</td>
</tr>
<tr>
<td>Unpaid Claims and Adjustment Expenses</td>
<td>20.20</td>
<td>800</td>
</tr>
<tr>
<td>Unearned Premiums</td>
<td>20.20</td>
<td>500</td>
</tr>
<tr>
<td>Unearned Commissions</td>
<td>20.20</td>
<td>0</td>
</tr>
<tr>
<td>Premium Deficiency</td>
<td>20.20</td>
<td>0</td>
</tr>
<tr>
<td>Reserve for Reinsurance Ceded to Unregistered Insurers</td>
<td>30.15</td>
<td>250</td>
</tr>
<tr>
<td>Reserves Required</td>
<td>20.20</td>
<td>100</td>
</tr>
</tbody>
</table>

- The insurer has no assets or liabilities other than those listed above.
- All bonds are of government grade.
- The market value of invested assets is equal to its book value.
- All insurance business is classified as Personal Property.
- The company has not produced any significant redundancies or deficiencies in prior estimated loss reserves.
- No other information is available.

END OF EXAMINATION
27
1. D
2. D
3. B
4. C
5. C
6. D
7. D
8. A
9. A
10. E
11. D
12. E
13. E
14. D
15. C
16. E
17. A
18. C or E
19. B
20. B
Exam 7C
Question 21

Negligence law applies to ordinary pursuits in which wrongful conduct applies. Rylands vs. Fletcher was a strict liability example where it fell within several of the following criteria: mischief, escape and non-natural use. Although this has been redefined to ultra-hazardous activity or abnormal danger, the primary differences between strict liability (Rylands vs. Fletcher) and negligence are the following:

- Burden of proof is shifted to the defendant for strict liability as opposed to the plaintiff in negligence.
- The defendant may have to pay damages even if not negligent under strict liability.
- Contributory negligence (default of plaintiff) is rarely ever used in strict liability cases.

Exam 7C
Question 22

A.  
   - Possibility of the plaintiff squandering (wasting) the award
   - Difficulty in estimating the future needs in life expectancy of the plaintiff and the future investment returns and tax liability.

B.  
   - Inflation of future costs / income.
   - Must ensure that the insurer (possibly life insurer) providing the annuities (structure settlement is in good standing).

C.  
   - If there is consent of the parties / from a judge where it is authorized.

Exam 7C
Question 23

A.  
   - Public entities are unable to restrict certain activities, which are subject to tort liability.
   - The concept of deterrence does not apply because it would only reduce services and not profits.

B.  
   - The principle of full restitution must be upheld. Public entities must help restore injured victims status to that prior to injury.
   - Public entities must be held to a higher standard.
A. Contemptuous Damages: They are awarded when plaintiff’s legal rights have been infringed but has suffered no loss, when damages are at large, and when the case is frivolous and should never been brought to court. This is not the case here since the plaintiff did suffer damages (loss). 
- Punitive Damages: These would not apply here because defendant doesn’t need to be punished for his act and the defendant didn’t make an illegal/undue profit. However, punitive damages could be awarded for deterrence; which means to make sure the defendant will be more careful next time (clearing now) and it will also warn others for the same reason. 
- Aggregated Damages: Will not be allowed here because these are usually compensation for the injured feelings of the plaintiff due to the outrageous conduct of the defendant. Again, this is not the case here. The defendant was polite and gave assistance.

B. Special Damages: Compensation for damages that can be accurately calculated. They are pecuniary loss to the defendant up to the trail. General damages are for damage that cannot be accurately calculated. They include post trial pecuniary loss and all non-pecuniary loss (pain and suffering). All of these are difficult to measure compared to special damages.

C. Compensation awarded will be the sum required to put the plaintiff in the position he would be in if the loss hadn’t occurred.

D. Contributory Negligence since he didn’t wear winter footwear and because he waited three weeks before going to see a doctor which could mean that his injury was not too serious.

Exam 7C
Question 25

A. Insurers’ bankruptcies lead to consumers’ lack of confidence.
- Fiduciary nature of insurance. Money is collected in advance before services and coverage is provided.
- Short-term price competition before insurers is not in the long-term interest of the public.

B. Regulate the creation of domestic insurers and licensing of foreign insurers.
- Insurers must submit periodic financial information.
Use investment control to regulate and limit the types of investments an insurer may pursue.

Exam 7C
Question 26

A. R vs. Anderson & Teskey
   - An Alberta case in which defendants set up a company to offer certain services in exchange for fees.
   - These auto-related services included: towing, arrangements for Bond, and arrangements for Barristers.
   - Defendants did not operate as a licensed insurance company.

B. In the original suit, the annuity was seen as a pension since it did not involve the contingency of death (premium returned if death occurs). It was seen as postponed wages. To determine if this was a contract of insurance is important because of the prohibition of changing the beneficiary under the contract.

Exam 7C
Question 27

Growth in lawsuits
1998 – 1999: < $1M = 15%, >$1M = 25%
1999 – 2000: < $1M = 15%, >$1M = 75%

Growth in awards (#)
1998 – 1999: < $1M = 5.6%, >$1M = 69.7%
1999 – 2000: < $1M = 4.4%, >$1M = 71.4%

Growth in $ per award
1998 – 1999: < $1M = 1.9%, >$1M = 20.4%
1999 – 2000: < $1M = 0.8%, >$1M = 1.4%

For cases below $1M, growth in awards are actually below growth in population and inflation. It seems under good control.

For cases above $1M, growth in the number and amount are way higher than growth in population, inflation and medical inflation. Even if it seems that appeals courts are awarding a little less than before, its still out of control (deep pockets effect).

Exam 7C
Question 28

Private Insurance and Social Insurance

- Social insurance benefits have little or no correlation to contributions paid by individuals (i.e. small contributions can get large benefits) vs. private insurance, which is concerned with families and equity between the insured.
• Private insurance is concerned with solvency vs. social insurance which is not as concerned with balancing contributions and benefits – may use general tax revenue if in deficit.
• Private insurance: rights to benefits triggered by losses covered under the contract, vs. social insurance: rights to benefits as stipulated by law/regulations.

Exam 7C
Question 29

In Canada, the Supreme Court gives guidelines for this rule, which are:
• Look at the whole contract to determine the intent.
• Construe coverage broadly and exclusions narrowly.
• Construe ambiguities against the insurer.
• If the intent is not clearly defined, use the most reasonable meaning of the contract.
• Do not create windfall for either of the party.

In the U.S., the doctrine has been applied less consistently and courts have even ignored exclusions in some cases.

Exam 7C
Question 30

A. Which means the insurer assumes that the injured is in good faith, didn’t lie or make a false statement. However, if the insured did lie or make a false statement, the contract could be void.
B. The insurer has to be in good faith, which means he cannot refuse compensation because of an errant non-disclosure and he could not agree to a settlement without taking into consideration the insured rights.

Exam 7C
Question 31

A. If the insurer had a choice to settle a claim within the insured’s limit and chose not to do so, he will be held responsible for the loss even above the limit if it turns out to be higher.
B. Avoid the problem of whether the claim settlement is reasonable.
   Avoid the insurers’ gaming on the insured’s money.
   The insurer has a benefit of making a choice should also suffer if the settlement ends up to be higher than the limit.
Exam 7C
Question 32

- Must ensure that the practice is reasonable and bona fide
- Must ensure that it is in accordance with sound insurance practices.
- Must ensure that no practical alternative exists.
  - Should collect statistics showing that alternative rating does not work.
  - Should show that there is a causal connection between the rating criteria and the associated loss costs and not merely a statistical correlation.
  - Should show that the rating system really does differentiate between high and low cost insurers.

Exam 7C
Question 33

A. **File and Use**: For certain categories of insurance, if the premium volume is below a certain threshold (as per an appendix of the filing guidelines) and is a category of insurance for which the insurer already has filed rates. A rate change can be filed and then use 30 days, unless heard otherwise from FSCO, after the filing without confirmation of approval.

**Expedited Approval**: is a subset of the prior approval process where under certain conditions (for example, total rate change not higher than a certain threshold) the approval would be received within 30 days but is still prior approval. Less filing documentation would be required under this process than under 60 days prior approval.

B. The insurer share of the Facility Association results cannot be reflected in the filing neither in the experience (losses/premiums) nor in the expense ratio.

The business ceded to the Risk Sharing Pool however, is still considered part of its direct business.

Exam 7C
Question 34

A. Disparate treatment is inequitable treatment or classification based on objectionable criteria. Disparate Impact is the discriminatory result such as high premiums to minority groups regardless of how the classification was initially done.

B. Disparate treatment would be evaluated by looking at the company’s classification criteria and in rates. Disparate impact might look at the actual rates for minority groups or urban area rates.

C. HUD focuses on disparate impact regardless of treatment.
Question 35

Provincial Health Care Plan

A. Public Administration: administered by non-profit public authority reporting to provincial government.
B. Comprehensiveness: necessary medical and hospital services available.
C. Universality: All eligible residents are covered.
D. Portability: residents covered when in another province temporarily; max waiting period for residents moving from province to province: 3 months.

Exam 7C
Question 36

A. No-Fault
   - Increase in premiums when at fault accident.
   - Injured may have benefits reduced for important fault; e.g. driving intoxicated.
   - Policy may be cancelled following at fault accidents.
B. Not so much true anymore since avenue of liability insurance since negligent defendants rarely end up paying. However, such still need to go through the suit which is a pain and in some cases where underinsured, uninsured, coverage not applicable due to non-respect of clause, negligent defendant may end up paying.
C. Fraud
   - No-Fault
     i. Weakness: may be easier to get compensation. No need to prove fault. May encourage fault.
     ii. Strength: modesty of awards may discourage fraud
   - Liability
     iii. Weakness: incentive to exaggerate intangible/non-verifiable injuries to get more
     iv. Strength: need to go through court which may discourage fraud

Exam 7C
Question 37

A. Tort – no deduction for collateral benefits
   No-Fault systems may be constructed either way. However, if the insurer is 1st payer, other benefit providers generally reduce benefits so there is no “double dipping”.

B. No control of the management of medical care.
   Difficulty in obtaining complete data for studying disability costs.

C. Tort uses gross income. Awards for future wage loss are not grossed up to account for the taxes levied on investment income. In effect, courts have decided
that compensating 100% of gross wages is a replacement for grossing up the award for these taxes. Injury compensation schemes generally base benefits on net income with deduction for the expenses of holding a job.

Exam 7C
Question 38

A. Aging populations should have more experience reducing the frequency, but this is not the case as frequency is increasing.

Vehicle safety is improving (seat belt, ABS breaks) so the severity of the loss should decrease but again, average claim is always increasing.

B. Increasing number of fraudulent claims

Growing focus on pain and suffering awards

Exam 7C
Question 39

A.

- **Health Care Inflation:** The cost of medical services and supplies is increasing at a rate well in excess of the general rate of inflation.
- **Changing Demographics:** The working and general population is aging.
- **Government Cost-Shifting:** With reductions in federal transfer payments, provincial government plans are reducing and/or eliminating coverage.

B.

The CIA suggests that significantly increased drug utilization, the development of new drugs and other innovative treatments, improved technology and procedures, and overall rising expectations on the part of Canadians are the real key contributors to increasing health care costs. Changing demographics and government cost shifting are not as important.

Exam 7C
Question 40

- Hospitals are publicly funded but privately managed.
- Doctors' offices are private businesses.
- Medication is delivered through private stores and businesses.

Exam 7C
Question 41
Intergenerational Transfer describes the fact that Social Security is mostly a “pay as you go” system. Current workers’ taxes are paying benefits to current retirees. Current workers’ future benefits will be paid for by the next generation of workers’ taxes.

Exam 7C
Question 42

A. GAA
   Rates Insurers use their own risk.
   Sharing Claims and expenses are reimbursed to insurers by the plan. All insures share the profit/loss of the plan based on select share.
   Assignment Insures accept risks first and then may cede to the plan (by having the plan to reimburse losses and expenses.

A. Assigned Risk Plan
   Uses rates, which are higher than voluntary rates.
   Profit/losses based by insurer as if it is writing voluntary business. No sharing of prem/loss/exp.
   Insured unable to obtain Insurance applied to the plan. The plan then assigns the risk to the insurer according to its market share.

B. Reinsurance Auto Plan.
   - Accepts risks first and then cedes to the plan by having the plan reimburse all losses and expenses incurred.
   - Profit/losses shared by all insurers based on market share.

Exam 7C
Question 43

A. Scientific method: adjustment gives same yield

   BV adjust = yield * bond value – bond * par value

<table>
<thead>
<tr>
<th>Yield</th>
<th>Adjust</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 3.5625%*</td>
<td>1200 * 3.5625% - $80 = $37.25</td>
</tr>
<tr>
<td>2. 3.5625%*</td>
<td>1/62.75 * 3.5625% - 80% = -38.58%</td>
</tr>
</tbody>
</table>

   * computed with BA-35 calculator

B. Prorata – even amortization each year

<table>
<thead>
<tr>
<th>Adjust</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. -40%</td>
<td>(80-40) / 1200 = 3.3%</td>
</tr>
<tr>
<td>2. -40%</td>
<td>(80-40) / 1160 = 3.4%</td>
</tr>
</tbody>
</table>
Yield is coupon plus adjustment divided by beginning period load value.

Exam 7C
Question 44

Insurance Risk is made up of underwriting risk and timing risk.

Underwriting Risk – risk of fluctuation in the amount of payments

Timing Risk – risk of fluctuation in when the payments are expected to be paid

Exam 7C
Question 45

A. Excess/Deficiency Amount = \([\text{UCAE} + \text{IBNR}]\) Beginning – Paid in subsequent years – \([\text{UCAE} + \text{IBNR}]\) Ending

\[
\text{Excess/Deficiency Ratio} = \frac{\text{UCAE} + \text{IBNR}}{\text{Beginning}} - \frac{\text{Paid in subsequent years}}{\text{Beginning}}
\]

Excess/Deficiency Amount 2001 = \((250000 + 50000) - 88000 - (215000 + 15000)\)

\[= -18000 \]

Excess/Deficiency Ratio 2001 = \(18000/(250000 + 50000) = -0.06\)

B. 2002 CY LR = 2002 AY LR

2002 AY LR = \(124000 + 275000 + 76000/500000 = 475000/500000 = 0.95\)

Means
\[0.95 = 2002 \text{ CY LR} = \frac{(25000 + 88000 + 124000 + 275000 + (215000 - 250000) + (150000 - 175000) + 76000 + (15000 - 50000) + (A - 33000))}{500000}\]

Solving for A:
\[0.95 = A + 460000/500000\]
\[A = 15000\]

Exam 7C
Question 46

Equity Available = Equity

+ Subordinated Indebtedness

+ Investment Adjustment (mark to market adjustment)

Equity = Stocks
+ Contributed Surplus
+ Earned Surplus
+ Resources Required
+ General and Contingency Resources
= $228 M

Subordinated Indebtness = $5 M

Investment Adjustment:

Real Estate – Unrealized Gains at 0%
Unrealized Losses at 100%

Other Investments – Unrealized Gains at 50%
Unrealized Losses at 100%

So far Real Estate = MV of Real Estate – BV of Real Estate
= 70 M – 50 M
= 20 M unrealized gain $0 M

For other investments
Bonds: MV – BV = 90 – 80 = $10 M $10 M * 50% = $5 M
Shares: MV – BV = 60 – 100 = -40 M $-40 M * 100% = $-40 M
So equity available = $228 M + $5 M + $5 M - $40 M = $198 M

Exam 7C
Question 47

A.
  a. Acquisition and Agency expenses
  b. Claim adjustment and processing
  c. Underwriting and policy processing
  d. General expenses

B.
  a. Commissions to agents
  b. Salaries of claims department and Managers
  c. Systems cost of issuing policies
  d. Cost of accounting department staff and suppliers

Exam 7C
Question 48

A. Underwriting income is presented separately from investment income.
B. To avoid the adverse runoff resulting from discounted claims liabilities when investments income is shown separately: under the alternative presentation underwriting revenue and investment income are combined in the same section to counter this.

Exam 7C
Question 49

- Financial reporting consistent with pricing
- Elimination of implicit discounting
- One consistent methodology instead of a mix of Discounted/Undiscounted

Exam 7C
Question 50

A.

- Undiscounted: full value of claims liabilities with no discounting
- Actuarial Present Value (APV): discounting for interest (with the interest rates relaxed to the insurer’s asset portfolio) with an addition of a provision for adverse deviation
- Regulatory: undiscounted liabilities as long as their value is greater than the APV
- Fair Value: same as APV, but the discount rate is the market yield on a series of government bonds with durations matching claim payment pattern

B. Fair Value: takes into account the time value of money and the discount rate used facilitates inter-company comparisons because it doesn’t depend on the original cost of the assets in the insurer’s portfolio.

Exam 7C
Question 51

A. Calculate equity in unearned premium res.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPR</td>
<td>25,000</td>
</tr>
<tr>
<td>Losses</td>
<td>21,250</td>
</tr>
<tr>
<td>ULAE</td>
<td>250</td>
</tr>
<tr>
<td>Exp.</td>
<td>750</td>
</tr>
<tr>
<td>C.C. Ratio</td>
<td>750</td>
</tr>
<tr>
<td>EQUP</td>
<td>2,000</td>
</tr>
<tr>
<td>Def. Expenses</td>
<td>2,500</td>
</tr>
</tbody>
</table>

\[
DPAE = \min (EQUP, \text{Def. Exp.}) \\
= \min (2,000, 2,500) \\
= 2,000
\]
B. 
   a. Reinsurance commissioning resulting from sliding scale commission rates 
   b. Premium adjustments on retrospectively rated policies 

C. Should be revised if subsequent event: 
   i. Gives info on entity as it was on valuations data, similar to 1998 ice storm – do not revise 
   ii. Retroactively makes entity a different entity on valuations data 
   iii. Makes entity different after valuations data and purpose of report was valuation with respect to subsequent event 

   These do not hold – calculation should not be revised 

Exam 7C 
Question 52 

A. SAP – EDP equipment treated as admitted asset 
   Furniture and other equipment as non-admitted asset 
   GAAP – Treat all equipment as admitted asset 

B. Investment 
   SAP – Bond: high quality – amortized value 
      - lower quality – NAIC 

   GAAP – Bond held to maturity – amortized value 
   Trading - market value 
   Available for trading – market value 

C. Expense 
   SAP – policy acquisition cost expensed immediately 
   GAAP – capitalize, amortize over U&W period 

Exam 7C 
Question 53 

A. 0.95 of lesser of claims liability and reported claims reserve 
   = 0.95 (500,000) = 475000 

B. Unearned ceded reinsurance commission reserve = 15000000 
   All of it because rate > 20% 

C. 0 since premium deficiency reserve is not considered for tax purposes 

Exam 7C 
Question 54 

A. Yes; MAT > 5% in Basic scenario, surplus > 0 in all scenarios 
B. Misestimating of policy liabilities, since MAT < 5%
C. Reinsures insolvency  
D. Increased reinsurance rates  
E. Rate increased and increase in volume

Exam 7C  
Question 55

Discount for the value of money

<table>
<thead>
<tr>
<th></th>
<th>Ace Yr</th>
<th>Paid</th>
<th>Ultimate</th>
<th>O/S</th>
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</thead>
<tbody>
<tr>
<td>36</td>
<td>2000</td>
<td>5700</td>
<td>6000</td>
<td>300</td>
</tr>
<tr>
<td>24</td>
<td>2001</td>
<td>5200</td>
<td>6500</td>
<td>1300</td>
</tr>
<tr>
<td>12</td>
<td>2002</td>
<td>4000</td>
<td>8000</td>
<td>4000</td>
</tr>
</tbody>
</table>

AY 2000: 300 (1.05)^{-0.5} = 293  
AY 2001: (1300)(.75)(1.05)^{-0.5} + (1300)(.25)(1.05^{1.5} = 952 + 302 = 1254  
AY 2002: (4000)(.60)(1.05)^{-0.5} + (4000)(.30)(1.05^{1.5} + (4000)(.10)(1.05)^{-2.5} =  
2342 + 1115 + 354 = 3811

P.V. of future payments = 293 + 1254 + 3811 = 5358  
PFAD for claims dev’t = (5358) (.05) = 268  
PFAD for interest: discount at 5% - 1% (= 4%)  
AY 2000: 300 (1.04)^{-0.5} = 294  
AY 2001: (1300)(.75)(1.04)^{-0.5} + (1300)(1.04)^{-1.5} (.25) = 956 + 306 = 1262  
AY 2002: (4000)(.60)(1.04)^{-0.5} + (4000)(.30)(1.054)^{-1.5} + (4000)(.10)(1.04)^{-2.5} =  
2353 + 1131 + 363 = 3847  
Total = 294 + 1262 + 3847 = 5403  
PFAD interest = 5403 - 5358 = 45

Claims liability according to AAP = 5358 + 268 + 45 = 5671

All amounts in $000

Exam 7C  
Question 56

The concept of materiality relates to an acceptable level of error. The error encompasses both the error due to the use of approximating as well as the error due to the inaccurate information. The underlying data for each item can differ in its accuracy.
Exam 7C
Question 57

A.
   a. IBC
   b. AM Best Aggregates and Averages

B.
   a. When the insurer’s loss volume is too small to be credible it may use industry experience,
   b. When the insurer is new to a line of insurance it may use industry experience in that line for pricing.

Exam 7C
Question 58

A. U/W Rev = NWP + Dec in UPR + Service charge
   = 400 + (-50) + 15 = 365

B. Tot Claims & Exp = Claims & AE + Comm + Taxes + Gen exp
   = 300 + 40 + 20 + 25
   = 445

C. U/W I/L = 365 – 445 = -80

D. Inc before tax = U/W Inc + Inv Inc + other income
   = -80 + 100 = 20

E. Net income = Inc before tax - IT
   = 20 – 10 = 10

F. Inc in Earn Surplus = Net income – Div s/h + Dec in Res Req
   = 10 – 35 + (-15) = -40

Exam 7C
Question 59

($000’s)

<table>
<thead>
<tr>
<th>MCT</th>
<th>On-Balance Sheet Assets</th>
<th>Unregistered Reinsurance</th>
<th>Catastrophes</th>
<th>Margin for unpaid claims &amp; unearned premiums</th>
<th>Off Balance Sheet</th>
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</thead>
<tbody>
<tr>
<td>(3)</td>
<td>48.5</td>
<td>250</td>
<td>100</td>
<td>65</td>
<td>0</td>
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<tr>
<td>(4)</td>
<td>250</td>
<td></td>
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<tr>
<td>(1)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cap required 463.50
MCT cap required is greater than capital available.

1) 8% min (500,50%(3000)+5% (800 – 300) = 65
2) Assumed 0 since there is no evidence of structured settlements or other off-balance sheet.

3) Bond & Debentures (gov’t grade) 800 .5% 4
   Common Shares 350 10% (?) 35
   Rec’v from Agents & Brokers 200 .5% (?) 1
   Unpaid Claims – Reinsurance 300 2% 6
   Unearned Premium – Reinsurance 500 .5% 2.5
   Margin Total
   48.5

4) Reserves Required = 100, but there is no investment valuation reserve, there are no non-admitted assets, it is not identified that there are any recoverables due beyond 65 days and therefore I have assumed that this relates to an earthquake reserve since the company writes only property lines.

NWP to Surplus Insurance Risk Ratio
3000/350 = 8.6
Anything exceeding 3 is high and puts the surplus of the company into jeopardy. The fact that there have not been significant redundancies or deficiencies in loss reserves is a good sign.

Take the largest of these 3 tests. If any are true then failed test of receivables:
Rec’ from agents/brokers >15% (total surp) ? 200>.15(350) Yes
Rec’ from agents/brokers >5% (total assets) ? 200>.05(1650)
40%
⇒ The company fails the test of receivables

2002 Net Income
($000’s)
Net Earned Premium 2900
Total Acq Expenses (since DPAC=0) - 600
General Expenses - 450
Net Investment Income + 75
Net Incurred Claims (incl AE) 2100
- 175
2002 Net Loss & AE Ratio  = 2100/2900 = 72%  = U/W Ratio 108%

2002 Expense Ratio (AM Best) = 600 + 450/2900 = 36%

Evaluation of Financial Health:

1) This company is writing too much business relative to its surplus.
2) This company relies too heavily on receivables.
3) This company has a u/w ratio of 108%. AM Best states that an underwriting ratio of less than 110% is sustainable short term only. What is of concern is that the high underwriting ratio is for a company writing only short-tailed personal property so that they have few opportunities to compensate for a high underwriting ratio with investment income.
4) The company has a significant amount of unregistered reinsurance – I would like to investigate the worldwide reputation and financial stability of those reinsurers.
5) There have been no significant redundancies or deficiencies in prior estimated loss reserves – this is to be expected of a company writing short tailed lines.
6) The company is losing money (Net Income <0).
7) The MCT capital required is greater than the capital available. Therefore regulatory intervention by OSFI is probable when considering that and the facts above.

⇒ This company is not healthy.