INSTRUCTIONS TO CANDIDATES

1. This 100 point examination consists of 40 problem and essay questions.

2. 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 multiple colors.

Write your Candidate ID number and the examination number, 7US, 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. 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.

3. 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. Writing will NOT be permitted during this time and you will not be permitted to hold pens or pencils. The supervisor has additional exams for those candidates who have defective exam booklets.

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

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.

CONTINUE TO NEXT PAGE OF INSTRUCTIONS

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7. 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.

8. At the end of the examination, place 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 answer sheets will be graded.

9. If you have brought a self-addressed, stamped envelope, you may put the examination booklet and scrap paper inside and submit it separately to the supervisor. It will be mailed to you. (Do not put the self-addressed stamped envelope inside the Examination Envelope.). If you do not have a self-addressed, stamped envelope, please place the examination booklet in the Examination Envelope and seal the envelope. You may not take it with you. Do not put scrap paper in the Examination Envelope. The supervisor will collect your scrap paper.

Candidates may obtain a copy of the examination from the CAS website.

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

10. 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.

11. The exam survey is available on the CAS website in the “Admissions” section. Please submit your survey by May 15, 2006.

END OF INSTRUCTIONS
1. (3.5 points)
   a. (0.75 point)

   Define the following potential actions a plaintiff might allege in tort.

   • Recklessness
   • Negligence
   • Strict Liability

   b. (0.75 point)

   For each of the items listed in part a. above, indicate whether the cause of action is one that an employee might likely have alleged in an employers’ liability suit prior to the implementation of workers’ compensation statutes.

   c. (1 point)

   Identify and describe two defenses an employer might have used in order to make it difficult for a worker to obtain judgment against it in tort, regardless of the cause of action alleged, prior to the implementation of workers’ compensation statutes.

   d. (1 point)

   Contrast the determination of the amount to be recovered for workplace injuries under:

   • employers’ liability during the period of time prior to the implementation of workers’ compensation statutes.
   • workers’ compensation statutes.
2. (3 points)

A compact car struck a sport-utility vehicle (SUV) at an intersection in a state without a no-fault statute. The driver of the compact car sued the owner of the SUV for negligence in a tort action.

a. (0.75 point)

Identify three elements the plaintiff must prove to recover damages from the SUV owner in tort.

b. (0.5 point)

Contrast the recovery expected by the injured driver in the tort action described above with the recovery expected if the accident occurred in a state with an add-on no-fault statute.

c. (0.75 point)

Contrast the recovery expected by the injured driver in the tort action described above with the recovery expected if the accident occurred in a state with a partial-tort-exemption no-fault statute.

d. (1 point)

Identify and describe two general types of exemptions found in partial-tort-exemption no-fault statutes.

CONTINUED ON NEXT PAGE
3. (1.5 points)
   a. (1 point)

      The pace of asbestos claim filings has increased drastically over the last 20 years. Describe two techniques employed by plaintiffs' attorneys in asbestos litigation that result in higher awards or quicker settlements.

   b. (0.5 point)

      Briefly explain the ruling in the landmark case *Borel v. Fibreboard* and describe the impact of the case on the method of compensation for workers suffering from asbestos-related injuries.
4. (2 points)

Government workers’ compensation programs act in competition with private insurers in some states.

a. (0.5 point)

Briefly discuss whether or not these government programs provide a needed service that cannot reasonably be provided by private insurance.

b. (0.5 point)

Briefly discuss whether or not these government programs are reasonably efficient.

c. (0.5 point)

Identify two consumer benefits attributable to these government programs.

d. (0.5 point)

Briefly discuss whether or not these programs have exhibited market acceptance.
5. (2.5 points)

Assigned risk plans and reinsurance facilities are two mechanisms used to provide automobile insurance to the residual market.

a. (1 point)

Contrast the means by which insureds are placed in the residual market for these two residual market mechanisms.

b. (0.5 point)

Identify two objectives that states attempt to achieve by implementing a reinsurance facility rather than an assigned risk plan.

c. (0.5 point)

Contrast how rates are determined for these two residual market mechanisms.

d. (0.5 point)

Contrast how profits and losses are shared for these two residual market mechanisms.
6. (2 points)
   a. (0.5 point)
      Identify two responsibilities of private insurers under the National Flood Insurance Program (NFIP).
   b. (0.5 point)
      Identify two responsibilities of the federal government under the NFIP.
   c. (0.5 point)
      Compulsion is sometimes given as a reason why it is necessary for government to participate in insurance. Identify two means by which the government makes flood insurance compulsory.
   d. (0.5 point)
      Other than compulsion, provide one argument supporting why it is necessary for government to be a participant in the flood insurance market.
7. (2.25 points)
   
a. (0.75 point)

   Identify one objective of the Social Security program and discuss whether the program needs to be compulsory in order to achieve that objective.

b. (1.5 points)

   Describe three arguments supporting the position that Social Security must continue to be a government insurance program, rather than a private one.
8. (1.75 points)

The Social Security program is partially financed through trust funds.

a. (0.5 point)

Identify two purposes of the trust funds.

b. (0.5 point)

Critics of the financing of Social Security argue that the trust funds are fictitious. Explain their argument.

c. (0.75 point)

Supporters of the financing of Social Security argue that the trust funds provide tangible benefit to the program. Explain their argument.
9. (2.5 points)
   a. (1 point)

   Explain why solvency regulation is more important for insurance than for other industries.

   b. (1.5 points)

   Describe three techniques that state insurance departments and/or the NAIC use in regulating solvency of insurance companies.
10. (1.25 points)

Conducting financial examinations is a regulatory activity that falls under the category of monitoring insurer solvency.

a. (0.5 point)

Identify two objectives of an effective examination system.

b. (0.75 point)

Identify three consequences insurance consumers may face from the insolvency of an insurance company.
11. (2 points)

a. (1 point)

Describe two actions a guaranty fund board is authorized to perform that could help prevent an insolvency.

b. (1 point)

Describe two disadvantages of guaranty funds from the perspective of financially strong insurers.
12. (1 point)

Redlining is a topic of concern for insureds, insurers, and regulators.

a. (0.5 point)

   Define redlining.

b. (0.5 point)

   Regulators have the authority to conduct examinations of insurance companies. Identify and describe the type of examination a regulator could use to determine whether an insurer is engaged in redlining.
13. (3 points)

A recurring issue in insurance regulation has been whether insurance should be regulated by state governments or the federal government. Summarize each of the following events and explain its impact on insurance industry regulation and practices.

a. (1 point)
   Paul v. Virginia

b. (1 point)
   South-Eastern Underwriters Association Decision

c. (1 point)
   McCarran-Ferguson Act

CONTINUED ON NEXT PAGE
14. (3 points)

During the first half of the 20th century, insurance rating bureaus were seen as anti-competitive. Today, these bureaus are seen as facilitators of healthy competition.

a. (1.5 points)

Identify three aspects of historical rating bureau activity that later came to be seen as anti-competitive and describe their negative impacts on competition.

b. (1.5 points)

Identify three aspects of rating bureaus today that are seen as facilitating competition and describe their positive impacts on competition.
15. (2 points)

For each of the following statements in support of rate regulation, provide a counter argument.

a. (0.5 point)

The insurance industry's exemption from federal antitrust law leads to collusion among insurers.

b. (0.5 point)

Consumers need to be protected from buying overpriced insurance.

c. (0.5 point)

Whenever insurance coverage is compulsory, rates need to be regulated in order to prevent excessive profits.

d. (0.5 point)

Selective suppression of rates through regulation can be advantageous as it leads to more insurance purchased by individuals who otherwise would engage in risky activities without either insurance or adequate assets.
16. (3 points)

Describe two benefits of a file and use rating law from the perspective of each of the following:

a. (1 point)
   Insurers

b. (1 point)
   Insureds

c. (1 point)
   Regulators
17. (3 points)

Describe two benefits of an excess profits statute in a state that employs prior approval regulation of rates from the perspective of each of the following:

a. (1 point)
   Insurers

b. (1 point)
   Insureds

c. (1 point)
   Regulators
18. (1 point)

Both alien and foreign insurers must meet minimum capital requirements established in each state in order to be eligible to receive placement from surplus lines agents and brokers. In most states, these capitalization standards are similar for both alien insurers and foreign insurers.

a. (0.5 point)

Describe one requirement for alien insurers with respect to the securing of capital that is not required of foreign insurers.

b. (0.5 point)

In 1994, the NAIC issued a model bill that increased the capital requirements for alien insurers in order to provide greater security for purchasers of surplus line coverages. Explain the primary reason behind these suggested increased requirements.
19. (2.5 points)

a. (1 point)

From a regulator's perspective, describe two advantages of the excess wind procedure over simulation-based models in the determination of a catastrophe load in rates.

b. (1.5 points)

Describe three challenges that simulation models pose to the regulatory review of the catastrophe load included in rates.
20. (2 points)

It has been argued that computer models used in ratemaking can be manipulated to inflate loss estimates.

a. (1 point)

Describe two market constraints that help prevent such manipulation.

b. (1 point)

Describe two regulatory safeguards against such manipulation.
21. (4 points)

A company expects the following annual results for its only book of business, prior to ceded reinsurance.

<table>
<thead>
<tr>
<th>Surplus</th>
<th>$50 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Premium</td>
<td>$300 million</td>
</tr>
<tr>
<td>Expected Loss Ratio</td>
<td>75%</td>
</tr>
</tbody>
</table>

The company is considering two different reinsurance structures:

Option #1 – 20% quota share treaty with 10% provisional commission

Option #2 – 40% quota share treaty with 55% provisional commission

In both options, the final commission is determined using a 1-for-1 sliding scale, whereby the final commission is set as 100% minus the actual loss ratio.

a. (0.75 point)

Calculate the net cash flow to the reinsurer as a result of the transaction for each of the two options. Show all work.

b. (0.75 point)

Calculate the surplus of the ceding company as a result of the transaction for each of the two options. Show all work.

c. (0.75 point)

Calculate the ceding company’s net premium to surplus ratio as a result of the transaction for each of the two options. Show all work.

d. (0.5 point)

Based on the results of part c. above, identify whether the ceding company would fail the IRIS test Net Premium to Surplus under each option.

e. (0.5 point)

Assume the ceding company bases its decision between the two options solely on the results of part d. above. Describe whether the ceding company would be in better financial health under this option as compared to the other option.

f. (0.75 point)

Identify two places in the Annual Statement where treaty option #2 would likely be specifically identified.
22. (4 points)

Calculate the total provision for reinsurance for a ceding company with the following reinsurance arrangements. Show all work.

<table>
<thead>
<tr>
<th></th>
<th>Reinsurer A (Authorized)</th>
<th>Reinsurer B (Authorized)</th>
<th>Reinsurer C (Unauthorized)</th>
<th>Residual Market Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinsurance Recoverables</td>
<td>250</td>
<td>200</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Letters of Credit</td>
<td>100</td>
<td>50</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>Recoverables on Paid Loss and LAE over 90 days due, not in dispute</td>
<td>40</td>
<td>40</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Recoverables on Paid Loss and LAE over 120 days due, not in dispute</td>
<td>20</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Recoverables on Paid Loss and LAE, total</td>
<td>200</td>
<td>150</td>
<td>250</td>
<td>75</td>
</tr>
<tr>
<td>Amounts in dispute included above</td>
<td>30</td>
<td>50</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>Amounts company received in last 90 days of statement year</td>
<td>45</td>
<td>35</td>
<td>20</td>
<td>5</td>
</tr>
</tbody>
</table>
23. (2.5 points)

An insurance company writes one line of business with the following values prior to reinsurance.

<table>
<thead>
<tr>
<th>Loss Reserves recorded</th>
<th>150</th>
<th>Present Value of Loss Reserves</th>
<th>116</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Surplus Funds</td>
<td>50</td>
<td>Unassigned Surplus Funds</td>
<td>300</td>
</tr>
<tr>
<td>GAAP Equity</td>
<td>200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The company reinsures 100% of the loss reserves under a retroactive reinsurance agreement for a premium of $120 million.

a. (0.5 point)
   Explain how retroactive reinsurance differs from prospective reinsurance.

b. (0.5 point)
   Describe a reason a company might enter into a retroactive reinsurance agreement.

c. (0.75 point)
   Identify which of the five items listed in the table above would change due to the agreement and provide the new value. Show all work.

d. (0.75 point)
   Identify three ways in which this transaction is recorded in the company's Annual Statement.
24. (1.75 points)

a. (1 point)
   Identify and describe where Schedule P accounts for:
   - assumed proportional reinsurance.
   - assumed non-proportional reinsurance.

b. (0.5 point)
   Describe where Schedule P accounts for ceded non-proportional reinsurance.

c. (0.25 point)
   How would Schedule P be affected if the company were to purchase retroactive reinsurance?
25. (2.5 points)

For each of the following, briefly describe the impact at year-end 2005 on the IRIS test result Estimated Current Reserve Deficiency to Surplus:

a. (0.5 point)

The 2005 earned premium is significantly greater than that of 2003-2004.

b. (0.5 point)


c. (0.5 point)

The business written changed from first-dollar primary policies in 2003-2004 to large deductible policies in 2005.

d. (0.5 point)

The result of the IRIS test Two Year Reserve Development increased.

e. (0.5 point)

A change in actuarial methodology was implemented such that all reserves are estimated more accurately at the end of 2005 than they were in prior years.
26. (1.25 points)

It is important for an insurer to be able to learn about the financial condition and underwriting performance of other insurers and of the insurance industry as a whole. Potential uses of such information include benchmarking and evaluating competitors.

Identify a published source for each of the following:

a. (0.25 point)

   Detailed information on an insurer’s long-term investments

b. (0.25 point)

   The value of an insurer’s subsidiaries

c. (0.25 point)

   Historical aggregate financials for the property-casualty insurance industry

d. (0.25 point)

   Summary reports on individual insurers and groups, including a review and description of the company’s business and operations and a summary of recent financial performance

e. (0.25 point)

   Study of historical reinsurance loss development patterns
27. (2.75 points)
   a. (1.5 points)
      Identify and describe the three main groups of qualitative tests used by A.M. Best in
      its rating process.
   b. (0.75 point)
      Compare and contrast “A.M. Best rating” and “FPR rating”.
   c. (0.5 point)
      Identify two organizations, other than A.M. Best, that assign insurer ratings.
28. (1.5 points)

One category within the credit risk charge of the risk-based capital standards is a charge for reinsurance recoverables.

a. (0.5 point)

Identify two reasons for the inclusion of this reinsurance recoverable charge in the risk-based capital standards.

b. (1 point)

Describe two criticisms of the reinsurance charge.
29. (5.5 points)

Consider the following information about XYZ Insurance Company.

<table>
<thead>
<tr>
<th>Total RBC Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>($000)</td>
</tr>
<tr>
<td>Basic Credit Risk charge</td>
</tr>
<tr>
<td>Basic Reserving Risk charge</td>
</tr>
<tr>
<td>Basic Premium Risk charge</td>
</tr>
<tr>
<td>Cash charge</td>
</tr>
<tr>
<td>Bonds charge</td>
</tr>
<tr>
<td>Common Stocks charge</td>
</tr>
<tr>
<td>Real Estate charge</td>
</tr>
<tr>
<td>Investments in Insurance Affiliates charge</td>
</tr>
</tbody>
</table>

There are no other categories for which XYZ has a risk based capital charge.

<table>
<thead>
<tr>
<th>Annual Statement Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>($000)</td>
</tr>
<tr>
<td>Statutory Surplus</td>
</tr>
<tr>
<td>Non-tabular discount</td>
</tr>
<tr>
<td>Tabular discount in reserves</td>
</tr>
<tr>
<td>Unrealized capital gains</td>
</tr>
<tr>
<td>Realized capital gains</td>
</tr>
</tbody>
</table>

a. (2.25 points)

Calculate R0 through R5 as used in the formula for risk based capital. Show all work.

b. (0.5 point)

Calculate XYZ’s total risk based capital requirements. Show all work.

c. (2 points)

Identify and describe the four RBC Action Levels, including the consequences of each.

d. (0.75 point)

Identify the Action Level indicated in part b. above. Show all work.
30. (3.5 points)

Use the information below to answer the following questions about risk based capital requirements.

Loss and loss expense percentages extracted from
Schedule P Part 1B – Private Passenger Auto Liability/Medical

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry Loss and Loss Expense (%)</th>
<th>Company Loss and Loss Expense (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>1996</td>
<td>76.0</td>
<td>65.0</td>
</tr>
<tr>
<td>1997</td>
<td>91.0</td>
<td>92.0</td>
</tr>
<tr>
<td>1998</td>
<td>75.0</td>
<td>80.0</td>
</tr>
<tr>
<td>1999</td>
<td>87.0</td>
<td>80.0</td>
</tr>
<tr>
<td>2000</td>
<td>77.0</td>
<td>78.0</td>
</tr>
<tr>
<td>2001</td>
<td>78.0</td>
<td>76.0</td>
</tr>
<tr>
<td>2002</td>
<td>73.0</td>
<td>76.0</td>
</tr>
<tr>
<td>2003</td>
<td>74.0</td>
<td>70.0</td>
</tr>
<tr>
<td>2004</td>
<td>80.0</td>
<td>82.0</td>
</tr>
<tr>
<td>2005</td>
<td>70.0</td>
<td>65.0</td>
</tr>
<tr>
<td>5-year average</td>
<td>75.0</td>
<td>73.8</td>
</tr>
<tr>
<td>10-year average</td>
<td>78.1</td>
<td>76.4</td>
</tr>
</tbody>
</table>

- The industry average expense ratio for all lines is 27.0%.
- The industry average expense ratio for this line of business is 29.0%.
- The company’s Annual Statement reports an expense ratio for all lines of 28.0%.
- Internal company documents report an average expense ratio for this line of 30.0%.
- The adjustment for investment income factor is 0.924.
- The written premium for the company in 2005 was $75 million.

a. (3 points)

Calculate the basic written premium risk charge. Show all work.

b. (0.5 point)

Describe what the written premium risk charge is designed to measure.
31. (4 points)

Use the information below to answer the following questions related to the Insurance Expense Exhibit.

<table>
<thead>
<tr>
<th></th>
<th>Workers' Compensation ($000)</th>
<th>Auto Liability ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
<td>2005</td>
</tr>
<tr>
<td>Earned Premium during the year</td>
<td>7,500</td>
<td>9,000</td>
</tr>
<tr>
<td>Loss &amp; LAE Reserve at year end</td>
<td>12,000</td>
<td>13,500</td>
</tr>
<tr>
<td>Unearned Premium Reserve at year end</td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td>Agents’ Balances at year end</td>
<td>500</td>
<td>600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual Statement Data ($000)</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholder Surplus</td>
<td>20,000</td>
<td>24,000</td>
</tr>
<tr>
<td>Net Investment Income</td>
<td>4,500</td>
<td>4,000</td>
</tr>
<tr>
<td>Realized Capital Gain</td>
<td>(610)</td>
<td>1,000</td>
</tr>
<tr>
<td>Unrealized Capital Gain</td>
<td>1,200</td>
<td>1,500</td>
</tr>
</tbody>
</table>

a. (1 point)

Calculate the investment gain ratio for 2005. Show all work.

b. (2 points)

Calculate the surplus by line of business for 2005. Show all work.

c. (1 point)

Calculate the investment gain for auto liability for 2005. Show all work.
32. (2.5 points)

An insurance company started writing business on January 1, 2005. Use the information below to calculate the statutory surplus for the company as of December 31, 2005. Show all work.

<table>
<thead>
<tr>
<th>Annual Statement Data</th>
<th>($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>Written Premium</td>
<td>30,000</td>
</tr>
<tr>
<td>Ending Unearned Premium Reserve</td>
<td>20,000</td>
</tr>
<tr>
<td>Paid Loss during the year</td>
<td>3,000</td>
</tr>
<tr>
<td>Ending Loss &amp; LAE Reserve</td>
<td>4,000</td>
</tr>
<tr>
<td>Interest Income</td>
<td>1,000</td>
</tr>
<tr>
<td>Realized Capital Gains</td>
<td>2,000</td>
</tr>
<tr>
<td>Unrealized Capital Gains</td>
<td>(5,000)</td>
</tr>
<tr>
<td>Policyholder Dividends, declared &amp; unpaid</td>
<td>500</td>
</tr>
<tr>
<td>Stockholder Dividends, declared &amp; unpaid</td>
<td>250</td>
</tr>
<tr>
<td>Beginning Surplus</td>
<td>10,000</td>
</tr>
</tbody>
</table>

Average commission rate during 2005: 15%.
33. (3.25 points)

a. (1 point)

Identify the intended audiences and the primary objectives of SAP and GAAP accounting.

b. (2.25 points)

Define each of the following and contrast its treatment under SAP and GAAP accounting:

- Non-admitted assets
- Policy acquisition expenses
- Unauthorized reinsurance
34. (3.25 points)

The Financial Accounting Standards Board (FASB) is considering a conceptual framework that seeks to measure all financial instruments at fair values.

a. (0.5 point)

Define fair value.

b. (0.75 point)

Describe the event that caused FASB to embark on a project to consider the move to fair value accounting.

c. (0.75 point)

Describe how bonds in good standing that an insurance company actively buys and sells and does not intend to hold to maturity would be recorded on the balance sheet under each of the following:

- SAP
- GAAP
- Fair value accounting

d. (0.5 point)

Describe how a change in GAAP accounting to adopt fair value accounting would impact the valuation of the policy benefit liabilities.

e. (0.75 point)

Describe how a change in GAAP accounting to adopt fair value accounting would impact the presentation of policy benefit liabilities in GAAP financial statements.
35. (2 points)

The NAIC in the U.S. and the Office of the Superintendent of Financial Institutions (OSFI) in Canada each has a capital adequacy test to help ensure that property/casualty insurers have adequate capital to cover various risks.

a. (1 point)

Name and briefly describe each test.

b. (0.5 point)

Briefly describe how each test takes into account the risk associated with fixed income securities held on the insurer’s balance sheet.

c. (0.5 point)

Briefly describe how each test takes into account the risk associated with investments in non-insurance affiliates.
36. (3 points)

An insurance company's reserve for unpaid loss and loss adjustment expenses is $100 million. The Appointed Actuary's range of reasonable reserve estimates is $90 million - $110 million.

a. (0.25 point)

Identify the category of opinion that the Appointed Actuary should make in the "Statement of Actuarial Opinion" for this company.

b. (2 points)

Identify and describe the four other categories of opinions that may be made.

c. (0.75 point)

Summary exhibit(s) of either the actuary's best estimate or the range of reasonable reserve estimates, or both, which led to the conclusion in the OPINION paragraph regarding the reasonableness of the provisions for all unpaid loss and loss adjustment expense obligations, must be contained in the Actuarial Report.

Briefly describe three other items that must be included in the Actuarial Report.
37. (2 points)

There was a significant change for the year-end 2005 Statement of Actuarial Opinion in that the Appointed Actuary will need to file an Actuarial Opinion Summary (AOS), which will be held confidential and not for public use. Describe four items contained in the AOS.
38. (2.5 points)

A medical malpractice insurance company was formed in October, 2004 and began writing business in 2005.

- All 2005 policies were effective April 1, 2005.
- All premiums and losses are retained by the company (i.e., no reinsurance).
- 2005 Written Premium: $3 million.
- 2005 Incurred Expenses (other than loss adjustment): $525,000.

One loss was reported in 2005. In 2005, the claim had no paid loss but had defense and cost containment (DCC) payments of $150,000. As of December 31, 2005, the claim had a case loss reserve of $500,000 and case DCC reserve of $200,000.

As of December 31, 2005, company management estimated net incurred but not reported reserves of $1.2 million ($900,000 loss and $300,000 DCC).

The company writes policies on a claims-made basis and offers complimentary extended reporting coverage in the event of death, disability, or retirement. Company management estimated the extended reporting period endorsement reserve to be $150,000.

a. (2.25 points)

Calculate the following items from the 2005 Annual Statement. Show all work.

- Premiums Earned
- Losses, as shown on Line 1 of the Liabilities page
- Net Underwriting Gain or Loss

b. (0.25 point)

In the Statement of Actuarial Opinion, the Appointed Actuary must disclose certain reserve-related items in Exhibit B: Disclosures.

Identify one disclosure that is material for this company
39. (2 points)

In determining taxable income, a number of adjustments must be made to statutory income. Among these is the 20% revenue offset applied to the change in unearned premium. Identify and briefly describe four others.
Based on the following data as of December 31, 2005, determine the loss payment pattern for federal income tax purposes. Show all work.

<table>
<thead>
<tr>
<th>Accident Year</th>
<th>Losses Paid</th>
<th>Losses Incurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$10,000</td>
<td>$100,000</td>
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<tr>
<td>2004</td>
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<td>$35,000</td>
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<tr>
<td>1997</td>
<td>$25,500</td>
<td>$30,000</td>
</tr>
<tr>
<td>1996</td>
<td>$22,750</td>
<td>$25,000</td>
</tr>
</tbody>
</table>
QUESTION 1

Part a.
Recklessness: willful disregard for another’s safety

Negligence: person or group causing injury failed to exercise reasonable care in their action or inaction

Strict Liability: regardless of defendant’s actions they should be held liable for damages as a matter of tort law

Part b.
Employee could have argued that the employer acted recklessly or negligently in a liability suit prior to implementation of WC statutes. They would have been unlikely to allege strict liability however.

Part c.
– Contributory negligence is a defense that argues that if the plaintiff had any part in contributing to the injury sustained then the defendant should not be liable for damages
– Assumption of risk says that the employee was aware of the job responsibilities and the dangers it entailed and still decided to do the job thus clearing the defendant of any liability.

Part d.
Prior to WC statutes, employees had to sue their employers for damages. Case by case determination of fault was needed through examination of evidence. If plaintiff won their suit, they could then recover damages and potentially amounts for pain and suffering. After WC statutes, benefits are established by the state and are paid regardless of fault.
QUESTION 2
Part a.
– Breach of a duty of care defendant owed to plaintiff.
– Actual injuries/damage suffered by plaintiff.
– Actual and proximate causation between defendant’s breach and plaintiff’s injury.

Part b. – Sample 1
In a tort action, the recovery would include compensatory damages, including damage to car and any injuries sustained by plaintiff, as well as punitive damage for any pain and suffering. All damages are paid by the defendant. With an add-on statute, no fault benefits are paid by plaintiff’s insurance company. All tort claims are still allowed and plaintiff’s insurance company can receive payment from defendant. Pain and suffering claims can still be filed.

Part b. – Sample 2
Without no-fault statute benefit includes injuries to body, property damage and includes pain and suffering; these benefits are only recovered if SUV driver is proven negligent in a court of law. Add-on no-fault statute allows injured to get guaranteed benefits for bodily harm and property damage; pain and suffering benefits can only be recovered through winning a court settlement.

Part c. – Sample 1
In a tort action, recovery would include compensatory damages and punitive damages which are recoverable from defendant or defendant’s insurance company. Partial-tort exemption provides no fault benefits for less serious claims/injuries and preserves all tort claims for more serious claims. Thus pain and suffering can only be recovered for serious claims.

Part c. – Sample 2
As described above, tort action requires proof of fault, retains ability to sue and has slow recoveries. Under partial-tort exemption no-fault statutes, recovery regardless of fault can be made. In this case, the plaintiff retains the right to sue for excess damages if they “qualify” such as having certain type of injury or incurring certain amount of expenses.

Part d. – Sample 1
Medical Threshold: A stated dollar amount such that claims greater than threshold can file for tort recovery.
Descriptive Standard: A verbal threshold limiting tort recovery to those claims for permanent disfigurement or serious impairment.

Part d. – Sample 2
Descriptive Standard: Only injuries of a specific nature or specific severity may be considered as above the threshold for allowing suing for negligence and damages.
Deduction from Damages Findings: Whatever the court decided for damages (outside of no-fault damages) will be reduced by a specified amount, which is specified ahead of time.
QUESTION 3
Part a. – Sample 1
Forum Shopping: Bringing suits in states known for awarding large damage recoveries such as Texas and Mississippi.
Joining of Plaintiffs: Bringing a suit involving both impaired and unimpaired plaintiffs, resulting in higher settlements for the unimpaired plaintiffs than if they had not been joined to impaired plaintiffs.

Part a. – Sample 2
– File claim in state that is more likely to allow attorney to win the case. Many asbestos cases are geographically concentrated.
– Targeting deep-pocket defendants. Peripheral defendant who had asbestos encapsulated in their products had more financial resources to pay than bankrupt asbestos manufacturers.

Part b. – Sample 1
Moved cases from workers’ comp to tort system and found six manufacturers both joint-and severally liable and strictly liable.
The move to the tort system allowed for compensation for pain and suffering and the awarding of punitive damages.

Part b. – Sample 2
The ruling shifted responsibility of asbestos-related injuries from WC system to manufacturers. Manufacturers of asbestos products would be held strictly liable for harm of their products.
QUESTION 4
Part a. – Sample 1
In states without a state fund, private insurers appear to be meeting the needs of the public. This may indicate that state funds are unnecessary.

Part a. – Sample 2
Government claims that the insurance coverage they provide cannot be provided by private insurers, but really, government may not understand why private insurers cannot provide it, and may be providing insurance for an uninsurable risk (and just losing money).

Part b.
Government programs are possibly more efficient than private insurers because they don’t have to offer commissions to agents. However, there are some additional government charges that may make government programs not as efficient as they seem.

Part c.
- More availability of certain types of insurance.
- Provide WC for certain employees that weren’t covered before.

Part d.
These programs have exhibited some market acceptance, but private workers compensation insurers still make up a large portion of market share.
QUESTION 5
Part a. – Sample 1
Assigned Risk Plans – Insureds are assigned to individual insurers based on market share.
Reinsurance Facility – Insureds apply to insurance companies like usual, the company then cedes the premium and losses to the facility.

Part a. – Sample 2
Assigned Risk Plan – assigned risks assigned to a voluntary insurer who must accept them (i.e., plan sends risks to insurers).
Reinsurance Facility – Voluntary insurer accepts all risks then cedes undesirable ones to facility.

Part b. – Sample 1
Avoid the stigma of being in the residual market.
Better service to residual market.

Part b. – Sample 2
Keep insureds from being readily able to discern if they are in the assigned risk pool.
Fairer distribution of profit/loss to voluntary market.

Part c. – Sample 1
The maximum rates are prescribed by the government in both cases.

Part c. – Sample 2
For a reinsurance facility, rates are not discernibly higher for risk than rest of market.
For assigned risk plan, state sets rate for insurer to charge the risk.

Part d. – Sample 1
Assigned Risk Plans – Each individual insurer keeps their own losses and premium
Reinsurance Facility – The losses of the facility are shared among all insurers based on primary market share.

Part d. – Sample 2
Reinsurance Facility – Profit/loss distributed to voluntary market by formula.
Assigned Risk Plan – Once risks are assigned to an insurer, that insurer takes any profit/loss risk has.
QUESTION 6
Part a.
– Write policies and collect premium.
– Handle claims.

Part b.
– Set the rates.
– Develop flood zone maps to identify flood prone areas.

Part c.
– If flood insurance is available, it must be purchased in order to have a federally backed mortgage.
– If flood insurance is available, it must be purchased to ensure the availability of services of the Disaster Relief Program.

Part d.
Flood is a highly catastrophic event that private insurers are unwilling to cover.
QUESTION 7
Part a.
To provide a minimum level of retirement income to all. In order to achieve this objective, the program needs to be compulsory. Even if individuals could opt out by giving up the benefits the program, could potentially lose too many participants to continue to sustain those that remain. Particularly since it would be mainly younger workers who would opt out and their contributions are necessary to pay current benefits.

Part b.
– Since social security is financed primarily through payroll taxes it is easier for government to handle the collection of the taxes.
– If social security has financial difficulties the government can use its taxing powers to raise the needed funds.
– Because social security is so complex it is easier for the government to administer.
QUESTION 8
Part a.
– To serve as a contingency fund at times when outflow > inflow.
– To generate interest income.

Part b.
They claim there really is no trust fund because the money in the trust fund has been lent to different areas of the Federal government. The trust fund is a big I.O.U. Then the government taxes people more to pay interest on I.O.U.

Part c. – Sample 1
The supporters argue that the I.O.U in the trust fund is backed by the full faith and credit of the US government. They also point out that if the money wasn’t borrowed from the trust fund it would have to be borrowed from other sources. So, the public would still have that tax to pay the interest.

Part c. – Sample 2
The trust fund invests in these government securities, which are obligations of the federal government. The trust fund in return receives a certificate for the security and the government is obligated to pay interest and principle once the securities are redeemed or mature.
QUESTION 9
Part a. – Sample 1
Solvency regulation is more important for insurance than other industries because the outcome of insolvencies on the customer is more detrimental for insurance. Insureds face losses that potentially will not be paid. In other industries a customer could most likely purchase a product from another company. In addition, customers know less information about insurers than other companies. Lastly, the cost of good in other industries is easy to compute and known. That is not the case for the insurance industry.

Part a. – Sample 2
Solvency regulation protects consumers who pay initial premium for promise of future service and protection. Insurance insolvency causes a loss of premium paid and insured is not protected. The costs of insolvency including direct loss and indirect loss are eventually passed back to the consumer. Consumers usually do not have some financial stake in other companies.

Part b. – Sample 1
Financial Examinations – State regulators monitor insurer’s financial statements and examine its records to assess the strength of the company.

NAIC RBC Ratio – The risk-based capital analysis establishes a minimum level of required capital and gives the state legal authority to take over an insurance company if necessary.

IRIS Ratios – The tests help determine as early as possible those insurers that might be in financial trouble and prioritizes the examination schedule accordingly.

Part b. – Sample 2
Examining Financial Statements – Reveals reinsurance adequacy, loss development, expenses, investments, etc.

IRIS Ratios – Help identify areas that need further investigation; too many failing scores can warrant an examination.

Statement of Actuarial Opinion – Provides actuarial insight as to adequacy of reserves, collectibility of reins, etc.

Part b. – Sample 3
They ensure a minimum capital is held via RBC requirements

Statutory accounting is done with solvency in mind – liquidity is considered for assets.

Actuarial Opinion – Reserves are tested independently. Inadequate reserves would lead to insolvency.
QUESTION 10
Part a. – Sample 1
– Identify as early as possible those insurers that are in financial trouble.
– Provide information to regulator on which the regulator determine the next step to do.

Part a. – Sample 2
– Identify insurers that are in financial trouble or involved in unlawful conduct.
– Put together the needed information for regulatory activity.

Part a. – Sample 3
– To detect as early as possible those insurers that are in financial trouble or engage in inappropriate, unlawful market activities.
– To provide enough information for proper regulatory actions.

Part b. – Sample 1
– They suddenly find the risk they thought they had transferred is not transferred at all.
– The claims reported may not be fully paid.
– Unacceptable delay in settlement is experienced by claimants in most liquidation.

Part b. – Sample 2
– Their claims are capped to a certain amount (except WC).
– Consumers will lose part of their unearned premium.
– Consumers’ insurance costs can go up because insurers will pass on the cost of guaranty funds.

Part b. – Sample 3
– Discontinuity of coverage.
– Delay in claim payment.
– Insufficiency of claim payment.
QUESTION 11
Part a.
– Guaranty fund board can make recommendation to state regulator about actions needed to take to prevent insolvency.
– Guaranty fund board can actively participate in the correction activities for those companies which show financial difficulties.

Part b.
Disadvantage for financially strong insurers.
– Solvent companies are directly assessed for paying guaranty fund. This adds to their cost.
– Some weak insurance companies may aggressively market their products, attract insureds, since the existence of guaranty fund. Consumers lack incentive to shop around. Competition distorted.
QUESTION 12
Part a.
Insurer practices/procedures that may limit availability or affordability of coverage in urban areas or to minority groups.

Part b.
Market Conduct – An examiner will review an insurer’s sales, underwriting, and pricing to ensure that there is no disparate treatment.
QUESTION 13
Part a. – Sample 1
Paul v Virginia – Ruling that insurance was not interstate commerce and insurance should be regulated by the states.
    Impact – Regulation of insurance through states, use of bureau rates, ratemaking in concert.

Part a. – Sample 2
Paul v Virginia – Ruled that insurance is not interstate commerce and therefore not subject to Federal regulation and anti-trust laws.

Part b. – Sample 1
SEUA Decision – Ruling that insurance was interstate commerce and the federal government should regulate insurance.
    Impact – Sherman Act, Clayton Act, Robinson-Patman Act, and federal anti-trust laws all applied to insurance, so no anti-competitive action allowed.

Part b. – Sample 2
SEUA Decision – Court ruled insurance is commerce, subject to Federal regulation and Sherman Act and other anti-trust legislation
    Impact – Subject to Federal regulation. Insurance bureaus no longer allowed to make rates in concert.

Part c. – Sample 1
McCarran-Ferguson Act – Decision that it was in the public interest for states to regulate insurance and federal government regulates to the extent the states don’t.
    Impact – Sherman Act applies for boycott, coercion, and intimidation. Federal laws specific to “business of insurance” trump state regulation. This led to states quickly passing regulation. A lot of states went to prior approval for filing; bureau rates encouraged as long as not interfering with competition.

Part c. – Sample 2
McCarran-Ferguson Act – Ruled that it is in the public interest for states to regulate insurance. However, Federal anti-trust laws apply in absence of state regulation. Federal laws apply with respect to boycott, collusion, and coercion as well as labor laws. Also, any federal law for insurance supersedes state.
    Impact – Returns regulation to state NAIC model laws. Insurance bureaus allowed to provide loss costs, but not to force companies to use them.
QUESTION 14
Part a. – Sample 1
– Setting of rates with mandatory adherence by member companies – stifled competition in rates by elimination of differences for rating classification differences.
– Mandatory use of forms – prohibited companies from developing new coverages or distinguishing themselves from competitors by coverage.
– Prohibition against use of companies who were not members – limited choices for consumer.

Part a. – Sample 2
– Published Bureau Rate – a form of industry collusion to keep prices at a predetermined level, which discouraged insurers from competing to lower costs and prices.
– Challenging Filings of Competitors who sought to sell at lower than bureau rates.
– Encouraging agent and re-insurer boycotts of companies that deviated from bureau rates.

Part a. – Sample 3
– Forced everyone to use same rates to try to maintain adequate rates but later prevented direct writers with lower expenses from entering.
– Provided rates which included loss costs and expenses which kept everyone the same, reduced scope for innovation.
– Everyone used same coverages, forms, rating variables which prevented innovation in classification systems and coverages.

Part b. – Sample 1
– Form Development – Seen as innovative in developing forms that assist the industry in implementing new coverages.
– Statistical Gathering – Provides large depository for statistical info that helps smaller insurers with less data compete with larger carriers.
– Provide ancillary services which help insurers better identify and class risks (protection class, inspections, modeling, etc).

Part b. – Sample 2
– Loss cost information facilitates entry of new competitors.
– Independent management ensures owner companies can’t manipulate information.
– Publishing loss costs instead of rates encourages each competitor to load in their own expenses and profit load.

Part b. – Sample 3
– Reduce barriers to entry for new companies because can (relatively) cheaply purchase information to set rates in new market or for new company.
– Help small companies stay in business because have access to credible data.
– Provide forms and policies which serve as minimum standard and facilitate comparison among companies.
QUESTION 15
Part a. – Sample 1
The market structure of insurance industry is inconsistent with collusion among insurers.

Part a. – Sample 2
Advisory rate organizations promote healthy competition and reduce risk to insurers

Part b. – Sample 1
This should be solved by better information disclosure. Information for competitor’s pricing and claim handling should be provided to insured for them to choose from competing insurers.

Part b. – Sample 2
Regulators can implement plans, not laws, to educate the public about insurance purchasing options.

Part c.
Inelasticity in demand doesn’t produce excess profit in competitive market.

Part d. – Sample 1
This is a crude way to subsidize high risk. This can be done by social welfare programs, provide subsidy to high risks.

Part d. – Sample 2
Suppression of rates also leads to increases in the residual market size. This has encompassed increased costs and moral hazard.
QUESTION 16
Part a.
– Reduces time and cost of changing rates – easier to be responsive.
– Allows insurer to be more innovative since less worry over disapproval.

Part b.
– Reduced cost can be passed on to insureds at lower rates.
– Those insureds benefiting from price decreases/innovation benefit from quicker speed-to-market.

Part c.
– Allows regulator to focus on other areas such as solvency.
– Reduces resources needed since prior approval can be very costly.
QUESTION 17

Part a.

Insurers
– It should allow for quicker regulatory approval since a regulator does not have to worry about approving “excess” rates.
– In addition to being quick, regulators will be more likely to approve larger rate increases since they know the excess profit law exists.

Part b.
– Greater availability of products and coverage for the consumers as insurers price coverages closer to the true/fair price.
– Are left with a peace of mind that if insurers make excessive profits, they are forced to refund the profits to the policyholders.

Part c.
– Allows regulator to approve rates with confidence that EP will be returned (if any).
– Allows regulator to focus on other areas such as solvency.
QUESTION 18
Part a.
Alien insurers must deposit $2.5M in a US based trust fund. They need to differentiate surplus business from other lines of business; otherwise, they are subject to a higher capitalization requirement.

Part b.
Alien insurers are not subject to guaranty funds protection in the event they become insolvent. Thus they need higher capital requirement.
QUESTION 19

Part a.
– It can be used to determine load factor for non-hurricane losses.
– The procedure uses simple mathematical calculations that can be easily verified.

Part b.
– Difficulty in Verifying the Data – Models often use exposure data which is not reported elsewhere in the financial statement.
– Model Complexity – Models require complex seismic, meteorological, actuarial expertise to understand the calculation.
– Black Box Nature – The data is often sent to the modeler’s facility and run through the proprietary models which makes it difficult to understand the process and calculation.
QUESTION 20
Part a.
– If loss estimates are inflated in a competitive market the insurer will lose its business to other companies that offer lower rates that were determined without inflating the loss estimates.
– Inflated loss estimates put downward pressure on insurer’s financial ratings thus increasing the cost of reinsurance.

Part b.
– Require legal affidavit from insurer that states the model has not been manipulated.
– Ask modeler to provide rate ranges that incorporate demographic data, deductible, and construction type.
QUESTION 21
Part a. – Sample 1
Option 1 – Cash payment to reinsurer
  = $300M x 20% x (100% - 10%)
  = $54M
Option 2 – Cash payment to reinsurer
  = $300M x 40% x (100% - 55%)
  = $54M

Part a. – Sample 2
DWP = 300M *Assuming actual loss = Expected loss
ELR = 75%
Exp. Losses (Direct) = 225M
Option 1 –
Ceded WP = 0.20 x 300M
  = 60M
Ceded Loss = 0.20 x 225M
  = 45M
Provisional ceding commission = (100% - 75%) x Ceded WP
  = 0.25 x 60M
  = 15M
Net cash flow to reinsurer assuming ultimate actual loss = expected loss
  = 60M – 45M – 15M
  = 0M
Option 2 – Again, assume actual ultimate loss = expected loss
Ceded WP = 0.40 x 300M
  = 120 M
Ceded Loss = 0.40 x 225M
  = 90M
Ceding Commission = (1.00 – 0.75) x 120M
  = 30 M
Net cash flow to reinsurer = 120M – 90M – 30M
  = 0M

Part a. – Sample 3
Surplus = $50M WP = $300M ELR = 75%
#1 – 20% QS 10% provisional commission
#2 – 40% QS 55% provisional commission
Expected losses = $300M x 75%
  = $225M

#1 – At beginning of policy, reinsurance premiums = $300M x 0.20 x (1 - 0.10)
  = $54M
#2 – At beginning of policy, reinsurance premiums = $300M x 0.40 x (1 – 0.55)
  = $54M
Assume actual LR = ELR; commission = 25% (both options)

#1 – At end,
   Losses = 20% x $225M  
   = $45M  
   Premium = $300M x 0.20 x (1 – 0.25)  
   = $45M  
   Net cash flow = 0

#2 – At end,
   Losses = 40% x $225M  
   = $90M  
   Premium = $300M x 0.40 x (1 -0.25)  
   = $90M  
   Net cash flow = 0

Part b. – Sample 1
Option 1 – Surplus Relief = Ceding Commission (provisional)  
   Surplus = $50M + $300M x 20% x 0.1  
   = $56M  
Option 2 – Surplus = $50M + $300M x 40% x 0.55  
   = $116M

Part b. – Sample 2
Surplus = Net Premium – Net Loss + Ceding Commission + Starting Surplus  
   = 0.80(300M) – 0.80(0.75 x 300M) + 0.25 x 0.20 x 300M +50M  
   =125M  
   = 0.60(300M) – 0.60(0.75 x 300M) +0.25 x 0.40 x 300M +50M  
   125M

Part c.
Option 1 – NWP to Surplus = 300 x 0.8 / 56  
   = 4.286  
Option 2 – NWP to Surplus = 300 x 0.6 / 116  
   = 1.552

Part d.
Option 1 – Over 300% = Fail  
Option 2 – Under 300% = Pass

Part e. – Sample 1
Based on d., the ceding company will take Option 2. But in the end, when losses come in,  
the expected financial result will be the same after considering the ceding commissions  
and expected underwriting profit. The ending surplus will be $125 million in both cases.
Part e. – Sample 2
The company would be in the exact same financial position regardless of the option chosen as the 1 – 1 sliding scale ensures that.

Part e. – Sample 3
It would not. The surplus relief is artificial since the ceding commission will adjust 1:1 with the loss ratio.

Part e. – Sample 4
Take Option 2. It will not be in better financial position. If LR = 75% as expected, every dollar of retained WP company makes 25¢. On every dollar of ceded WP company gets 25¢ commission. So ceded or not this book of business will make the company (300) (0.25) = $75M. (WP = written premium, assume expected loss include all expense.)

Part e. – Sample 5
No, the ceding company would not be in a better financial health by choosing Option 2 since both options produce the same amount of the ending surplus.

Part e. – Sample 6
Even though the company passes the IRIS-1A test, the reinsurance transaction did not transfer insurance risk (1 – 1 sliding scale commission with no cap) and therefore the company’s financial position has not changed (except that capital is now available to fund any immediate cash needs).

Part e. – Sample 7
They will be in the same financial health as the sliding scale commission will be adjusted based on the actual experience. The differences are temporary – insurers purchase such reinsurance to mask their true operating leverage – just a perception – to look better.

Part e. – Sample 8
Expected losses = 225    Option 1: Final Commission = 25% x 20% x 300 = 15
(opt 1) 300 – 225 +15 + 45 – 60 = 75 profit    Ceded Loss = 225 x 0.2 = 45
WP – EL + comm + ceded loss – ceded WP = profit    Net WP = 240;  Ceded WP = 60

(opt 2) 300 – 225 +30 + 90 − 120 = 75
Option 2: Final Commission = 25% x 40% x 300 = 30
Ceded loss – 225 x 0.40 = 90
Net WP = 180  Ceded WP = 120
Same final profit!

Part e. – Sample 9
Because the ceding commission effectively transfers all risk back to the cedant, the cedant is in the same financial position in reality under both cases.

Part e. – Sample 10
There is no effect on the financial health as the net cash flows are the same.
Part e. – Sample 11
Although the second option seems better it looks as though the ceding commission is masking the company’s true leverage. Neither is better! The cash flow to the reinsurer is zero.

Part e. – Sample 12
The contracts have the same rate in the end where all potential reinsurance profits are returned to primary insurer; reinsurer only providing surplus relief, not reinsurance.

Part f.
– Schedule F, footnote 1 to Part 3, ceded reinsurance (discloses 5 highest provisional ceding commission rates).
– Notes to financial statement: “Reinsurance ceded and assumed” to measure commission equity.
QUESTION 22
Reinsurer A – We first look at test ratio to decide whether it is slow paying or not:

\[
\text{Recoverables on paid more than 90 days overdue} / \text{Total recoverables on paid + paid in last 90 days}
\]

Note: Amounts in dispute are excluded from this calculation.

\[
40 / ((200 – 30) + 45) = 40 / (170 + 45) = 40 / 215 = 18.6\% \quad \text{-- not slow paying}
\]

Provision for A: 20% (overdue more than 90 days) + 20% (in dispute)
\[
= (0.2)(40) + (0.2)(30) = 14
\]

Reinsurer B

\[
\text{Ratio} = 40 / ((150 – 50) + 35) = 40 / (100 + 35) = 40 / 135 = 29.6\% \quad \text{-- slow paying}
\]

Provision for B: max (20% (total unsecured recovery), 20% (overdue more than 90 days))
\[
= \max (.2(200 – 50), .2(40)) = 30
\]

Reinsurer C

Unauthorized => Provision = 100% (total unsecured recoverables) + 20% (in dispute) + 20% (overdue more than 90 days) (limited by total recoverables)
\[
= 100\%(300 – 60) + (0.2)(100) + (0.2)(75) = 275
\]

No provision for Residual Market Pool

Total provision = 14 + 30 + 275 = 319

(Sample 2 for determination of slow paying):
Reins A: \((40+20) / (200-30+45) = 27.9\% > 20\% \Rightarrow \text{slow paying}\)
Reins B: \((40+20) / (150-50+35) = 44\% > 20\% \Rightarrow \text{slow paying}\)
(I assume that the amts over 90 days due DO NOT include the amts over 120 days due)

(Sample 2 for calculation of Provision for A):
20% of overdue (90 days) = 20% x 40 = 8
As per Feldblum discussion, only overdue >90 days is included in penalty, so I assume amount in dispute is < 90 days overdue
QUESTION 23
Part a.
Retroactive reinsurance transfers loss liabilities that already occurred. This increases surplus. Consideration is calculated using present values techniques. Prospective reinsurance reinsures losses that have yet to occur.

Part b. – Sample 1
To provide surplus relief, recognized immediately under SAP – the difference between the carried reserves and the consideration paid evaluated using present value techniques.

Part b. – Sample 2
When a company wants to withdraw from a territory a line of business, they might enter into a loss portfolio transfer to cede less reserves and stop writing business in this area.

Part b. – Sample 3
Retroactive reinsurance removes risk of adverse development on loss reserves and timing of those payments. Company may enter agreement to get rid of that uncertainty. It may want to do that if it is exiting that particular line of business.

Part c.
Loss Reserves – No change
PV of Loss Reserves – No change
Special Surplus – Increase by 150 – 120 = 30, so new value is 50 + 30 = 80M
Unassigned Surplus – No change
GAAP Equity – No Change (accrued to income as losses actually paid – no immediate recognition)

Part d.
Annual Statement
– This transaction decreases BS assets by consideration pd (120M) and decreases liabilities through contra-liability by amount of reserves (150M).
– This transaction increases “other income” on income statement by (reserve amount – consideration paid) = (150 – 120) = 30M
– This transaction increases special surplus by difference in reserves and consideration paid = 30M
QUESTION 24

Part a.
Assumed Proportional Reinsurance – accounted for in the line of business (LOB) it covers
  e.g. homeowners – homeowners/farmowners
  workers comp – workers compensation

Assumed Non-proportional Reinsurance – mapped to either Reinsurance A = Property, B = Liability, C = Financial
  e.g. workers comp – Reinsurance B
  fire – Reinsurance A

Part b.
Ceded Non-proportional Reinsurance would be accounted for in its original line of business
  e.g. workers comp – workers comp
  Reinsurance A – Reinsurance A

Part c.
No change. Retroactive Reinsurance does not affect Sch P.
QUESTION 25

Part a. – Sample 1
Indicated Reserves will significantly increase as well. This may cause a deterioration in the test result to the extent that the company has not significantly increased reserves as well.

Part a. – Sample 2
The ratio used in test is reserves + development over earned premium. A higher earned premium is going to translate into significantly higher reserves being needed. If reserves have not “kept up” with the increase in earned premium, a deficiency will arise.

Part b. – Sample 1
Test Result will be artificially lower, because average outstanding loss ratios of years past will be lower than current business would indicate.

Part b. – Sample 2
This could show that reserves are adequate when they are not. In the 03 and 04 years, reserve levels are lower because short-tailed lines pay out quicker (thus, less reserves). However on a longer-tailed line, the reserve for payments on later claims should be higher. The ratios developed for the short-tailed line will not be sufficient for predicting long-tailed reserves.

Part c. – Sample 1
Large deductible policies have a longer tail than first dollar policies. This shift will have the same result as part b. (test result artificially lower)

Part c. – Sample 2
This will substantially decrease the Earned Premium on a policy. Because the EP is lower, the reserves required will also be lower and perhaps insufficient. A passing result could mask a problem with reserve levels.

Part d. – Sample 1
This will increase the average outstanding LR, which will cause the test result to deteriorate.

Part d. – Sample 2
This increase in reserve development will increase the overall reserve to EP ratio and thus increase the required reserves for the 2005 year. Because of the prior year adverse development, the test may show inadequate current reserves.

Part e. – Sample 1
This may affect the test in either direction. An increase in reserve development from this change will cause a deterioration in results. However, if current reserves are increased to a more adequate level, the test results will improve.
Part e. – Sample 2
This could change the test either direction. Assuming the reserves for the prior years were also adjusted, the reserves and development ratio will change. If the prior year effect is great, this could indicate that current reserves are too low (and failing result).
QUESTION 26
Part a.
Annual Statement – Schedule D

Part b.
Annual Statement – Schedule D

Part c.
Bests – Aggregates and averages

Part d.
Bests – Insurance reports

Part e.
RAA – Reinsurance Association of America
QUESTION 27
Part a. – Sample 1
Quality of Investments – assesses portfolio based on value and financial ratings of securities.
Adequacy of Reinsurance – assesses reinsurance for amount and quality of reinsurer.
Quality of Management – assesses management perceived strengths and weaknesses.

Part a. – Sample 2
There are 5 groups of qualitative tests, 3 groups of quantitative tests.
Three of the qualitative groups are:
Reserve Adequacy – they can examine if reserves are adequate, deficient, or redundant.
Management – they can qualitatively evaluate management.
Reinsurance – they can look further into reinsurer relationships as well as the quality of reinsurance.

Part a. – Sample 3
Question is unclear because there are five groups of qualitative tests, not three. However, there are three groups of quantitative tests. I assume question is looking for the three quantitative, which are:

– Profitability – co’s operating results
– Leverage – how much surplus a company has in relation to premiums, loss reserves, etc.
– Liquidity – how easily can assets be converted to cash?

Part b.
– A.M. Best Rating published by A.M. Best. Includes both quantitative (profit, liquidity, etc) and qualitative measures
– FPR Rating also published by A.M. Best but includes only quantitative measures.

Part c. – Sample 1
Standards and Poors
Duffs and Phelps

Part c. – Sample 2
Standard and Poor
Moody’s
QUESTION 28
Part a.
– Prior to insolvencies, some insurers experienced uncollectability of reinsurance.
– The RBC does not take into account additional premiums owed to reinsurers under loss sensitive contacts.

Part b.
– It does not take into account security. A reinsurer can have 100% liabilities secured and it will still be charged.
– Does not take financial soundness of reinsurer into account. A large well-diversified, well-financed reinsurer gets same charge as weak reinsurer.
QUESTION 29

Part a. – Sample 1
R0 = investments in ins. affiliates = 3000
R1 = 2000 + 9000 = 11000
R2 = 6000 + 4000 = 10000
R3 = 1000 – 500 = 500
R4 = 15000 + (0.5 x 1000) = 15500
R5 = 12000
Note: Assumed R3 has not been adjusted. Thus ½ R3, the credit risk charge, was removed and added to R4.

Part a. – Sample 2
R0 = Inv in ins affiliates + off balance sheet items = 3000
R1 = Fixed investment charges = Bonds charge + Cash charge = 2000 + 9000 = 11000
R2 = Equity investment charges = common stocks + Real Estate charges = 6000 + 4000 = 10000
R3 = Credit Risk Charge = 1000
R4 = Reserving Risk Charge = 15000
R5 = Premium Risk Charge = 12000

Part b. – Sample 1
RBC = 3000 + √((11000^2 + 10000^2 + 500^2 + 15500^2 + 12000^2))
= 3000 + 24607
= 27607

Part b. – Sample 2
RBC Charge = RO + √((R1^2 + R2^2 + (½ R3)^2 + (½ R3 + R4)^2 + R5^2))
= 3000 + √(11000^2 + 10000^2 + 500^2 + (500 +15000)^2 + 12000^2)
= 27606.91

Part c. – Sample 1
– Company Action Level: 150% < Adj. surplus < 200% ACLRBC
No action required by the regulation.
Company must submit plan on how they plan to increase their surplus.

– Regulatory Action Level: 100% < Adj. surplus < 150% ACLRBC
Company action is same as listed above.
Regulator has discretion to take action against the company. For example the regulator could ask the company to reduce its writings.

– Authorized Control Level: 70% < Adj. surplus < 100% ACLRBC
Regulator is authorized to take over the company.
– Mandatory Action Level: \( \text{Adj. surplus} < 70\% \)

ACL RBC

Regulator is required to liquidate or rehabilitate the company.

**Part c. – Sample 2**

Company Action Level

When RBC ratio = \( \frac{\text{Adjusted Surplus}}{\text{RBC Requirement}} \) = 75\% - 100\%

Company is required to submit a plan for how capital will be increased or risk reduced in order to increase RBC ratio. No action require by regulator.

Regulatory Action Level

RBC ratio is between 50\% and 75\%. Same action required by insurance company as with company action level and regulator is not required to do anything but may put restrictions on insurer such as not allowing new business to be written.

Authorized Control Level

RBC ratio is between 35\% and 50\%. Regulator is authorized to take control of the company but not required to.

Mandatory Control Level

RBC ratio less than 35\%. Regulator is required to liquidate or rehabilitate the company.

**Part d. – Sample 1**

\[
\text{Adj. surplus} = \frac{(20000 - 2500)}{(0.5 \times 27607)} = 127\%
\]

ACL RBC

Regulatory Action Level

**Part d. – Sample 2**

Adjusted Surplus = Statutory Surplus – Non-tabular discount = 20000 – 2500 = 17500

RBC Ratio = \[\frac{17500}{27606.91} = 0.6339\]

Falls within the Regulatory Action Level
QUESTION 30

Part a.

– Calculate Industry Worst Case Loss Ratio = 91% (from 1992)

– Industry 10-year average loss ratio = 78.1%

– Company 10-year average loss ratio = 76.4%
  Company adjusted worst case LR = 91.0% x (76.4 / 78.1) = 89.0%
  Average of company & industry worst-case LR = (91.0 + 89.0) / 2 = 90.0%

– Add company expenses from annual statement (all lines combined) = +28%
  Multiply by discount factor = 90.0 x 0.924 = 83.2%
  WP charge % = (83.2% + 28% - 1) = 11.2% (of cal. year written premium)
  Total WP charge = 11.2% x 75M = 8.4M

Part b.

Designed to measure risk that written business will be unprofitable and will require resources from surplus to cover these future loses.
**QUESTION 31**

<table>
<thead>
<tr>
<th></th>
<th>WC</th>
<th>Auto</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Mean Loss/LAE Reserves</td>
<td>12,750</td>
<td>7,000</td>
<td>19,750</td>
</tr>
<tr>
<td>Mean UEPR</td>
<td>1,000</td>
<td>3,500</td>
<td>4,500</td>
</tr>
<tr>
<td>Mean Agents Balances</td>
<td>550</td>
<td>1,250</td>
<td>1,800</td>
</tr>
<tr>
<td>Mean Surplus</td>
<td></td>
<td></td>
<td>22,000</td>
</tr>
</tbody>
</table>

Part a.
Investment gain ratio = \( \frac{\text{investment gain}}{\text{investable funds}} \)

Investment gain = net investment income + realized capital gain
\[ = 4000 + 1000 = 5000 \]

Investable funds = mean loss/LAE reserves + mean UEPR – mean agents balances + mean surplus
\[ = 19750 + 4500 – 1800 + 22000 \]
\[ = 44450 \]

Investment gain ratio = \( \frac{5000}{44450} \)
\[ = 11.25\% \]

Part b.
Allocating 22000 of surplus by mean loss/LAE reserves + mean UEPR + current year earned premium,

<table>
<thead>
<tr>
<th></th>
<th>WC</th>
<th>Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Loss Reserves</td>
<td>12750</td>
<td>7000</td>
</tr>
<tr>
<td>Mean UEPR</td>
<td>1000</td>
<td>3500</td>
</tr>
<tr>
<td>Current EP</td>
<td>9000</td>
<td>8500</td>
</tr>
<tr>
<td>Total</td>
<td>22750</td>
<td>19000</td>
</tr>
<tr>
<td>%</td>
<td>54.49</td>
<td>45.51</td>
</tr>
</tbody>
</table>

Grand Total = 41750
WC Surplus = 11987.80
Auto Surplus = 10012.20
= 22000.00

Part c.
Investment gain for auto = investment gain ratio \( \times \) investable funds for auto
Investment gain ratio (from part a.) = 11.25\%
Investable funds for auto = mean loss/LAE reserves + mean UEPR – mean agents balances + allocated surplus
\[ = 7000 + 3500 – 1250 + 10012.2 \] (from part b.)
\[ = 19262.20 \]
Investment gain for auto = 0.1125 \( \times \) 19262.20
\[ = 2167 \]
QUESTION 32

Sample 1
Net income = U/W income + investment income + other income – P/H dividend – federal income tax
U/W income = EP – IL – Expense = -1.5
EP = WP + UEPR0 – UEPR1 = 30K + (0 – 20K)
= 10
IL = PL + (LR1 – LR0) = 3K + (4K – 0) = 7K, Expense = 30K x 0.15 = 4.5
Investment = II + RCG = 1K + 2K = 3K
Other I = 0
P/H dividend = 0.5K
Statutory Surplus = begin surplus + Net II + change in unrealized capital gain – stock dividend
= 10K + (-1.5 + 3 – 0.5) + (-5) – 0.25
= 5.75

Sample 2
WP 30000
- UPR (change in, but started at zero) -20000
- Pd loss -3000
- Reserve -4000
+ Interest +1000
+ Real Cap +2000
+ Unreal -5000
- PH Div -500
- SH Div -250
+ Beg Surplus +10000
- Expenses = WP x 0.15 -4500
Total 5750
Declared dividends are subtracted from surplus.
QUESTION 33

Part a. – Sample 1
SAP audience = regulators (and policyholders)
Objective = solvency (focus on balance sheet)
GAAP audience = investors
Objective = profitability of the company as a going concern (focus on income sheet)

Part a. – Sample 2
SAP – Primary audience is regulators. Focus is on solvency, liquidation value of company. Balance sheet is important exhibit.
GAAP – Primary audience is investors. Focus on business’ value as going-concern. Matching revenues and expenditures. Income statement is important exhibit.

Part b. – Sample 1
– Non-admitted assets – SAP has admissibility tests for assets to be included in calculation of statutory surplus. Non-admitted assets are deemed not liquid enough to be available to pay policyholder obligations in an insolvency.
GAAP has no non-admitted assets. Rather management is allowed to use judgment to determine if accounts are doubtful. (Allowance for doubtful accounts.)

– Policy acquisition expenses – cost to write a policy includes commissions and premium taxes and other acquisition expenses.
GAAP establishes an asset (deferred PAC) to match the expense to revenue generated by policy. SAP expenses these immediately – there is no matching.

– SAP has a provision for reinsurance statutory liability. This PFR is calculated in Schedule F and deals with unauthorized reinsurers differently from authorized reinsurers. Unauthorized means reinsurer is not licensed in insurer’s state of domicile. GAAP has no PFR, rather management estimates uncoll. reins. recoverables based on judgment.

Part b. – Sample 2
– Non-admitted assets – Assets that are deemed to have no value if had to liquidate company.
SAP – Change to non-admitted assts is direct charge to surplus.
GAAP – Doesn’t distinguish between admitted, non-admitted assets.

– Policy acq. Expenses – Expenses incurred to acquire policy (e.g. commission and brokerage, taxes, other acquisition, 1/2 general).
SAP – Expensed immediately. UEPR is held gross of these expenses as a conservative measure.
GAAP – Capitalized and held as asset, expensed over policy period.

– Unauthorized reinsurance – Reinsurance recoverable from reinsurers not authorized to conduct business in insurer’s domiciliary state.
SAP – Included in Schedule F provision for reinsurance is 100% of uncollateralized total recoverable + 20% recoverable on paid loss + LAE > 90 past due + 20% amounts in
dispute (capped at total recoverable). (All amounts refer to recoverable from unauthorized reinsurers.) The change in the provision for reinsurance is a direct charge to surplus.
GAAP – Doesn’t distinguish between unauthorized, authorized reinsurance. Management’s best estimate of reinsurance recoverables that will be uncollectible is written off.
QUESTION 34

Part a.
Amount asset can be sold or liability settled between unrelated parties that are under no obligation to sell/settle.

Part b.
Bank and savings and loan crisis during the 1980s.
They sold assets with market value > book value.
Left holding assets with market value < book value, but overvalued due to book value accounting. => Led to huge taxpayer bailout for S&Ls.

Part c.
SAP – amortized cost = cost + amortization of premiums / discount
GAAP – market value (trading securities)
FV – market value

Part d.
Would have to explicitly value discount and risk margins. May increase or decrease liabilities.

Part e.
GAAP separates liabilities on coverage already provided (loss reserve) and coverage not provided (UEPR) and recognizes revenues when they are earned. Fair value would only present a single policy benefit liability. There is no UEPR (or DPAC), premiums are recognized as revenue when written.
QUESTION 35
Part a.
NAIC: RBC requirement test.
Minimum RBC requirement is calculated following square root rule based on different kinds of risks, such as: asset risk, UW risk, credit risk…The adjusted surplus is compared with the RBC requirement to decide the action level of the company and regulator.

Canada: Minimum capital test. Available capital is adjusted and compared to the capital requirement, which includes capital for on-balance asset, cap for off-balance exposure, margin for UEP and unpaid loss, margin for catastrophe reserve and other policy provision, margin for reinsurance ceded to unregistered reinsurers.

Part b
NAIC RBC test: Risk for fixed charge income securities are included in R1.
Total = R0 + \sqrt{(R1^2 + R2^2 + R3^2 + R4^2 + R5^2)} R1 is calculated to the RBC requirement using square root rule with other risk charges.

Canada: Capital for on-balance asset is included in the capital requirement.

Part c.
Investment in non-insurance affiliates.
NAIC RBC test: risk charge (22.5%) for investment in non-insurance affiliates is included in R1 or R2 depending on which security it is invested in. There is no adjustment for it on the adjusted surplus.

Canada: Investment in the affiliates are deducted from the capital availability.
QUESTION 36

Part a.
Reasonable Provision

Part b.
Deficient Provision – the company’s reserves fall below the reasonable range.
Redundant Provision – the company’s reserves fall above the reasonable range.
No Opinion – the actuary cannot make a determination based on the information available to him/her.
Qualified Opinion – the actuary may not be able to give an opinion on a certain segment of reserve though reserves on other lines of business may be reasonable.

Part c.
Reconciliation to Schedule P data.
Documentation of methodology used.
Details on the results of the 3 required IRIS tests and extended comments on any unusual test results.
QUESTION 37
- The appointed actuary’s best estimate and/or range of reasonable estimates of the company’s required reserves gross and net.

- The company’s booked reserve gross and net.

- The difference between the actuary’s estimates and the company’s.

- Extended comments on the causes of adverse deviation if for 3 or more of the last 5 calendar years the 1-year adverse development of reserves has been greater than 5% of surplus.
QUESTION 38

Part a.
Premium earned = \( \frac{3}{4} \times \text{Written Premium} - \text{Reserve for Extended Coverage} \)
= \( \frac{3}{4} \times 3,000,000 - 150,000 \)
= 2,100,000

Loss Reserve = case + IBNR
= 500,000 + 900,000
= 1,400,000

Incurred Loss = Paid + Reserve
= 0 + 1,400,000 = 1,400,000

Incurred DCC = Paid + Reserve = 150,000 + (200,000 + 300,000) = 650,000

New UW income = Earned Premium – Incurred Loss – Incurred DCC – Incurred Other Expense
= 2,100,000 – 1,400,000 – 650,000 – 525,000
= -475,000 Loss

Part b.
Estimated reserve for extended reporting period.
QUESTION 39

Sample 1
i. – Remove tax-exempt income.
ii. – Add proration on tax-exempt income.
iii. – Adjust for change in discounting of loss reserves.
iv. – Dividend received deductible (sic.)

i. – Self explanatory- tax exempt income must be removed from statutory income.
ii. – Proration – 15% of tax exempt income is taxable so it must be added back into taxable income.
iii. – The discount to the loss reserves affects taxable income. This adjustment attempts to increase/decrease taxable income attributable to changes in the reserves due to changes in the discount.
iv. – Dividend received deductible to avoid potential double (or even triple) taxation depending on amount of ownership a percent of the dividends received are excluded from taxable income (also subject to proration like tax exempt income) subject to certain limitations in size.

Sample 2
– Subtract tax exempt bond interest.
– Add 15% x tax exempt bond interest proration.
– Subtract dividends received deduction of 70% of dividends income subject to limit of 70% taxable income before DRD.
– Add proration of 15% x DRD.

Sample 3
– Add the change in loss reserve discount – accounts for the fact that statutory reserves are full value reserves. IRS determines that they must be discounted.
– Municipal bond income – 85% of municipal bond income is tax exempt => Must subtract 85% of municipal bond income.
– Dividends received deduction – only 0.3 + 7(0.15) = 0.405 of dividends from non-affiliated companies is taxed. Thus we must subtract 59.5% of dividend income received from non affiliates. The adjustment reduces the impact of triple taxation of dividend income.
– Net operating losses from prior years may be used to offset current operation gains. Reduces current taxable income.

Sample 4
– Change in discount – the change in the discount of loss reserves must be included as taxable income.
– Dividends received deduction – a portion of dividends received is deducted from taxable income.

70% if own < 20% of company
80% if own between 20% and 80% of company
100% if own > 80% of company
– Proration – for insurance companies, 15% of what has not been taxed is added back into taxable income. This applies to DRD. This applies to tax-free income.

Sample 5
– Effect of discounting the loss reserve – Stat income includes loss reserves at an undiscounted value so you would need to reflect discounting by adding the change in undiscounted loss reserves then subtract the change in discounted reserves.
– Prorating the tax exempt interest – The tax exempt interest is multiplied by 15% and added into stat income after removing the tax exempt interest such that 85% of tax exempt interest is actually tax exempt.
– Prorating the effective DRD – After figuring the effective DRD, 15% is added to stat income.
– Modifying the dividends received to reflect the effects of double taxation – The minimum of (1) the RTI before DRD and (2) the dividends received is multiplied by either 70%, 80%, or 100% depending on what percentage of the company is owned by the insurer. This is subtracted from the RTI.

Sample 6
– Change in loss reserve discount – added to statutory income.
– Part of tax exempt invest income is added to pretax statutory income – 15%
– 30% of dividends received is added to the pre-tax statutory income, along with 15% of the 70% not already added for a total of 40.5% subject to the dividends received discount.
– Reserves are grossed up for salvage and subjugation and then discounted by the IRS’ formula.
QUESTION 40

<table>
<thead>
<tr>
<th>AY</th>
<th>Losses Paid</th>
<th>Losses Incurred</th>
<th>Cumulative Paid %</th>
<th>Incremental Paid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 (x)</td>
<td>10K</td>
<td>100K</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>04 (x-1)</td>
<td>13.5K</td>
<td>90K</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>03 (x-2)</td>
<td>20K</td>
<td>80K</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>02 (x-3)</td>
<td>33.75K</td>
<td>75K</td>
<td>45%</td>
<td>20%</td>
</tr>
<tr>
<td>01 (x-4)</td>
<td>33K</td>
<td>60K</td>
<td>55%</td>
<td>10%</td>
</tr>
<tr>
<td>00 (x-5)</td>
<td>32.5K</td>
<td>50K</td>
<td>65%</td>
<td>10%</td>
</tr>
<tr>
<td>99 (x-6)</td>
<td>30K</td>
<td>40K</td>
<td>75%</td>
<td>10%</td>
</tr>
<tr>
<td>98 (x-7)</td>
<td>28K</td>
<td>35K</td>
<td>80%</td>
<td>5%</td>
</tr>
<tr>
<td>97 (x-8)</td>
<td>25K</td>
<td>30K</td>
<td>85%</td>
<td>5%</td>
</tr>
<tr>
<td>96 (x-9)</td>
<td>22.75K</td>
<td>25K</td>
<td>91%</td>
<td>6%</td>
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<tr>
<td>(x-10)</td>
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<tr>
<td>(x-11)</td>
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<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

If total paid is not 100% after 10th year, use 10th year incremental paid from 11th year on (up to 15th year) until 100% is reached.