GI FREU Model Solutions
Fall 2020

1. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1b) Understand and compare different financial reporting standards for general insurers.

(1e) Understand and apply the concepts of reinsurance accounting.

Sources:

Brehm, P. and Ruhm, D., "Risk Transfer Testing of Reinsurance Contracts"

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 4 (Accounting for Reinsurance Contracts)

Commentary on Question:

This question tests a candidate's understanding of risk transfer testing and reinsurance accounting.

Solution:

(a) State the two conditions a contract must satisfy in order to receive reinsurance accounting.

The reinsurer must assume substantially all of the underlying insurance risk, or it must be reasonably possible that the reinsurer can suffer a significant loss.

(b) Identify two types of reinsurance contracts in which risk transfer is typically self-evident.

Commentary on Question:

There are many different types of reinsurance contracts in which risk transfer is typically self-evident. The model solution includes only two such contracts.

- Quota share contract without any loss sensitive features
- Catastrophe excess of loss contract

1. Continued

(c) Explain what the term *economic* means as used in the *probability distribution of net economic outcomes*.

All economic components of the business are captured (not just premium and losses) and it is to include the time value of money in the calculation.

(d) Provide the version of the ERD formula that includes tail value-at-risk (TVaR).

$ERD = [p \times TVaR_{(1-p)}] / P$

Where

- p = probability of net income loss
- P = expected premium
- $TVaR_{(1-p)}$ = TVaR of the total return distribution at the percentile where economic breakeven occurs, $(1-p)$.

2. Learning Objectives:

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(2d) Understand the development and principles of solvency regulation

(4a) Describe the functions of key regulatory bodies in the U.S. including the NAIC and SEC.

(4b) Describe and interpret the current state of general insurance regulation in the U.S. and its development.

Sources:

Insurance Regulation, The Institutes

- Chapter 4 (Roles of State Regulators and the NAIC in Insurance Regulation)

Vaughan, T., *The Implications of Solvency II for U.S. Insurance Regulation*

Commentary on Question:

This question tests a candidate's understanding of insurance regulation in the U.S. including the role of state legislators and the NAIC.

Solution:

(a) Describe two sources of state insurance laws that regulate insurance company operations for a state.

Commentary on Question:

There are more than two sources. The model solution includes only two sources.

- Statutory insurance laws that are enacted by the State Legislature.
- Administrative laws that are regulations adopted by state agencies in charge of regulating insurers, mainly the State Department of Insurance (DOI).

(b) Describe three significant ways that state legislator actions influence insurance regulation in each state.

Commentary on Question:

There are more than three ways. The model solution includes only three of them.

2. Continued

- State legislatures provide the legal framework for DOIs, since they are the state entity with the authority to pass insurance laws that insurance commissioners must enforce.
- State legislatures often directly control DOI budgets. By limiting or increasing DOI budgets state legislatures influence how severely and strictly state DOI state insurance laws and regulations.
- State legislatures also influence insurance regulation through enactment of state noninsurance laws, including laws related to banking, contracts, premiums, fraud, investments, and lobbying.

(c) Describe how the NAIC provides these checks and balances.

Commentary on Question:
There are many ways that the NAIC provides these checks and balances. The model solution is an example of a full credit solution.

The NAIC provides these checks and balances by fostering a high degree of coordination among state regulators. Through its national financial database and other multistate databases, all states are provided with financial data, analysis tools, and information on regulatory actions on various states.

(d) Describe two activities undertaken by that NAIC that assist state regulators in their oversight of the insurance industry.

Commentary on Question:
There are many activities undertaken by the NAIC that assist state regulators in their oversight of the insurance industry. The model solution is an example of a full credit solution that includes two such activities.

- Maintaining computerized databases to help regulators track insurers' financial solvency.
- Producing various publications about insurance issues for use by the states.

3. Learning Objectives:

5. The candidate will be able to understand tort law and insurance law with respect to its impact on the general insurance industry.

Learning Outcomes:

(5a) Describe and interpret the key elements of tort law and the underlying principles of insurance law.

Sources:

Excerpts from Business Law for Insurance Professionals, Institutes Custom Publishing, Assignment 1 (Contract Law: Insurance Applications)

Commentary on Question:

This question tests a candidate's basic understanding of insurance contract law.

Solution:

(a) Identify the four elements that any contract must include in order to be legally enforceable.

- Agreement
- Capacity to contract
- Consideration
- Legal purpose

(b) Identify four other special characteristics of an insurance contact.

Commentary on Question:

There are more than four other special characteristics. The model solution only identifies four of them.

- Conditional
- Involve fortuitous events (and exchange of unequal amounts)
- Utmost good faith
- Adhesion

(c) Provide the following regarding this special characteristic:

(i) Identify the special characteristic

(ii) Describe the special characteristic

3. Continued

(i) Utmost good faith

(ii) An obligation to act in complete honesty and disclose all relevant facts.

(d) Describe what an insurer must establish in order for the insurer to be released from its obligations for each of the following acts by the insured:

(i) Concealment

(ii) Misrepresentation

Commentary on Question:
The model solution is an example of a full credit solution.

(i) Concealment: An intentional failure to disclose information in which the information that was not disclosed was a material fact.

(ii) Misrepresentation: An unintentional false statement of a material fact in which the insurer relied in this false statement.

4. **Learning Objectives:**

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(3a) Describe, interpret and apply the applicable Standards of Practice.

(3b) Describe, interpret and apply the responsibilities of the actuary with respect to the Statement of Actuarial Opinion and the Actuarial Report.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 14 (Overview of the General Insurance Statement of Actuarial Opinion)

AAA, Committee on Property and Liability Financial Reporting, "A Public Policy Practice Note, Statements of Actuarial Opinion on Property and Casualty Loss Reserves"

Actuarial Standards Board, Actuarial Standard of Practice

- No. 36, Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves

Commentary on Question:

This question tests a candidate's knowledge of certain responsibilities of the appointed actuary.

Solution:

(a) Compare the purpose of the following three NAIC required documents:

(i) Statement of Actuarial Opinion (SAO)

(ii) Actuarial Opinion Summary (AOS)

(iii) Actuarial Report

(i) The purpose of the SAO is for Appointed Actuary to render an Opinion on the adequacy of reserves in the Scope paragraph.

(ii) The purpose of the AOS is to show carried reserves relative to actuarial estimate (point estimate, range, or both).

(iii) The purpose of the Actuarial Report is to provide both narrative and technical documentation of methods and assumptions underlying the actuarial estimate.

4. Continued

(b) Describe each of the following dates according to ASOP No. 36.

(i) Accounting Date

(ii) Review Date

(iii) Valuation Date

(i) The date used to separate paid and unpaid claim amounts in financial reports.

(ii) The cutoff date for including material information known to the actuary.

(iii) The date through which transactions are included for the analysis.

(c) Describe what ASOP No. 36 specifies that the opining actuary should include in this review.

Commentary on Question:
There are several items that should be included. A full credit solution was expected to have included at least two items. The model solution is an example of a full credit solution with two items.

- To determine if the current assumptions, procedures, or methods differ from those underlying the most recent prior opinion.
- If they differ, the actuary should consider whether the changes are likely to have had a material effect on the actuary's unpaid claim estimate.

5. Learning Objectives:

5. The candidate will be able to understand tort law and insurance law with respect to its impact on the general insurance industry.

Learning Outcomes:

(5a) Describe and interpret the key elements of tort law and the underlying principles of insurance law.

(5e) Describe and interpret legal cases/issues included in the syllabus resources.

Sources:

Cappelletti, A., "Tort Law: Topics for General Insurance Actuaries," Society of Actuaries Study Note

Commentary on Question:

This question tests a candidate's understanding of the legal concept of res ipsa loquitor.

Solution:

(a) Describe the doctrine of *res ipsa loquitor* under tort law.

Under the doctrine of *res ipsa loquitur*, the burden of proof for negligence shifts from the plaintiff to the defendant. When *res ipsa loquitur* applies, there is a presumption of negligence. The defendant must disprove negligence or causation to be free from liability.

(b) State the three conditions that a plaintiff must establish for application of *res ipsa loquitor*.

1. The event must be of a kind which ordinarily does not occur in the absence of someone's negligence;
2. it must be caused by an agency or instrumentality within the exclusive control of the defendant; and
3. it must not have been due to any voluntary action or contribution on the part of the plaintiff.

(c) Explain how the ruling in this case expanded the application of *res ipsa loquitor*.

Commentary on Question:

The model solution is an example of a full credit solution.

Application of *res ipsa loquitur* was limited to those not requiring expert testimony. In *States v. Lourdes Hospital*, the New York State Court of Appeals expanded the use of *res ipsa loquitor* by permitting the use of an expert witness to allow non-experts to understand what is considered common understanding for experts.

6. Learning Objectives:

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4b) Describe and interpret the current state of general insurance regulation in the U.S. and its development.

Sources:

Canadian Council of Insurance Regulators, *Use of Credit Scores by Insurers*

Commentary on Question:

This question tests a candidate's understanding of some of the issues regarding the use of credit-based scoring for insurance.

Solution:

(a) Identify two credit characteristics that are commonly included in credit reports.

Commentary on Question:

There are many such characteristics. The model solution is an example of a full credit solution with two characteristics.

- Payment history
- Outstanding debt amounts

(b) Identify two personal characteristics that are commonly excluded from credit reports due to laws or regulations.

Commentary on Question:

There are many such characteristics. The model solution is an example of a full credit solution with two characteristics.

- Race
- Religion

(c) Describe two potential harms to insurance consumers from allowing the insurance industry to use credit-based scoring for personal lines coverages.

Commentary on Question:

There are more than two potential harms. Only two were required for full credit. The model solution is an example of a full credit solution with two potential harms.

6. Continued

- Consumers may not know that they have given permission to an insurer to use their credit information or a credit score for determining a consumer's eligibility for insurance and the premium to be charged.
- The underlying credit data from which the credit-based insurance score is derived may be invalid, incorrect, or unreliable.

(d) Identify two key types of non-insurance federal laws in the U.S. and/or Canada that affect an insurer's use of credit-based scoring.

Commentary on Question:
There are several types of non-insurance federal laws that may be identified for full credit. No credit was earned for identifying insurance federal laws. The response could cite a general category of law or cite a specific law. The model solution is an example of a full credit solution with two general types of non-insurance federal laws.

- Privacy legislation
- Human rights legislation

(e) Provide an example of how insurers are affected by one of the types of federal laws identified in part (d).

Commentary on Question:
The response to this was dependent upon the response to part (d). There are many possible correct responses dependent upon which non-insurance federal law was selected. The model solution is an example of a full credit solution selecting privacy legislation. The model solution provides a specific example. A general example would also have been acceptable for full credit.

In Canada, use of credit-based scores are subject to the rules within Personal Information Protection and Electronic Documents Act (PIPEDA), which gives individuals the right to access and request correction of any personal information (including credit information) an organization may have collected about them, and requires prior consent for its collection and use.

7. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(1c) Describe the elements of the NAIC Annual Statement.

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

(2b) Understand and apply the elements of the NAIC RBC formula.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 6 (Schedule F, Statutory Credit for Reinsurance)
- Chapter 12 (Solvency Monitoring)

NAIC Annual Statement

Commentary on Question:

This question tests a candidate's ability to calculate the Schedule F provision and the RBC reinsurance credit risk charge given a data set. This question required the candidate to use Excel. The model solution for this question included in this document does not represent the actual model solution. It is for explanatory purposes only. Refer to the Excel solution file for an example of a full credit solution in Excel.

Solution:

(a) Calculate JCI's total Schedule F provision for reinsurance for the 2019 Annual Statement.

Commentary on Question:

This question included a mandatory pool. Candidates were expected to know that amounts from mandatory pools are excluded from the Schedule F provision calculation. Both reinsurers were authorized so a slow-paying test ratio was required for both reinsurers. Amounts in the solution are shown in $000's.

X Re is authorized:

- Determine if slow paying: Test ratio is loss recoverables on paid losses more than 90 days past due (claims not in dispute) divided by the total loss recoverables on paid losses (claims not in dispute) plus the payments received in the prior 90 days.

7. Continued

- Test Ratio = (60 + 30) / (200 + 65 + 70 + 60 + 30 – 20 + 35) = 0.205 > 0.20, therefore, Kat Re is slow paying
- Provision = the greater of 20% of the unsecured total recoverables and 20% of the (loss recoverables more than 90 days past due and amounts in dispute)
  = maximum [0.2 × (200 + 65 + 70 + 60 + 30 + 240 + 115 + 130), 0.2 × (60 + 30 + 20)]
  = maximum [0.2 × 910 and 0.2 × 110] = 182
- This is less than the total recoverables, so no capping is required.

Y Re is authorized:

- Determine if slow paying
- Test Ratio = (75 + 25) / (300 + 45 + 55 + 75 + 20 – 25 + 55) = 0.181 < 0.20, therefore, Cassie Re is not slow paying
- Schedule F Provision is 20% of overdue amount and amounts in dispute
  = 0.2 × (75 + 20 + 25) = 24
- This is less than the total recoverables, so no capping is required.

Auto Pool is a mandatory pool, so no Schedule F provision applies.

Total Schedule F provision = 182 + 24 = 206

(b) Calculate JCI's NAIC RBC reinsurance credit risk charge for 2019.

Commentary on Question:
This question included a mandatory pool. Candidates were expected to know that amounts from mandatory pools are excluded from the RBC reinsurance credit risk calculation. Both reinsurers were unrated and authorized so the charge is 10% of [uncollateralized recoverables less the Schedule F provision].

NAIC RBC reinsurance credit risk charge is 10% of recoverables for unrated authorized reinsurance that is uncollateralized. The amount of recoverables is net of the Schedule F Provision and does not include amounts ceded to mandatory pools.

Recoverables subject to RBC =
[200 + 65 + 70 + 60 + 30 + 240 + 115 + 130]
+ [300 + 45 + 55 + 75 + 20 + 185 + 60 + 0] − 206
= 910 + 740 – 206 = 1,444

NAIC RBC reinsurance credit risk charge = 144.4

8. **Learning Objectives:**

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4e) Describe the development of general insurance programs controlled by government or collective insurance industry organizations and their mechanisms of operation.

Sources:

Cappelletti, A., "Government Provision of General Insurance," Society of Actuaries Study Note

Commentary on Question:

This question tests a candidate's knowledge of the government involvement in the provision of agricultural insurance programs.

Solution:

(a) Describe two types of agricultural insurance programs (or coverages) in developed countries where the government is involved in its provision.

Commentary on Question:

Credit was received by stating two general types or two specific examples. The model solution is an example of a full credit solution providing two general types.

- Index based insurance that covers losses based upon an index not upon a measure of a farm's yield or revenue.
- Whole farm insurance covers all the agricultural products on a farm. Coverage may be yield based or revenue based.

(b) Provide two reasons that have been used to justify government subsidies of agricultural insurance products.

Commentary on Question:

There are a number of reasons that have been used as justification. Only two were required for full credit. The model solution is an example of a full credit solution providing two reasons.

- Nations have a vested interest in having their agricultural producers operating efficiently.
- Some form of government involvement in the provision of agricultural insurance is necessary due to systemic risks that cannot be handled adequately by the private market.

8. Continued

(c) Identify a type of agricultural insurance product that is typically handled by the private insurance market without government involvement.

Commentary on Question:
There are several possible types. The model solution is an example of a full credit solution providing one type.

Crop hail damage

(d) Explain why the agricultural insurance product identified in part (c) does not typically need government involvement.

Commentary on Question:
The model solution is an example of a full credit solution where the answer to part (c) was "crop hail damage."

Crop hail damage involves non-systemic agricultural risks which are local in area limiting the amount of losses in an event.

9. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1c) Describe the elements of the NAIC Annual Statement.

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 4 (Accounting for Reinsurance Contracts)
- Chapter 7 (Schedule P, Statutory Loss Accounting)
- Chapter 9 (Measuring Total Income by Line of Business)

NAIC Annual Statement

Case Study, Fall 2020, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate's knowledge of U.S. statutory accounting for loss and premium amounts as reported in the NAIC Annual Statement. This question uses information from the GI FREU Case Study. This question required the candidate to use Excel. Data from the GI FREU Case Study was preloaded in Excel for the candidate to use in their solution. The model solution for this question in this document does not represent the actual model solution. It is for explanatory purposes only. Refer to the Excel solution file for an example of a full credit solution in Excel.

Solution:

Calculate the following amounts for R-Dan, on a total all lines combined basis, using the information provided in the Case Study's *Excerpts from the Annual Statement*.

(i) (*1.5 points*) Unearned premium reserve (UPR) as of year-end 2017, gross of ceded reinsurance (i.e., direct plus assumed).

(ii) (*1 point*) Unpaid losses and loss adjustment expenses (L&LAE) as of year-end 2018, gross of ceded reinsurance.

(iii) (*2 points*) Adjusting and Other loss adjustment expense (A&O) payments during calendar year 2018, net of ceded reinsurance.

9. Continued

(iv) (*1.5 points*) A&O incurred during calendar year 2018, net of ceded reinsurance.

(v) (*1 point*) Loss payments during calendar year 2017, net of ceded reinsurance.

Commentary on Question:
There are several approaches that may be taken for each of the calculations. The model solution represents one approach to each part. Amounts in the solution are shown in $000's.

The following acronyms and abbreviations are used in the model solution:
AS = Annual Statement, Sch. P = Schedule P,
UW&I= Underwriting and Investment Exhibit,
CY = calendar year, AY = accident year, YE = year-end,
WP = written premium, EP = earned premium,
UPR = unearned premium reserve,
LAE = loss adjustment expenses, L&LAE = loss and LAE,
R#=Row #, C#=Column #

For part (iv), the model solution shows one approach to calculating this amount from the Annual Statement. However, a calculation was not required for part (iv) – candidates could have received full credit for part (iv) by recalling that this amount could be obtained directly from Part II of the Insurance Expense Exhibit, in Column 11 of Line 35.

(i)

$EP_{2018} = WP_{2018} + UPR_{YE2017} - UPR_{YE2018}$

$\rightarrow UPR_{YE2017} = EP_{2018} + UPR_{YE2018} - WP_{2018}$

Gross EP_{2018} = 588,600 [Sch. P Part 1 Summary, R11, C1]

Gross WP_{2018} = 618,100 [Five-Year Historical Data, R6, C1]

Gross UPR_{YE2018} = Net UPR_{YE2018} + Ceded UPR_{YE2018}

Net UPR_{YE2018} = 208,800 [AS Page 3, R9, C1]

Ceded UPR_{YE2018} = 1,800 [AS Page 3, R9, comment]

Gross UPR_{YE2018} = 208,800 + 1,800 = 210,600

$\therefore$ Gross UPR_{YE2017} = 588,600 + 210,600 – 618,100 = 181,100

(ii)

For L&LAE, Gross $unpaid_{YE2018}$ can be calculated from amounts in Sch. P Part 1 Summary, as the sum of R12 for C13, C15, C17, C19 and C21:

$\therefore$ Gross $unpaid_{YE2018}$ = 166,900 + 99,100 + 300 + 35,500 + 14,900 = 316,700

9. Continued

(iii)

CY 2018 net losses paid = 446,500 [UW&I Part 2, R35, C4]
CY 2018 net losses and DCC paid = 463,500
[Sch. P Part 3 Summary, C10 minus C9]

463,500 = ((68,300 – 67,400) + (231,200 – 231,100) + (251,200 – 250,800) + (271,700 – 271,300) + (303,400 – 302,600) + (304,300 – 301,200) + (339,100 – 330,100) + (355,200 – 333,200) + (354,100 – 317,900) + (335,700 – 251,300) + 306,200)

CY 2018 net DCC paid = 463,500 – 446,500 = 17,000
CY 2018 net LAE paid = 65,700 [UW&I Part 3, R30, C1]
∴ CY 2018 net A&O paid = 65,700 – 17,000 = 48,700

(iv)

CY 2018 net A&O incurred = CY 2018 net loss incurred + CY 2018 net LAE incurred – CY 2018 net loss and DCC incurred
CY 2018 net loss incurred = 482,100 [AS Page 4, R2, C1]
CY 2018 net LAE incurred = 70,700 [AS Page 4, R3, C1]
CY 2018 net loss and DCC incurred = AY 2018 net loss and DCC incurred + Prior AY CY 2018 net loss and DCC incurred
AY 2018 net loss and DCC incurred = 466,300 [Sch. P Part 2 Summary, R11, C10]
Prior AY CY 2018 net loss and DCC incurred = 36,200 [Sch. P Part 2 Summary, R12, C11]
∴ CY 2018 net A&O incurred = 482,100+70,700 – (446,300 + 36,200) = 50,300

(v)

CY 2017 net loss incurred = 386,300 [AS Page 4, R2, C2]
Net loss $unpaid_{YE2017}$ = 203,200 [AS Page 3, R2, C2]
Net loss $unpaid_{YE2016}$ = 185,700 [Five-Year Historical Data, R22, C3]
CY 2017 net loss paid = 386,300 - 203,200 + 185,700 = 368,800

10. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

(2b) Understand and apply the elements of the NAIC RBC formula.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 12 (Solvency Monitoring)

NAIC Annual Statement

Case Study, Fall 2020, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate's knowledge of the RBC calculation. This question uses information from the GI FREU Case Study. This question required the candidate to use Excel. Data from the GI FREU Case Study was preloaded in Excel for the candidate to use in their solution. The model solution for this question in this document does not represent the actual model solution. It is for explanatory purposes only. Refer to the Excel solution file for an example of a full credit solution in Excel.

Solution:

Calculate the following for R-Dan's 2018 NAIC RBC:

(i) R_1

(ii) R_3 after conditional adjustment

(iii) RBC Ratio

10. Continued

(i)

R_1 = Fixed income risk charge
= (Bond charges for bonds not issued by USGA × bond size adjustment factor)
+ Bond charges from USGA bonds
+ (Cash & other short-term investments × 0.3%)
+ (Mortgage/collateral loans × 5%)
+ (Investments in non-insurance subsidiaries × 22.5%)
+ Asset concentration charge for fixed-income securities

- Bond charges (bonds exc. USGA) = 500 + 1,040 + 730 + 1,100 + 1,220 + 1,830 = 6,420
- *Bond size adjustment factor = 2.5 for the first 50, 1.3 for the next 50, 1 for the next 900 where the counts exclude USGA bonds.*
- 380 bonds in total, but 35 are from USGA. Therefore, the count is 345 (= 380 – 35)
- Bond size adjustment factor = ((2.5 × 50) + (1.3 × 50) + (1 × 245)) / 345 = 1.261
- Asset Concentration = 1% ×15,046 + 2% × 8,079 + 4.5% × 2,844 + 10% × 2,091 = 649

R_1 = ((6,420 × 1.261) + 40) + (6,700 × 0.3%) + (0 × 5%) + (0 × 22.5%) + 649
= 8,135 + 20 + 649
= 8,804

(ii)

R_3 = Credit risk charge
R_3 before conditional adjustment
= Investment income due and accrued × 1% [page 2, line 14 column 3]
+ Federal tax recoverables × 5% [page 2, line 18.1 column 3]
+ Guaranty fund receivables × 5% [page 2, line 19 column 3]
+ Recoverable from affiliates × 5% [page 2, line 23 column 3]
+ Reinsurance recoverables × 10% [Schedule F Part 6, line 6 column 2]
= (9,100 × 1%) + (9,300 × 5%) + (0 × 5%) + (2,100 × 5%) + (31,000 × 10%)
= 91 + 465 + 0 + 105 + 3,100 = 3,761

- Conditional adjustment is 50% of credit charge for reinsurance credit risk. It applies if the calculated reserve risk charge exceeds the total calculated credit risk charge. The calculated R_4 value is well above the calculated R_3 value so the conditional adjustment is 50% × 3,100 = 1,550

R_3 = 3,761 – 1,550 = 2,211

10. Continued

(iii)

RBC Ratio = Total Adjusted Capital / Authorized Control Level (ACL)
ACL = 50% of Total RBC
Total RBC = $R_0 + [R_1^2 + R_2^2 + R_3^2 + R_4^2 + R_5^2 + R_{CAT}^2]^{0.5}$
$= 60 + [8{,}805^2 + 5{,}280^2 + 2{,}211^2 + (34{,}650 + 1{,}550)^2 + 53{,}110^2 + 20{,}100^2]^{0.5}$
= 68,217

- Total adjusted capital = policyholders' surplus for R-Dan because R-Dan has no nontabular discount.

RBC Ratio = 209,400 / (0.5 × 68,217) = 614%

11. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

(2a) Evaluate the financial health of a general insurer using information contained in the Annual Statement.

(2b) Understand and apply the elements of the NAIC RBC formula.

(2c) Calculate and interpret the results of financial health ratios.

(2g) Compare different solvency standards.

(3b) Describe, interpret and apply the responsibilities of the actuary with respect to the Statement of Actuarial Opinion and the Actuarial Report.

(3d) Describe and apply the concept of materiality.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 4 (Accounting for Reinsurance Contracts)
- Chapter 7 (Schedule P, Statutory Loss Accounting)
- Chapter 9 (Measuring Total Income by Line of Business)
- Chapter 11 (Measuring Insurer Financial Strength)
- Chapter 12 (Solvency Monitoring)
- Chapter 13 (General Insurance Financial Ratings)
- Chapter 14 (Overview of the General Insurance Statement of Actuarial Opinion)

NAIC Annual Statement

11. Continued

Case Study, Fall 2020, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:
This question tests a candidate's knowledge of the financial rating process for a general insurance company. This question uses the information from the GI FREU Case Study. This question did not require any calculations for full credit. However, candidates could incorporate pertinent calculations to earn credit. Data from the GI FREU Case Study was preloaded in Excel and was available for the candidate to use in their solution. However, candidates were to enter their response to this question in the Word document and not in Excel.

Solution:

(a) Provide two reasons why R-Dan should continue with the interactive meeting for a financial rating despite the potential for a financial rating downgrade.

Commentary on Question:
The model solution is an example of a full credit response and does not represent the only acceptable response for full credit.

By not proceeding with the interactive rating, the rating agency will produce a rating based upon publicly available information. Without an interactive meeting, R-Dan will not have a chance to explain any of the issues raised by the rating agency, making a rating downgrade likely.

(b) Explain how the information provided by R-Dan management could lead to a financial rating downgrade giving consideration to:

(i) Projected financials

(ii) Documents related to the Actuarial Opinion

Commentary on Question:
This part of the question was worth 3.5 exam points. As such, it required the candidate to include at least a couple of ideas, including an explanatory statement with an observation and an implication. One short sentence for each of (i) and (ii) was not sufficient for full credit. There were many ideas that could have been raised for both (i) and (ii). The model solution is an example of a full credit solution.

11. Continued

(i) Projected financials:
R-Dan's projected financials show evidence of being overly optimistic. They show year-over-year growth of 13% for 2018 to 2019 and growth between 6 and 7% thereafter annually. Given that this growth is fueled by expansion into non-core territories and lines of business, it would be expected that there would be a deterioration of loss ratios. However, the projections indicate improving loss ratios which does not seem feasible.

Also, R-Dan management notes that the projections assume a constant 17% underwriting expense ratio that is consistent with current expense levels. Given that R-Dan is expanding into non-core territories and lines of business, this does not appear to be realistic. It would be expected that the company would need to hire new personnel and show an increased level of expenses during the growth phase.

(ii) Actuarial Opinion:
R-Dan's actuarial opinion reveals that reserves may be deficient. The AOS show that the reserves are close to the low end of the range of reasonability, and the range is very wide. Given R-Dan's history of unfavorable development this would support the fact that reserves are set too low.

Also, the difference between the actuary's point estimate and the carried reserves at $28.5 million is material. Given the fact that the actuarial report fully supports the point estimate, and that the range appears to be very wide, the reserves may actually be deficient.

(c) Describe how a financial rating downgrade could affect R-Dan's business.

Commentary on Question:
There are a number of ways that a financial rating downgrade could affect R-Dan's business. A description of only one way was required for full credit. The model solution is an example of a full credit response.

A financial rating downgrade could make expansion plans unattainable as insureds may not be willing to purchase coverage from a company with a low financial rating.

12. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(3a) Describe, interpret and apply the applicable Standards of Practice.

(3b) Describe, interpret and apply the responsibilities of the actuary with respect to the Statement of Actuarial Opinion and the Actuarial Report.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 14 (Overview of the General Insurance Statement of Actuarial Opinion)

Actuarial Standards Board of the American Academy of Actuaries, Actuarial Standard of Practice (ASOP),

- No. 36, "Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves"
- No. 38, "Using Models Outside the Actuary's Area of Expertise (Property/Casualty)"

AAA, Committee on Property and Liability Financial Reporting, "A Public Policy Practice Note, Statements of Actuarial Opinion on Property and Casualty Loss Reserves"

NAIC Annual Statement

NAIC Statement of Statutory Accounting Principles,

- No. 53, "Property Casualty Contracts—Premiums"

Case Study, Fall 2020, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate's knowledge of the responsibilities of the Appointed Actuary. This question uses the information from the GI FREU Case Study. This question did not require any calculations for full credit. However, candidates could incorporate pertinent calculations to earn credit. Data from the GI FREU Case Study was preloaded in Excel and was available for the candidate to use. However, candidates were to enter their response to this question in the Word document and not in Excel.

12. Continued

Solution:

(a) Explain whether or not Sue Calvin's Schedule P reconciliation for R-Dan, as documented in her Actuarial Report, satisfies the NAIC instructions.

Commentary on Question:
There were two approaches that could be used in a response in order to receive full credit. The first would be to say that the disclosure, as written in the Actuarial Report, meets the requirement as it notes that the reconciliation was done for losses and premiums by line of business and accident year. This assumes that supporting exhibits were included in the exhibits of the Actuarial Report (which were not included in the "Excerpts from the Actuarial Report" from the Case Study). The second would be to say that it does not meet the requirement because even though the disclosure states the appropriate level of reconciliation (losses and premiums by line of business and accident year), it does not provide the supporting exhibits that would be expected in the Actuarial Report. Note that the table provided above the Schedule P reconciliation disclosure in the Case Study is not the Schedule P reconciliation. The model solution is an example of a full credit solution that assumed that the supporting documentation was included in the exhibits of the Actuarial Report.

Yes, it does satisfy the requirements because Sue disclosed reconciliation of the relevant data components (i.e., earned premiums, case reserves, paid loss and LAE) by LOB and year to Schedule P and summarized that differences are insignificant.

(b) Assess whether or not any disclosures are needed in Sue's Statement of Actuarial Opinion for R-Dan with respect to the 2018 hurricane loss. Justify your assessment.

Commentary on Question:
It can be correct to say that disclosure is required or it is not required. Credit is earned by the assessment. Disclosures may be assessed to be necessary by reviewing the requirements of ASOPs 36 and 38 and the NAIC SAO Instructions. However, disclosures may be assessed to be unnecessary by the fact that the amount of reserves covered by this analysis is well below the materiality threshold in addition to certain other pertinent facts. The model solution is an example of a full credit solution that assessed that a disclosure was not required. It should be noted that while a disclosure may or may not be required in the SAO, the Appointed Actuary should include disclosures in the Actuarial Report.

12. Continued

No disclosure is needed based on the following considerations:

- The model results were prepared by a qualified actuary who is also a subject matter expert. It is appropriate to rely on model experts. Sue has a basic understanding of hurricane cat models did review the results for reasonability. If the amounts were material, disclosures would have been required.
- The amount of reserves covered by the analysis relative the total was 2.8% (=8/289.5) of carried reserves or 2.5% (=8/318) of the actuarial estimate Both of these are below Sue's SAO materiality threshold of $14.5m.

(c) Recommend a PDR for R-Dan to book (if any) based on Sue Calvin's work. Justify your recommendation.

Commentary on Question:
Different correct responses are possible here. Note that a PDR should be calculated based on groupings of business that are marketed together. Equity in one grouping cannot offset a PDR in another. The question here is with respect to creating the groupings to compute the PDR. This involves some judgement. It would not be correct to look at all lines combined. It could be correct to look at individual lines of business. It could also be correct to create some groupings (say private passenger auto liability with personal automobile physical damage since they are marketed together or grouping together all personal lines together and all commercial lines together). The model solution is an example of a full credit solution based on the grouping of private passenger auto liability with personal automobile physical damage.

Recommended PDR = 2,065.

- This is because private passenger auto liability and personal automobile physical damage are marketed together and should be grouped for determining a PDR.
- We can assume that the amount of commercial lines in automobile physical damage is not material based upon the information in the case study. Therefore, the personal automobile PDR = 3,125 – 1,060 = 2,065.
- All other lines have a PDR of 0 since they all have a positive estimated equity in the unearned premium reserves.

13. Learning Objectives:

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(2d) Understand the development and principles of solvency regulation

(2e) Demonstrate knowledge of the E.U. Solvency II standard formula solvency capital requirement.

Sources:

Vaughan, T., *The Implications of Solvency II for U.S. Insurance Regulation*

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 12 (Solvency Monitoring)

Commentary on Question:

This question tests a candidate's understanding of various issues in solvency regulation.

Solution:

(a) State the main drawback of Solvency I.

Commentary on Question:

There are a number of drawbacks to Solvency I that could be considered as the main drawback. The model solution is an example of a model solution with one drawback.

Asset risk not included in capital requirement.

(b) Define the SCR under Solvency II.

Amount of economic capital required to be held to limit the probability of ruin to 0.5%.

(c) Indicate the regulatory intervention with respect to the SCR and MCR.

A company will not be permitted to operate below the MCR and there is a limited amount of time before final action. Between the SCR and the MCR a company may be subject to supervisory action.

(d) Define regulatory forbearance.

Failure of the regulator to act, or take action, in a timely manner.

13. Continued

(e) Explain how the regulatory system in the U.S. acts to reduce regulatory forbearance.

Commentary on Question:
There are many ways that the regulatory system in the U.S. acts to reduce regulatory forbearance. The model solution is an example of a full credit solution.

Regulators in each state are responsible for the supervision of their own market. Although a company is primarily supervised by its domestic regulator, other state regulators have an incentive to ensure the company is adequately supervised. Because the behaviors of a given regulator is constrained by the actions that could be taken by others states with respect to his or her domestic companies, the problem of regulatory forbearance may be reduced.

14. Learning Objectives:

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4b) Describe and interpret the current state of general insurance regulation in the U.S. and its development.

Sources:

Edmunds, T., *Insurance and the discrimination laws: motor and travel insurance*

Insurance Regulation, The Institutes

- Chapter 8 (Rate Regulation)

Commentary on Question:

This question tests a candidate's understanding of the ECJ decision to ban the use of gender for insurance policies in the EU.

Solution:

Explain whether or not each of the following insurer actions by an automobile insurer in the EU would be permitted:

(i) Providing a rate discount to insureds employed in specific jobs, that are typically dominated by females in the workforce, in which those employed in those jobs show a significantly lower loss cost than the average.

(ii) Testing insureds for signs of hearing loss and surcharging policies where the insured shows signs of hearing loss for frequencies above 1,000 Hertz. Studies have shown that drivers with significant hearing loss have higher loss costs. Some audiological studies have shown that women have better hearing than men at frequencies above 3,000 Hertz.

(iii) Surcharging policies where the automobile has an engine with a power rating of over 250 horsepower. This is in addition to the vehicle rating factor. Studies have shown that high horsepower vehicles have a higher loss cost than low horsepower vehicles. Two-thirds of high horsepower vehicles are driven by men.

(iv) For a direct writer, direct marketing of policies to females only.

(v) For an insurer writing through brokers, increasing broker commissions for policies where the insured is female.

14. Continued

Commentary on Question:
Most of these scenarios are not a strict yes or no as there is room for interpretation. Credit was earned for the explanation supporting the position. The model solution is an example of a full credit solution. It does not represent the only possible acceptable interpretation for each scenario.

(i) This would be highly scrutinized. In order for this to be permitted, the difference in loss cost should exist after adjusting for gender differences. This could also be problematic because there would likely be no causal connection between jobs and loss costs. The insurer would need to have a plausible causal connection.

(ii) This could be allowed as it reflects a biological difference that affects loss costs. However, limiting it to hearing loss for high frequencies could be problematic. This distinction could be viewed as a proxy for gender. In order for this to be permitted, the surcharge should be for all forms of hearing loss. Alternatively, the insurer would need to prove that hearing loss for high frequencies only affects the driving ability creating a difference in loss costs.

(iii) This should be allowed as gender only appears to be correlated and not the true factor which is vehicle power. Furthermore, males and females have a free choice of vehicle that is not limited by gender, so the surcharge is not discriminatory by gender. However, since vehicle is already a rating factor, the insurer would need to show that surcharging high horsepower vehicles would not be double counting this rating element.

(iv) This should not be an issue as long as the insurer sells policies to males at the same rate.

(v) This would be highly scrutinized as it would incentivize brokers to only place females with that insurer and place males with other insurers. This could be viewed as a contravention of law.

15. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1c) Describe the elements of the NAIC Annual Statement.

(1h) Estimate the premium asset for retrospectively rated polices for financial reporting.

Sources:

Teng, M. and Perkins, M., "Estimating the Premium Asset on Retrospectively Rated Policies"

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 5 (Accounting Perspectives for Nonadmitted Assets)

Commentary on Question:

This question tests a candidate's ability to calculate the premium asset on retrospectively rated policies and the statutory accounting treatment of this amount. This question required the candidate to use Excel. The model solution for this question included in this document does not represent the actual model solution. It is for explanatory purposes only. Refer to the Excel solution file for an example of a full credit solution in Excel.

Solution:

(a) Calculate the premium asset on WFH's retrospectively rated policies as of Dec. 31, 2019.

Commentary on Question:

There are many different ways that this calculation can be displayed in Excel. The model solution in the Excel file is an example of a full credit solution. The solution shown in this file outlines the calculation from the Excel solution. Amounts are shown in millions of dollars.

Note that as at 12/31/19, Policy Year 2018 is at 24 months of development so a development factor of 1.325 applies to calculate the ultimate value of losses. Applicable development factors for other policy years follows from this (e.g., Policy Year 2017 at 12/31/19 is at 36 months of development).

$CPDLD_1 = (76\% \times 1.755 + 12\% \times 0.625 + 6\% \times 0.475 + 4\% \times 0.325 + 2\% \times 0.0) / (76\% + 12\% + 6\% + 4\% + 2\%) = 1.4053$
$CPDLD_2 = (12\% \times 0.625 + 6\% \times 0.475 + 4\% \times 0.325 + 2\% \times 0.0) / (12\% + 6\% + 4\% + 2\%) = 0.4854$
$CPDLD_3 = (6\% \times 0.475 + 4\% \times 0.325 + 2\% \times 0.0) / (6\% + 4\% + 2\%) = 0.3458$
$CPDLD_4 = (4\% \times 0.325 + 2\% \times 0.0) / (4\% + 2\%) = 0.2167$
$CPDLD_5 = (2\% \times 0.0) / (2\%) = 0$

15. Continued

		2014	2015	2016	2017	2018	Total
Reported Losses as of 12/31/19 ($M)	A	180	169	108	102	78	
Development factor	B	1	1.008	1.03	1.133	1.325	
Percent earned	C	100%	100%	100%	100%	100%	
Ultimate losses	D = A×B×C	180.00	170.35	111.24	115.57	103.35	
Losses Reported at Prior Retrospective Adjustment ($M)	E	179	166	104	90	0	
Expected loss emergence	F = D – E	1.00	4.35	7.24	25.57	103.35	
CPDLD	G as calculated	0	0.2167	0.3458	0.4854	1.4503	
Premium Booked at Prior Retrospective Adjustment ($M)	H	230	228	170	162	0	
Premium Booked as of 12/31/2019 ($M)	I	230	226	170	165	155	
Estimated Total Premium	J = H+(F×G)	230.00	228.94	172.50	174.41	149.89	
Estimated Premium Asset	K = J – I	0	2.94	2.50	9.41	(5.11)	9.75

(b) Calculate the admitted portion of the premium asset from part (a) under U.S. statutory accounting.

Commentary on Question:
Note that 10% of unsecured receivables not yet due are nonadmitted assets. Therefore, the admitted portion of the premium asset is 90% of the calculated amount. Amounts are shown in millions of dollars.

90% of 9.75 = 8.77

16. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1g) Demonstrate knowledge of taxation for general insurers in the U.S.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 7 (Schedule P, Statutory Loss Accounting)
- Chapter 15 (Federal Income Taxes for General Insurers)

Commentary on Question:

This question tests a candidate's understanding of U.S. general insurance company taxation.

Solution:

(a) Explain why it is appropriate that the tax code uses Schedule P Part 1 information instead of the loss triangles in Schedule P Parts 2 and 3 for the derivation of loss payment patterns.

Commentary on Question:

There are several reasons for this. The model solution is an example of a full credit solution that gave two reasons in the explanation.

Schedule P Parts 2 and 3 contains only defense and containment cost expenses, not adjusting and other expenses. Schedule P includes all loss adjustment expenses so it is more relevant for the amounts to be discounted. In addition to this, Schedule P Part 1 is the only Schedule P exhibit that is audited.

(b) Identify the source of the discount rate used to calculate tax-basis loss reserves:

(i) Before the tax reform of 2017

(ii) After the tax reform of 2017

(i) federal mid-term rates

(ii) rates from high quality bonds

16. Continued

(c) Explain how the change in part (b) has affected tax liabilities for insurers.

The interest rate for discount should increase which will decrease the level of discounted reserves. This will increase the tax liability.

(d) Describe two changes to the procedure for selecting loss payment patterns for tax-basis loss reserves that were introduced in the tax reform of 2017.

- Lengthening of the payment pattern for long-tail lines from 15 years to 24 years.
- Eliminate the option a company had to use its own payment pattern.

(e) Explain how anticipated salvage and subrogation (S&S) is handled in the calculation of tax-basis loss reserves.

Commentary on Question:
The model solution is an example of a full credit solution explaining how the anticipated S&S has its own discount rate and is discounted separately.

Loss reserves are reported net of anticipated S&S. The anticipated S&S is added back into these reserves and these reserves are then discounted using line of business discount rates – this is the step 1 amount. The anticipated S&S is discounted separately using discount rate for specifically for S&S – this is the step 2 amount. The amount from step 2 is subtracted from the amount from step 1 to calculate the tax-basis loss reserves.

17. Learning Objectives:

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(3a) Describe, interpret and apply the applicable Standards of Practice.

(3b) Describe, interpret and apply the responsibilities of the actuary with respect to the Statement of Actuarial Opinion and the Actuarial Report.

(3d) Describe and apply the concept of materiality.

(3e) Discuss the International Actuarial Association position on the function of the actuary in prudential supervision.

Sources:

International Actuarial Association, International Standard of Actuarial Practice 1, *General Actuarial Practice*

International Actuarial Association, *The Function of the Actuary in Prudential Supervision*

American Academy of Actuaries, *Materiality, Concepts on Professionalism*

Commentary on Question:

This question tests a candidate's understanding of the actuary's responsibilities, issues with materiality and the International Actuarial Association position on the function of the actuary in prudential supervision.

Solution:

(a) Explain what is meant by *sufficient documentation* in the context of ISAP 1.

Commentary on Question:

The model solution is an example of a full credit solution.

Documentation is sufficient when it contains enough detail for another actuary qualified in the same practice area to understand the work and assess the judgments made.

(b) Provide two examples of reasonable validation steps.

Commentary on Question:

There are a number of different examples that can be given. Only two were required for full credit. The model solution is an example of a full credit solution providing two examples.

17. Continued

- Reconciliations to audited financial statements or other records.
- Comparing the data to that for a prior period, or periods.

(c) Describe a conclusion from this case.

Commentary on Question:
There were several conclusions from this case. Only one was required for full credit. No credit was given for stating an observation that was not a conclusion from this case. The model solution is an example of a full credit solution providing one conclusion from the case.

A materiality decision is qualitative and requires consideration of a wide range of factors.

(d) Compare these two types of capital analyses.

Commentary on Question:
A comparison should indicate the similarity and the difference. The model solution is an example of a full credit solution.

I. DCA tests the adequacy of capital under realistically rigorous future operating scenarios including the impact of operational risk either to supplement available funds to cover the cost of policy obligations and operations.

II. SCA tests the adequacy of capital to finance future expected new business costs and associated solvency requirements according to the organization's approved medium-term business plan.

18. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1b) Understand and compare different financial reporting standards for general insurers.

Sources:

National Association of Insurance Commissioners (NAIC), Accounting Practices and Procedures Manual, Preamble

NAIC, Accounting Practices and Procedures Manual, Statement of Statutory Accounting Principles No. 65, *Property and Casualty Contracts*

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 1 (Accounting Concepts for General Insurance)
- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 3 (Accounting for Financial Instruments)
- Chapter 4 (Accounting for Reinsurance Contracts)

Commentary on Question:

This question test's a candidate's understanding of different financial reporting standards for general insurers.

Solution:

(a) Describe what is meant by each of the following:

(i) permitted accounting practice

(ii) prescribed accounting practice

Commentary on Question:

A full credit response needed to be in the context of U.S. statutory accounting. The model solution is an example of a full credit solution.

(i) Permitted accounting practice: Practices specifically requested by an insurer that depart from prescribed state accounting practices and have received approval from the insurer's domiciliary state regulatory authority.

(ii) Prescribed accounting practice: Practices that are incorporated directly or by references to state laws, regulation and general administrative rules, that are applicable to all insurers domiciled in a particular state.

18. Continued

(b) Identify the difference between U.S. GAAP and U.S. statutory accounting with respect to each of the following:

(i) Intended audience

(ii) Emphasis of accounting principles

(iii) Financial exhibit that is emphasized

(iv) Regulatory body

Commentary on Question:
The model solution is provided in tabular format. This was not required for full credit. Furthermore, some of the parts had more than one correct response (e.g., (iv) for U.S. statutory accounting could be the State DOI or the NAIC and (iv) for U.S. GAAP could be FASB or the SEC). The model solution is an example of a full credit solution.

	U.S. statutory accounting	*U.S. GAAP*
(i)	regulators	investors
(ii)	solvency	going concern
(iii)	balance sheet	income statement
(iv)	State Department of Insurance	FASB

(c) Describe an accounting transaction with different treatment under U.S. GAAP vs. U.S. statutory accounting.

Commentary on Question:
There are many accounting transactions that have a different accounting treatment under these two financial reporting standards. Only one was required for full credit. The model solution is an example of a full credit solution using the accounting treatment of policy acquisition expenses.

Under U.S. statutory accounting, policy acquisition costs are expensed as they are incurred. U.S. GAAP defers these costs and amortizes them over the premium recognition period.

(d) Under U.S. statutory accounting, general insurance companies discount tabular indemnity loss reserves for worker's compensation in accordance with Statement of Statutory Accounting Principles No. 65 (SSAP 65), *Property and Casualty Contracts*.

18. Continued

SSAP No. 65 specifies four items that need to be disclosed for this type of discounting.

Identify these four disclosure items.

- Table(s) used.
- Rate(s) used.
- The amount of discounted liability reported in the financial statement.
- The amount of tabular discount by reserve category (i.e., case and IBNR).

19. Learning Objectives:

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(2c) Calculate and interpret the results of financial health ratios.

Sources:

General Insurance Financial Reporting Topics, Fourth Edition, Society of Actuaries

- Chapter 11 (Measuring Insurer Financial Strength)

Commentary on Question:

This question tests a candidate's understanding of the differences between FAST scores and IRIS ratios.

Solution:

(a) Describe how FAST scores and IRIS ratios differ with respect to each of the following:

(i) Interpretation of result from an individual score/ratio

(ii) Publication of results

(iii) Weighting of results

(i) Each financial ratio in the FAST process gives a numerical score, not a pass-fail result as in IRIS ratios which are each a hard pass/fail.

(ii) The formulas and results of IRIS ratios are public. However, this makes them susceptible to potential manipulation by insurers. The formulas and results of FAST are not public mitigating manipulation of scores by insurers.

(iii) The overall FAST score is a weighted sum of individual scores assigned to ranges on financial ratios, but the scoring system is not disclosed. IRIS ratios give equal weight to each ratio for disclosed exceptional amounts.

(b) Identify three FAST scores with no corresponding IRIS ratio.

Commentary on Question:

There are many FAST scores without a corresponding IRIS ratio. Only three were required for full credit. The model solution is an example of a full credit solution.

- Non-investment-grade bonds to policyholders' surplus
- Reinsurance recoverables on unpaid losses to policyholders' surplus
- Net written premium in long-tailed lines to total net written premium

20. Learning Objectives:

5. The candidate will be able to understand tort law and insurance law with respect to its impact on the general insurance industry.

Learning Outcomes:

(5a) Describe and interpret the key elements of tort law and the underlying principles of insurance law.

Sources:

Excerpts from Business Law for Insurance Professionals, Institutes Custom Publishing, Assignment 2 (Tort Law)

Commentary on Question:

This question tests a candidate's understanding of several elements from tort law that can affect general insurance claims.

Solution:

(a) Define each of the following statutes regarding the filing of suits under tort law:

(i) Statute of limitations

(ii) Statute of repose

(i) A statute of limitations requires a plaintiff to file a lawsuit within a specified period after the cause of action (i.e., injury/damage) has occurred.

(ii) A statute of repose requires the lawsuit to be filed within a certain period of time from when the negligent act occurred (as opposed to the injury/damage).

(b) Provide one example in which the *natural conditions rule* for landowners might not necessarily apply.

Commentary on Question:

Many examples are possible. The key is that the landowner could be liable for a natural condition despite the natural conditions rule. For full credit, examples were required to relate to a situation with a natural condition in which the rule may not apply.

In urban areas, a homeowner might be held liable for damage from a fallen tree if they hadn't use reasonable care to inspect the tree on their property.

20. Continued

(c) Explain how each of these two concepts relate to the common-law principle of *contributory negligence* as a defense to negligence actions.

Commentary on Question:
There were several ways that this could be explained to earn full credit. The model solution is an example of a full credit solution.

I. Last clear chance doctrine was an effort to avoid harsh results of contributory negligence by assigning all blame to the party who had the last clear chance to avoid harm but failed to do so.

II. Assumption of risk defense means that the plaintiff cannot make a claim against the defendant if they voluntarily assumed risk, even though the defendant was negligent. Used for hazardous activities. It is a form of contributory negligence, but bars claims for the assumption of risk.

(d) Today, almost all jurisdictions have abandoned the common-law concept of *contributory negligence* in favor of the rule of *comparative negligence.* The specific rules for the application of *comparative negligence* vary by jurisdiction. There are four common variations of the rule that have been used. Two of these variations are the *49 percent rule* and the *50 percent rule*.

Identify the two other common variations of the rule.

- pure comparative negligence rule
- slight versus gross rule

(e) State the amount that Jermaine will recover from each of the defendants.

Commentary on Question:
The key to earning full credit is recognizing that under the 49 percent rule with three or more parties, Jermaine cannot recover from Keira but Jermaine can recover the total amount (not at fault) from Levar.

Jermaine would not collect anything from Keira because his negligence is not less than Keira's. Jermaine would collect 72.5% or $72,500 from Levar because his negligence is less than Levar's.

21. Learning Objectives:

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4a) Describe the functions of key regulatory bodies in the U.S. including the NAIC and SEC.

(4b) Describe and interpret the current state of general insurance regulation in the U.S. and its development.

Sources:

Insurance Regulation, The Institutes

- Chapter 4 (Roles of State Regulators and the NAIC in Insurance Regulation)
- Chapter 5 (State Department of Insurance Operations)

Commentary on Question:

This question tests a candidate's understanding of certain aspects of insurance regulation and the operation of a state department of insurance.

Solution:

(a) Describe two reasons why regulators closely monitor and regulate insurance company operations.

Commentary on Question:

There are many reasons that many be given. Only two were required for full credit. The model solution is an example of a full credit solution with two reasons.

- Regulators want to ensure that the insurer fulfills its contractual promise to the insured.
- Regulators want to ensure that the resolution of an insolvent insurer takes place in such a way that the loss to policyholders is kept to a minimum.

(b) Identify four reasons why a state DOI may disapprove a proposed rate or coverage.

Commentary on Question:

Many reasons are possible. The model solution is an example of a full credit solution with four reasons.

- Rates/coverage include provisions that are against the law.
- Rates are unfairly discriminatory.
- Rates are inadequate.
- Rates are excessive.

21. Continued

(c) Provide three arguments in favor of an Insurance Commissioner being elected to office.

Commentary on Question:
Many arguments are possible. The model solution is an example of a full credit solution with three arguments.

Elected commissioner:

- Need not, and usually does not, continue regulating in the same manner as its predecessor did. (Will try new approaches in response to new and changing conditions.)
- May be more in tune to insurance issues important to the general public because that is how they became elected.
- Is generally in office for a full-term and cannot be dismissed for policy disagreements.

(d) Provide three arguments in favor of an Insurance Commissioner being appointed to office.

Commentary on Question:
Many arguments are possible. The model solution is an example of a full credit solution with three arguments.

Appointed commissioner:

- Is more likely to have the necessary knowledge and experience of insurance industry operations.
- Is more likely to make decisions looking at all the facts as they are less likely to be swayed by public opinion.
- Has no need to expend time and funds for elections campaigns.