

GI FREU Model Solutions

Fall 2021

1. 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 understanding of government involvement in the provision of insurance programs.

Solution:

- (a) Provide three reasons that may justify the government producing and marketing certain insurance products directly rather than relying on the private insurance industry.

Commentary on Question:

There are more than three reasons. Only three were required for full credit. The model solution is an example of a full credit solution.

- To fill insurance needs not met by private insurers (i.e., residual market philosophy).
- To force people to buy the insurance.
- To achieve collateral social objectives.

- (b) Provide two questions that should be considered in the evaluation of the effectiveness of government insurance programs.

Commentary on Question:

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

1. Continued

- Does the government program supply a needed service or achieve a social goal that cannot be reasonably provided by private insurance?
 - Does the program adhere to insurance principles or has it taken on the characteristics of a welfare program?
- (c) Describe three distinguishing characteristics of social insurance programs.

Commentary on Question:

There are more than three characteristics. Only three were required for full credit. The model solution is an example of a full credit solution.

- Program is defined by statute.
 - Benefits are not based on overall financial needs but are a matter of right.
 - A defined level of protection designed to provide adequate benefits.
- (d) Provide two differences between social welfare programs and social insurance programs.

Commentary on Question:

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

- Social welfare programs are financed from taxation, not dedicated premium charges as in many social insurance programs.
- In social welfare programs the benefits in the system are linked to the overall financial needs of the recipient. This is not the case for social insurance.

2. 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:

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

Sources:

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

Commentary on Question:

This question tests a candidate's knowledge of some of the requirements of an appointed actuary with respect to the SAO.

Solution:

- (a) Determine when a risk of material adverse deviation would be indicated in the SAO for WXY, given the information above.

A materiality standard less than 6 million would almost certainly indicate that there is a risk of material adverse deviation because the company's carried reserve plus the materiality standard would then be within the actuary's range of estimates.

- (b) Prepare parts A through D of the Actuarial Opinion Summary (AOS) for WXY.

		GROSS			NET	
amounts in millions	Low	Point	High	Low	Point	High
A. Actuary's range of estimates	54		69	54		69
B. Actuary's point estimate		60			60	
C. Company carried reserves		63			63	
D. Difference	9	3	(6)	9	3	(6)

2. Continued

- (c) State two key determinations that the Appointed Actuary must make regarding whether or not the SAO issued previously was in error.
1. The Actuarial Opinion shall be considered to be in error if the Actuarial Opinion would have not been issued or would have been materially altered had the correct data or other information been used.
 2. The Actuarial Opinion shall not be considered to be in error if it would have been materially altered or not issued solely because of data or information concerning events subsequent to the balance sheet date or because actual results differ from those projected.
- (d) State an additional communication that the insurer would require of you as the Appointed Actuary if you determine that the SAO was in error.

The insurer would require its Appointed Actuary to notify its Board of Directors or its audit committee in writing within five business days after any determination by the Appointed Actuary that the Actuarial Opinion submitted to the domiciliary commissioner was in error as a result of reliance on data that, as of the balance sheet date, was factually incorrect.

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:

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

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 U.S. tort law and tort reforms.

Solution:

- (a) Identify two direct costs of the tort system other than amounts paid to claimants.

Commentary on Question:

There are more than two direct costs other than amounts paid to claimants. Only two were required for full credit. The model solution is an example of a full credit solution.

- Legal expenses
- Claim adjustment expenses

- (b) Identify two indirect costs of the tort system.

Commentary on Question:

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

- Amounts spent to reduce potential liability claims
- Opportunity costs of products/services that are withdrawn from markets due to concerns over potential liability claims

- (c) Describe two types of tort reform that directly address the amounts paid to claimants.

Commentary on Question:

There are more than two types of tort reform that directly address the amounts paid to claimants. Only two were required for full credit. The model solution is an example of a full credit solution.

3. Continued

- Punitive damages reform restricts the application of and/or amount of punitive damages awards.
 - Noneconomic damages reform directly limits amounts paid to claimants for noneconomic damages.
- (d) Explain how enactment of joint and several liability tort reform addresses fairness.

This rule could permit a plaintiff to recover an entire award from a defendant that is minimally at fault. This raises the issue of fairness. Joint and several liability reforms generally include some restrictions on the application of this rule or the introduction of some form of proportionate liability whereby those with minimal fault only pay based upon their degree of fault.

- (e) Explain how enactment of joint and several liability reform can indirectly control costs of the tort system.

Commentary on Question:

There are several different ways that joint and several liability reform can indirectly control costs of the tort system. The model solution is an example of a full credit solution.

Before joint and several liability reforms were enacted, some cases would be brought against multiple defendants in which one of the defendants had a large amount of resources (wealth and insurance) but was minimally at fault while the other defendants that were mainly at fault had extremely limited resources. After this type of reform, some of these types of cases were not brought before the courts as the collection of a major award would not be possible. As such, this type of reform indirectly reduces the costs of the tort system by reducing the number of cases.

4. Learning Objectives:

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

Learning Outcomes:

- (1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.
- (1e) Understand and apply the concepts of reinsurance accounting.

Sources:

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

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

Commentary on Question:

This question tests a candidate's knowledge of the Schedule F calculation. This question required the candidate to respond in Excel. An example of a full credit solution is in the Excel solutions spreadsheet. The solution in this file is for explanatory purposes only.

Solution:

Calculate NGI's 2020 Schedule F provision for reinsurance from F-Re under each of the following scenarios:

Scenario	F-Re Status	Securing funds from F-Re (\$)	Claims disputed by F-Re
(i)	Authorized	0	None
(ii)	Authorized	0	C03
(iii)	Authorized	400,000	C03
(iv)	Unauthorized	400,000	C03

Commentary on Question:

Note that there are no reinsurance recoverables from F-Re with respect to unearned premiums and commissions. Therefore, all reinsurance recoverables from F-Re are from claims paid and unpaid. Also, the claims provided in the data table are NGI direct claim amounts. F-Re's excess layer must be determined for each NGI claim amount to determine amounts recoverable.

First determine the reinsured amount for each direct claim amount (i.e., the amount excess of 100,000, limited to 900,000). For each claim, if NGI has payment date listed as "unpaid", then the reinsurance recoverable amount is for unpaid claims. If NGI has paid the claim but the reinsure payment date is listed as "unpaid", then the reinsurance recoverable amount is for paid claims.

4. Continued

For authorized reinsurers (i.e., scenarios (i), (ii) and (iii)), one needs to calculate the slow paying test ratio which is calculated as the reinsurance recoverables on paid loss and LAE more than 90 days overdue divided by [total reinsurance recoverables on paid loss and LAE plus amounts received in the prior 90 days]. These amounts are reduced for amounts on claims in dispute. Claims C03, C06 and C08 are more than 90 days overdue with an amount of 1,775,000. Total reinsurance recoverables on paid loss and LAE is the 1,775,000 plus 75,000 from C11 for a total of 1,850,000. Amounts received in the prior 90 days is from claim C07 in the amount of 295,000. For scenarios (ii) and (iii), amounts in dispute are from claim C03 in the amount of 675,000. The slow paying test ratio for scenarios (i), (ii) and (iii) is calculated as follows:

For scenario (i):

$$1,775,000 / (1,850,000 + 295,000) = 82.8\%$$

For scenarios (ii) and (iii):

$$(1,775,000 - 675,000) / ((1,850,000 - 675,000) + 295) = 74.8\%$$

These slow paying ratios are both greater than 20%. F-Re is a slow paying authorized reinsurer for NGI in scenarios (i), (ii) and (iii)

The provision under scenarios (i), (ii) and (iii) is calculated as 20% of the maximum of unsecured total recoverables and recoverables more than 90 days past due. Total recoverables is the total reinsurance recoverables on paid loss and LAE (1,850,000) plus total reinsurance recoverables on unpaid loss and LAE (115,000 from C09 and 345,000 from C10) which equals 2,310,000. For scenario (iii), this is reduced by securing funds of 400,000. The Schedule F provisions for scenarios (i), (ii) and (iii) are calculated as follows:

For scenarios (i) and (ii):

$$20\% \times \text{maximum of } 2,310,000 \text{ and } 1,775,000 = 462,000$$

For scenario (iii):

$$20\% \times \text{maximum of } (2,310,000 - 400,000) \text{ and } 1,775,000 = 382,000$$

Scenario (iv) is an unauthorized reinsurer with securing funds of 400,000. The calculation of the Schedule F provision for an unauthorized reinsurer is unsecured total recoverables plus 20% of the sum of recoverables more than 90 days past due not in dispute and amounts in dispute. The provision is capped so as not to exceed total reinsurance recoverables. The Schedule F provision for scenario (iv) is calculated as follows:

$$(2,310,000 - 400,000) + 20\% \times [(1,775,000 - 675,000) + 675,000] = 2,265,000. \text{ This is less than the total reinsurance recoverables of } 2,310,000. \text{ Therefore, the Schedule F provision for scenario (iv) is } 2,265,000.$$

5. 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.
- (1h) Estimate the premium asset for retrospectively rated policies for financial reporting.

Sources:

NAIC Statement of Statutory Accounting Principles,

- No. 66, “Retrospectively Rated Contracts”

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

Commentary on Question:

This question tests a candidate’s understanding of the accounting for retrospectively rated policies and the ability to calculate the premium asset on them. This question required the candidate to respond in Excel for parts (c), (d) and (e). An example of a full credit solution for these parts is in the Excel solutions spreadsheet. The model solutions in this file for parts (c), (d) and (e) are for explanatory purposes only.

Solution:

- (a) Describe the recording of the amounts for *accrued additional retrospective premiums* in the statutory financial statement as per SSAP No. 66 with respect to the following:
 - (i) the accounting transaction including where amounts are recorded
 - (ii) the timing of when amounts are recorded
 - (i) A receivable asset with a corresponding entry made either to written premiums or as an adjustment to earned premiums.
 - (ii) Premiums not recorded through written premium when accrued shall be recorded through written premium when billed.
- (b) Describe a benefit of using the formula approach over an approach using historical data for calculating PDL ratios.

5. Continued

Commentary on Question:

There are several benefits to using the formula approach. Only one benefit was required for full credit. The model solution is an example of a full credit solution.

Policy terms may have changed since the policies included in the historical data were written. The formula approach ensures that the PDL ratios reflect current terms.

- (c) Calculate the Premium Development to Loss Development (PDL) ratios under the formula approach for the first and second retrospective premium adjustments.

Commentary on Question:

BPF = basic premium factor, ELR = expected loss ratio, TM = tax multiplier, %Loss_x = expected percentage of loss emerged for the x retro adjustment, (CL1/PL1) = Loss capping ratio at the first retrospective adjustment, LCF = loss conversion factor, ICAP2 = Incremental loss capping ratio for the second retrospective adjustment period

$$\begin{aligned} PDL_1 &= [BPF \times TM / (ELR \times \%Loss_1)] + [(CL1/PL1) \times LCF \times TM] \\ &= [0.225 \times 1.035 / (0.7 \times 85\%)] + [0.875 \times 1.20 \times 1.035] \\ &= 1.478 \end{aligned}$$

$$\begin{aligned} PDL_2 &= ICAP2 \times LCF \times TM = 0.59 \times 1.20 \times 1.035 \\ &= 0.733 \end{aligned}$$

- (d) Calculate the cumulative PDL (i.e., CPDL) ratios for the first and second retrospective premium adjustments.

$$\begin{aligned} CPDL_1 &= (PDL_1 \times \%Loss_1 + PDL_2 \times \%Loss_2 + PDL_3 \times \%Loss_3) / \\ &\quad (\%Loss_1 + \%Loss_2 + \%Loss_3) \\ &= (1.478 \times 85\% + 0.733 \times 13\% + 0 \times 2\%) / 1 \\ &= 1.352 \end{aligned}$$

$$\begin{aligned} CPDL_2 &= (PDL_2 \times \%Loss_2 + PDL_3 \times \%Loss_3) / (\%Loss_2 + \%Loss_3) \\ &= (0.733 \times 13\% + 0 \times 2\%) / 0.15 \\ &= 0.635 \end{aligned}$$

- (e) Calculate the premium asset on retrospectively rated policies for policy years 2019 and 2020 combined as of December 31, 2020.

Premium Asset = Estimated Total Premium – Premium Booked as of 12/31/20

5. Continued

Estimated Total Premium = Premium Booked from Prior + Expected Future Premium
= [0 + Expected Future Loss Emergence × CPDLD Ratio]

Premium Asset = [0 + 479,250 × 1.352] – 573,750 = 74,041

6. 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:

- (2f) Discuss the Canadian solvency tests.
- (2h) Demonstrate knowledge of ORSA and its implementations.

Sources:

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

- Chapter 12 (Solvency Monitoring)

Commentary on Question:

This question tests a candidate's understanding of ORSA and how it relates to the Canadian requirement of a DCAT report (now reamed as the Financial Condition Testing (FCT) report) .

Solution:

- (a) Explain two of the ways that ORSA expands the risk-based capital formula approach to solvency monitoring.

Commentary on Question:

There are several ways that ORSA expands the risk-based capital formula approach. Only two were required for full credit. The model solution is an example of a full credit response.

- It requires insurers to assess all relevant risks, including those that are not easily quantified.
 - It requires insurers to estimate target capital to meet their own risk tolerances, not minimum capital to meet statutory requirements
- (b) Describe the three sections of the NAIC ORSA summary report.

Section 1 Risk framework:

A description of the insurer's risk-management framework.

Section 2 Risk assessment:

An insurer's own assessment of risk exposure, both quantitative and qualitative.

Section 3 Risk capital:

A group assessment of risk capital and prospective solvency assessment.

6. Continued

- (c) Identify which section(s) of the NAIC ORSA summary report are covered in a Canadian DCAT report.

Section 2 – Risk assessment

Section 3 – Risk Capital

- (d) Explain why the ORSA and DCAT Report remain separate regulatory requirements in Canada.

DCAT is a function of the Appointed Actuary whereas the ORSA process is the responsibility of the board of directors. If the two requirements were integrated, the Appointed Actuary may no longer be responsible (or as heavily involved) in the embedded DCAT analysis within an ORSA or the board of directors may defer its responsibilities for the ORSA process to the Appointed Actuary. Neither of these outcomes is desirable for the parties involved.

7. 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.
- (4d) Discuss the issues regarding usage based insurance and telematics in automobile insurance.

Sources:

Edmunds, T., "Insurance and the discrimination laws: motor and travel insurance," House of Commons Library Standard Note SN04601

Cappelletti, A., "Usage-Based Insurance and Telematics," Society of Actuaries Study Note

Commentary on Question:

This question tests a candidate's understanding of the issues regarding discrimination in ratemaking,

Solution:

- (a) Provide arguments for or against this decision from the viewpoint of insurers.

Commentary on Question:

Many potential arguments for or against the decision can be made. The model solution is an example of the type of solution with arguments "for" this decision that would earn full credit. Full credit could also be earned by providing arguments "against" this decision.

The ECJ, in its decision to ban the use of gender in pricing insurance products in the EU, strengthens the notion of social equity by making insurers subject to the Equality Act. Insurers should not have an exemption from following discrimination laws.

Insurers may argue from the point of view of actuarial equity noting the existence of cost differences by gender for certain insurance products. But this is not a sufficient reason to allow discrimination. If insurers could prove a cost difference between races or religious backgrounds, it would still be both legally and socially unacceptable for insurers to discriminate on this basis. Discrimination by gender is not socially acceptable and against discrimination laws.

7. Continued

- (b) Describe one advantage and one disadvantage of the UBI approach to pricing compared to gender-based pricing.

Commentary on Question:

There are both several advantages and disadvantages. Only one of each was required for full credit. The model solution is an example of a full credit solution.

Advantage: UBI discriminates on a driver's driving habits so it is fair to discriminate on this basis. Furthermore, a driver has the ability to change their driving habits. Gender-based pricing discriminates on the basis of a driver's genetics that do not directly relate to loss costs. As such, it may be viewed as unfair discrimination.

Disadvantage: Gender differences for automobile loss costs is greatest for young drivers. Some of the loss cost difference between the genders for young drivers may be due to factors not captured by UBI. Furthermore, many UBI programs use smartphone apps which can be turned on/off by the user making the data captured less reliable. As such gender-based pricing could still be more accurate for young drivers.

8. 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:

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

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 3 (Accounting for Financial Instruments)

Commentary on Question:

This question tests a candidate's understanding of the accounting for an insurer's investments in bonds.

Solution:

- (a) Provide TGIC's June 30, 2020 accounting entries under U.S. statutory accounting showing the following:
 - (i) Credits and debits to balance sheet accounts
 - (ii) Credits and debits to income statement accounts
 - (iii) Direct charges and credits to surplus

Let "M" denote millions of dollars.

Balance Sheet:

- Debit asset Cash 10M ($= 4\% / 2 \times 500\text{M}$) for bond interest
- Credit asset Cash 2.1M ($= 21\% \times 10\text{M}$) for tax
- Credit asset Cash 7.9M ($= 10\text{M} - 2.1\text{M}$) for shareholder dividend payment

Statement of Income:

- Credit Investment income 10M for bond interest
- Debit expenses 2.1M for tax

Direct charges and credits to surplus:

- Direct charge of 7.9M for shareholder dividend payment

8. Continued

- (b) Compare the accounting treatment for a change in the value of this bond because of a rise in interest rates under the following accounting standards:
- (i) GAAP accounting
 - (ii) U.S. statutory accounting

Under GAAP, this bond is carried at fair value (i.e., market value) because it is categorized as available for sale. This decline in value lowers the carried amount in the balance sheet for the asset and flows through the income statement through other comprehensive income (i.e., unrealized loss) not regular income.

Under U.S. statutory accounting, this bond is carried at amortized cost because it is investment grade in good standing. This decline in value does not change the carried amount in the balance sheet for the asset and does not affect the income statement.

9. Learning Objectives:

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

Learning Outcomes:

- (1b) Understand and compare different financial reporting standards for general insurers.
- (1g) Demonstrate knowledge of taxation for general insurers in the U.S.

Sources:

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

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 15 (Federal Income Taxes for General Insurers)

NAIC Annual Statement

Case Study, Fall 2021, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate's knowledge of tax-basis accounting for reserves and underwriting income.

This question uses information from the GI FREU Case Study. It required the candidate to respond in Excel. Data from the GI FREU Case Study was preloaded in Excel for the candidate to use in their solution. An example of a full credit solution for this part is in the Excel solutions spreadsheet. The model solution in this file is for explanatory purposes only.

Solution:

- (a) Calculate R-Dan's 2020 tax basis loss and LAE reserves for PPA.

Start with Schedule Part 1B by line, column 24 for the unpaid amount. Add back in salvage and subrogation (S&S) anticipated from column 23. No adjustment for discounting is required because R-Dan does not discount its reserves. Apply the appropriate IRS factors by accident year to the unpaid (after S&S added back in) and to column 23 S&S separately. Add the amounts together to get the total.

9. Continued

<i>Amounts in 000</i>	Net Unpaid Total	S&S.	IRS Factor Unpaid	IRS Factor S&S	Tax basis loss reserves
Acc. Year	A	B	C	D	E = (A+B)×C-B×D
2019 & prior	111,400	4,500	0.965	0.970	107,479
2020	136,900	6,000	0.96	0.975	131,334
Total	248,300	10,500			238,813

- (b) Calculate R-Dan's 2020 tax basis underwriting income.

Commentary on Question:

EP = Earned Premium, UPR = Unearned Premium Reserve, CY = Calendar Year, AS = Annual Statement, L&LAE = Losses and Loss Adjustment Expenses

Tax basis premium revenue

= statutory EP [AS page 4, row 1, col 1]

+ 20% of the change in the UPR [AS page 3, row 9, col 1 minus col 2]

= 578,500 + 0.2 × (208,800 – 179,600) = 584,340

Tax basis incurred losses

= CY 2018 paid losses + change in tax basis loss reserves

CY 2018 paid losses { *can also take this amount directly from UWIE* }

= CY 2018 Incurred [AS page 4, rows 2 and 3 for col 1]

+ Unpaid L&LAE YE 2017 [AS page 3, rows 1 and 3 for col 2]

– Unpaid L&LAE YE 2018 [AS page 3, rows 1 and 3 for col 1]

= (482,100 + 70,700) + (203,200 + 45,700) – (238,800 + 50,700) = 512,200

Tax basis incurred losses

= 512,200 + (306,900 – 261,000) = 558,100

Other underwriting expenses incurred = 98,200 [AS Page 4, row 4, col 1]

Tax basis underwriting income = 584,340 – 558,100 – 98,200 = – 71,960

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

Sources:

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

- Chapter 11 (Measuring Insurer Financial Strength)

NAIC Annual Statement

Case Study, Fall 2021, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate's knowledge of NAIC IRIS ratios.

This question uses information from the GI FREU Case Study. It required the candidate to respond in Excel for parts (b) and (c). Data from the GI FREU Case Study was preloaded in Excel for the candidate to use in their solution. An example of a full credit solution for parts (b) and (c) are in the Excel solutions spreadsheet. The model solutions for parts (b) and (c) in this file are for explanatory purposes only.

Solution:

- (a) Describe the purpose for each of the following NAIC IRIS Ratios:
 - (i) IRIS Ratio 4 – Surplus Aid to Surplus
 - (ii) IRIS Ratio 8 – Change in Adjusted Policyholders' Surplus
 - (iii) IRIS Ratio 9 – Adjusted Liabilities to Liquid Assets

10. Continued

- (i) It indicates any reliance on the continuation of the reinsurance treaty (or treaties) providing ceding commissions supporting the reported amount of Policyholders' Surplus (PHS).
- (ii) It provides a measure of changes in PHS that includes only operational changes not capital transactions, such as issuing stock or debt.
- (iii) It indicates whether assets that can be readily converted to cash will cover policyholders' claims if the insurer is liquidated.
- (b) Calculate the NAIC IRIS Ratios noted in part (a) for R-Dan as of December 31, 2020:
- (i) IRIS Ratio 4 – Surplus Aid to Surplus
= Surplus Aid / PHS
- Surplus Aid = ceding commissions ratio \times sum of ceded reinsurance UPR (nonaffiliates)
Ceding commissions ratio = total reinsurance ceded commissions / reinsurance premiums ceded
Total reinsurance ceded commissions [page 11 lines 2.3 + 2.6, column 2] = 800
Reinsurance premiums ceded [page 8, line 35, column 4 + column 5] = 10,400
Ceding commissions ratio = $800/10,400 = 0.077$
Sum of ceded reinsurance UPR (nonaffiliates) = 1,800 [*Since we know that R-Dan is the only insurer in A-Eye holdings, all of the ceded reinsurance is from nonaffiliates so we can use the note on page 3 line 9*]
Surplus Aid = $0.077 \times 1,800 = 138$
- IRIS Ratio 4 = $138 / 209,400 = 0.1\%$
- (ii) IRIS Ratio 8 – Change in Adjusted Policyholders' Surplus
= Change in Adjusted PHS / Prior Year PHS
- Change in adjusted PHS = current year PHS – change in surplus notes – capital paid in or transferred – surplus paid in or transferred – prior year PHS*
- = $209,400 - 0 - 0 - 10,000 - 209,100 = -9,700$ [from page 4]
- IRIS Ratio 8 = $-9,700 / 209,100 = -4.6\%$

10. Continued

- (iii) IRIS Ratio 9 – Adjusted Liabilities to Liquid Assets
= [Total Liabilities – Deferred Agents’ Balances] / Liquid Assets

Total Liabilities = 533,300 [page 3, line 28, column 1]

Deferred Agents’ Balances = 52,700 [page 2, line 15.2, column 3]

Liquid assets = *bonds + stocks + cash, cash equivalents and short-term investments + receivable for securities + investment income due and accrued – investments in parents, subsidiaries and affiliates* [from page 3 column 3 and note that none of R-Dan’s investments in fixed income securities or equities are with affiliated companies]

= 609,600 + 28,400 + 6,700 + 0 + 9,100 – 0 = 653,800

IRIS Ratio 9 = [533,300 – 52,700] / 653,800 = 73.5%

- (c) Determine whether or not each of the IRIS Ratio results for R-Dan calculated in part (b) represents an exceptional value. Include the criteria used for making each determination.
- (i) An IRIS Ratio 4 equal to 0.1% is not exceptional. Exceptional values are over 15%.
- (ii) An IRIS Ratio 8 equal to –4.6% is not exceptional. Exceptional values are either over 25% or under –10%.
- (iii) An IRIS Ratio 9 equal to 73.5% is not exceptional. Exceptional values are over 100%.

11. 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.

Sources:

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

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 8 (Notes to Financial Statements)

NAIC Statement of Statutory Accounting Principles,

- No. 53, “Property Casualty Contracts—Premiums”

NAIC Annual Statement

Case Study, Fall 2021, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tests a candidate’s knowledge of the PDR under U.S. statutory accounting principles.

This question uses information from the GI FREU Case Study. It required the candidate to respond in Excel for parts (b) and (c). Data from the GI FREU Case Study was preloaded in Excel for the candidate to use in their solution. An example of a full credit solution for parts (b) and (c) are in the Excel solutions spreadsheet. The model solutions for parts (b) and (c) in this file are for explanatory purposes only.

Solution:

- (a) Critique R-Dan management’s PDR calculation.

Commentary on Question:

The model solution is an example of a full credit solution. It does not address all of the issues that could be raised in a critique of this calculation.

- R-Dan’s PDR calculation is done on an all-lines combined basis. For purposes of determining if a PDR exists, statutory accounting states that insurance contracts are to be grouped in a manner consistent with how policies are marketed, serviced and measured. This should at least be by line of business or some grouping of lines. Any PDR for one group cannot be offset by the results from other groups.

11. Continued

- R-Dan’s PDR calculation only looks at the latest year for calculating the projected loss ratio. It would be more appropriate to look at trends in the loss ratio over several years to determine the expected loss ratio for the unexpired portion of policies.
 - R-Dan’s PDR calculation takes maintenance expenses divided by earned premium to determine the maintenance expense ratio. Written premium should be used for this ratio as it better relates to the incurring of these expenses.
- (b) Calculate a year-end 2020 PDR for R-Dan following the principles of U.S. statutory accounting and R-Dan management’s three stated assumptions.

Commentary on Question:

The model solution is an example using Schedule P line of business as the PDR calculation grouping. This is not the only acceptable grouping possible.

For parts (b) and (c), if we use Schedule P line of business as the PDR calculation grouping, a quick review of results by line shows that only Private Passenger Liability/Medical (PP-AL) has a loss ratio high enough to create a PDR. Thus, the calculation of the PDR is only completed for PP-AL.

	Item for PP-AL		Source
(1)	Expected loss and loss adjustment expense ratio	96.5%	Average of Schedule P Part 1B, column 31 rows 7 to 11
(2)	Expected maintenance expense ratio	5.5%	IEE Part II, column 19 row 19.1,19.2 / IEE Part II, column 1 row 19.1,19.2
(3)	Future cost of in-force policies as a % of premium	102.0%	(1) + (2)
(4)	Unearned premium reserve	62,500	IEE Part II, column 3 row 19.1, 19.2
(5)	Indicated PDR	1,235	Maximum of 0 and (4) × [(3) – 100%]

- (c) Provide a rationale for the inputs used in your calculation of the PDR in part (b).

11. Continued

For (1): A detailed loss ratio projection analysis is not possible with the data available. Noting the consistent adverse development experienced for the PP-AL line of business, it is not appropriate to look at just the accident year (AY) 2020 loss ratio. Therefore, it is reasonable to assume that the expected loss ratio for the unexpired policies will be fairly represented by an average loss ratio over a number of AYs. In this case, a five-year average appears appropriate. Referring to Schedule P Part 1B column 31, the PP-AL AY average loss ratio is 96.5%.

For (2): It is reasonable to assume that the current 2020 PP-AL maintenance expense ratio will continue into the projection period regarding the unexpired portion of the policies.

12. 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.

Sources:

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

- Chapter 14 (The General Insurance 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”

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

AAA, Council on Professionalism, Discussion Paper Prepared by Task Force on Materiality, “Materiality, Concepts on Professionalism”

Actuarial Standards Board, Actuarial Standard of Practice

- No. 38, Using Models Outside the Actuary’s Area of Expertise (Property/Casualty)

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 responsibilities of the Appointed Actuary.

This question uses the information from the GI FREU Case Study. It 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) Critique Sue Calvin's opinion that reserves are reasonable.

Commentary on Question:

Valid arguments in a critique may be made in favor of or against Sue Calvin's opinion that reserves are reasonable. The model solution is an example of a full credit solution that is critical of Sue Calvin's opinion.

I disagree with Sue's determination of a reasonable provision considering that the booked reserves are at the low end of the range of reasonable reserves and that the range is too wide. The range appears to be too wide because it is approximately -19% to +20% of reserves. These amounts are approximately 33% of statutory surplus which seems like an unusually wide range especially after consideration that there was an injection of capital.

Any narrowing of the range would indicate that the reserve opinion should be "inadequate" instead of "reasonable." However, it is difficult to make definitive conclusions about Sue's range because there was no disclosure of the basis of the range provided.

- (b) State two alternative materiality standards that may be appropriate for an RMAD.

Commentary on Question:

There are several standards that may be appropriate. Only two were required for full credit. The model solution is an example of a full credit solution.

- Impact of item on IRIS ratios
- Impact of item on earnings per share

- (c) Select the materiality standard you would have used if you were the AA for R-Dan (whether the same or different from that selected by Sue Calvin). Justify your selection.

Commentary on Question:

The model solution is an example of a full credit solution that agrees with Sue's selection. It was equally valid to justify a selection that differs from Sue's selection.

I agree with the materiality standards selected by Sue for this company. Materiality determinations require professional judgement and should reflect the intended purpose of the actuarial opinion. It is appropriate to evaluate the impact of an RMAD relative to surplus or reserves since U.S. statutory statements are focused on solvency and material RMADs can cause significant changes in surplus or threaten solvency.

12. Continued

- (d) Describe what Sue Calvin should consider when doing this in accordance with ASOPs.
- The amount of the reserves covered by another's analysis relative to total reserves.
 - The nature of the exposure and coverage
 - The way in which reasonably likely variations in estimates may affect the actuary's opinion
 - The credentials of the individual that prepared the analysis

13. Learning Objectives:

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

Learning Outcomes:

- (4c) Compare different forms of rate regulation.

Sources:

Insurance Regulation, The Institutes

- Chapter 8 (Rate Regulation)

Commentary on Question:

This question tests a candidate's knowledge of the different forms of rate regulation.

Solution:

- (a) Describe the flex rating approach to rate regulation.

A state law requiring prior approval only if the new rates exceed a certain percentage above (and sometimes below) the rates previously filed.

- (b) Describe two approaches to rate regulation other than prior approval and flex rating.

Commentary on Question:

There are four other approaches described in the syllabus readings (file-and-use, use-and-file, no-file / open competition, and state mandated rates). Only two were required for full credit. The model solution is an example of a full credit response.

File-and-use: Insurer must file rates (and rules) within a specified time before use (usually thirty to ninety days). That period gives regulators a minimal opportunity to uncover violations of law or other potentially questionable practices.

No-file (or open competition). No-file, or open competition, allows insurers to develop and use rates without having to get approval or file with state regulators.

- (c) Compare the insurer regulatory compliance costs for the following three approaches to rate regulation: flex rating and the two approaches in your response to part (b).

Commentary on Question:

There are many different potential responses for part (c) as it depends on the approaches selected in part (b). The model solution is an example of a full credit solution given the model solution in part (b)

13. Continued

File-and-use would have the highest compliance costs since insurer's would have to prepare and submit filings to the regulator for all rate changes in advance of using the rates.

Flex rating would be less costly than file-and-use because it would only require filings to the regulator for some rate changes.

No-file would have the lowest compliance costs as insurers would not have to prepare filings for the regulator.

- (d) Explain how at-fault drivers bear the consequences of their actions in a no-fault automobile insurance system.

Most no-fault rating plans take at-fault accidents into account for rating purposes.

- (e) Compare a pure no-fault system to a modified no-fault system.

In a pure no-fault system, the tort liability system is completely replaced by no-fault first-party accident benefits.

In a modified no-fault system, the tort liability system is not completely replaced by no-fault first-party accident benefits. Under the modified system, no-fault benefits are available to all accident victims, while lawsuits are permitted only if a defined threshold is met.

14. 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.
- (5d) Understand mass torts/class action suits and discuss their impact on the general insurance industry.

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 understanding of some of the rules and principles pertaining to insurance contract law.

Solution:

- (a) Define waiver as it applies to an insurer.

Insurer's voluntary and intentional relinquishment of a known right.

- (b) Define the parol evidence rule with respect to waivers.

Oral evidence of agreements preceding, or accompanying, a written insurance policy cannot be used to prove a waiver.

- (c) Describe the legal principle of estoppel.

Estoppel is a legal principle that prohibits a party from asserting a claim or right that is inconsistent with that party's past statement or conduct on which another party has detrimentally relied.

- (d) Describe the three events that need to take place for the principle of estoppel to apply under insurance law.

1. False representation of a material fact by the insurer [*or producer of the insurance policy*]
2. Reasonable reliance by the insured on that representation
3. Resultant injury or detriment to the insured

15. 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:

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

Sources:

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

- Chapter 12 (Solvency Monitoring)

Commentary on Question:

This question tests a candidate's knowledge of the E.U. Solvency II standard formula solvency capital requirement

Solution:

- (a) Describe the calculation of the BSCR component. You may provide this formulaically or in words.

Commentary on Question:

The model solution provides the solution formulaically.

$BSCR = SCR_{INT} + [\sum \sum_{ij} \rho_{i,j} SCR_i SCR_j]^{0.5}$, where

- SCR_i is the SCR for risk component i
- $\rho_{i,j}$ is the tail correlation between risks i and j
- SCR_{INT} is the SCR for intangible asset risk

- (b) Describe the purpose of the ADJ component.

It represents adjustments for the risk-absorbing effect of technical provisions and deferred taxes.

- (c) Describe the calculation of the SCR-OR component. You may provide this formulaically or in words.

Commentary on Question:

The model solution provides the solution in words.

SCR-OR is calculated as the minimum of the following two amounts:

1. 30% of the BSCR
2. Maximum of gross earned premiums and technical provisions

16. 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:

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

- Chapter 5 (The Annual Statement, Nonadmitted Assets and Surplus)
- Chapter 10 (Performance Measurement for General Insurers)

Commentary on Question:

This question tests a candidate's understanding of the statutory accounting rules for nonadmitted assets and how to convert statutory capital to book capital.

This question required the candidate to use Excel for part (d). The model solution for this part 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 to part (d).

Solution:

- (a) Describe two ways in which investment assets can be nonadmitted under the rules of U.S. statutory accounting.

Commentary on Question:

There are several ways in which these assets can be nonadmitted. Only two were required for full credit. The model solution is an example of a full credit solution.

- Lower-grade investments are limited to 10% of total admitted assets. The excess is a nonadmitted asset.
 - Common stock investments are limited to the greater of 25% total admitted assets or 100% of surplus. The excess is a nonadmitted asset.
- (b) Describe the accounting treatment under U.S. statutory accounting, including valuation basis and admitted/nonadmitted status, for the following assets:
 - (i) Material assets, not held as investments
 - (ii) Goodwill from a statutory purchase
 - (iii) Electronic data processing equipment and software

16. Continued

- (i) Valued at depreciated value and classified as a nonadmitted asset if treated as an asset. Alternatively, it is treated as an expense and expensed immediately.
 - (ii) Asset calculated as the difference between purchase price and the acquired entity's surplus. Admitted asset limited to 10% of acquiring entity's surplus. The excess is a nonadmitted.
 - (iii) Asset depreciated over the lesser of the assets useful life or three years. The admitted asset is limited to 3% of surplus. The excess is a nonadmitted asset.
- (c) Explain how it is possible for an increase in nonadmitted assets to reduce surplus.

If we consider total assets to be a fixed amount, then an increase in nonadmitted assets would be offset by a decrease in the admitted assets by the same amount. Surplus is calculated as admitted assets less liabilities, so this would reduce surplus.

- (d) Estimate the target return on statutory surplus for this insurer.

	Statutory Policyholders' Surplus	1,105.00
-	Estimated reserve deficiency in statutory loss and LAE reserves	125.00
-	Cost of holding capital for loss and LAE reserves	175.00
+	implicit discount (=8% × (stat reserves + deficiency))	156.40
+	Equity in the unearned premium reserves	150.00
+	Nonadmitted assets	136.00
+	Schedule F provision for reinsurance	278.00
-	Management's estimate for uncollectible reinsurance	100.00
-	Management's estimate for bad debts from agents' balances	35.00
=	Book capital	1,390.40
	Target return on statutory surplus (= opportunity cost of capital x book capital / stat surplus)	12.6%

17. 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:

Mayer Brown, “Understanding the New Financial Reform Legislation: The Dodd-Frank Wall Street Reform and Consumer Protection Act”

Commentary on Question:

This question tests a candidate’s knowledge of the Dodd-Frank Act as it pertains to general insurance.

Solution:

- (a) Identify these two areas of insurance regulation.
 - non-admitted insurance market
 - reinsurance
- (b) Explain how the Dodd-Frank Act affects one of the two areas of insurance regulation identified in part (a).

Commentary on Question:

Full credit could be earned by explaining Dodd-Frank with respect to either the non-admitted insurance market or reinsurance. The model answer is an example of a full credit response explaining Dodd-Frank with respect to the non-admitted insurance market.

Dodd-Frank gives large commercial purchasers of insurance a more streamlined route to obtain coverage from non-admitted companies, including companies outside the United States.

- (c) The Dodd-Frank Act included the creation of the Federal Insurance Office (FIO) within the U.S. Treasury. The Dodd-Frank Act authorizes the FIO to preempt state laws under certain conditions. However, there are six steps that the FIO must take before a state law may be preempted.

Identify three of the six steps.

17. Continued

Commentary on Question:

The model answer is an example of a full credit response identifying three of the six steps.

- issue a notice of potential inconsistency to the appropriate state regulator
 - issue a notice in the Federal Register
 - give interested parties an opportunity to comment
- (d) The FIO's power of preemption of state law is limited. It may not preempt state insurance laws governing certain functions of the business of insurance.

Identify four such functions included in the limitation.

Commentary on Question:

There are more than four functions. Only four were required for full credit. The model solution is an example of a full credit response.

- premiums
 - underwriting
 - sales practices
 - coverage requirements
- (e) Identify one of the roles of the FIO under its administrative function.

Commentary on Question:

There are five such roles. Only one was required for full credit. The model solution is an example of a full credit response.

Assist the Secretary in negotiating international agreements

18. 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 class actions.

Solution:

- (a) Identify the benefit of a class action from the perspective of each of the following parties:
 - (i) The plaintiffs
 - (ii) The defendants
- (i) The plaintiffs: Permits claims to be brought forward in which the amount claimed is nominal on an individual basis.
- (ii) The defendants: Efficiency of only having to argue a case once instead of numerous times.
- (b) Identify two other prerequisites of class certification from FRCP Rule 23.

Commentary on Question:

There are three other prerequisites. Only two were required for full credit. The model answer is an example of a full credit response.

- Typicality
- Fair representation

18. Continued

- (c) Describe the standard for commonality as decided in *Wal-Mart v. Dukes*.

The claimants must share a common cause of action, there must be a common defense against the claims from all the individuals in the class and there is a common remedy available from a court decision.

- (d) Explain why the Supreme Court ruled against class certification in *Wal-Mart v. Dukes*.

Commentary on Question:

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

The question of commonality was whether or not the evidence represented sufficient proof to show that female employees across the nation were subject to a national policy to discriminate them as opposed to there being a collection of independent acts of discrimination.

The evidence presented was that there wasn't a general policy of discrimination nationally. There was evidence of discrimination on a local basis by some local supervisors using discretion. Plaintiffs did not identify a common mode of exercising discretion that pervades the entire company. The defined national class was too broad.

19. 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:

- (1e) Understand and apply the concepts of reinsurance accounting.
- (2a) Evaluate the financial health of a general insurer using information contained in the Annual Statement.
- (2i) Discuss the function of credit rating agencies and their impact on general insurers.

Sources:

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

- Chapter 4 (Accounting for Reinsurance Contracts)
- Chapter 12 (Solvency Monitoring)
- Chapter 13 (General Insurance Financial Ratings)

Commentary on Question:

This question tests a candidate's understanding of certain issues regarding rating agency reviews of insurers and understanding how an actuary should respond to rating agency concerns. There are many ways that this question could be answered to earn full credit. The model solution is an example of a full credit response. It does not include every possible reasonable response to the rating analyst's concerns. To earn full credit, a response required a reasonable response to all three of the rating analyst's concerns.

Solution:

You accompanied TFI senior management in the meeting with the rating agency on June 30, 2021. The lead rating analyst raised the following concerns with respect to the planning model:

- (i) TFI projects significant net written premium growth of 15%, all of which is in its current regional market. This will increase its exposure to wildfires.
- (ii) The projected net premium to gross premium ratio for 2021 is the same as the actual ratio for 2020 despite an increase in reinsurance costs.
- (iii) The net retention level for catastrophe occurrence coverage has increased over that of 2020.

Provide a response to address each of the rating analyst's three concerns.

19. Continued

- (i) TFI's growth in business is being monitored by management. Part of the 15% increase is due to rate increases but over 10% is due to an increase in policies written. Partial year results show that increases could exceed 15%. TFI management did relax underwriting standards to allow greater concentrations of exposures within communities. This policy will be reviewed during the year to ensure that it does not put the company's financial condition at risk. Furthermore, TFI will consider rate increases to control the growth in new policies.
- (ii) The fact that the projected net premium to gross premium ratio for 2020 is the same as the actual ratio for 2019 was an error. It was assumed that reinsurance rates would remain constant, but they have not. TFI will revise the reinsurance rates and produce a new set of projections that reflect the true cost of reinsurance.
- (iii) TFI did increase its catastrophe net retention for 2019 as a means to control reinsurance costs. The company is confident that it has the financial capability to handle the increased retention. TFI will prepare a scenario analysis of the projections for catastrophic wildfire events using the actual reinsurance costs updated with the revised projections for the concentration of exposures.

20. 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.
- (1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

Sources:

NAIC Statement of Statutory Accounting Principles,

- No. 5R, “Liabilities, Contingencies and Impairment of Assets”
- No. 63, “Underwriting Pools”
- No. 65, “Property and Casualty Contracts”

Commentary on Question:

This question tested a candidate’s knowledge of several statutory accounting principles

Solution:

- (a) State these two SSAP No. 5 conditions.
 - Information available prior to issuance of the financial statements indicates that it is probable that a liability has been incurred at the date of the financial statements.
 - The amount of loss can be reasonably estimated.
- (b) Describe what is required of an insurer if a loss contingency is not recorded because only one of the SSAP No. 5 conditions is met.

Disclosure of the loss contingency in the financial statements when there is at least a reasonable possibility that a loss may have been incurred.

20. Continued

(c) Determine the amount each of the insurers is liable for on a \$10,000 claim from a policy issued by A, under each of the following categories as per SSAP No. 63:

(i) Directly liable to the claimant

(ii) Liable as reinsurer

	(i)	(ii)
A	\$10,000	\$0
B	\$0	\$1,500
C	\$0	\$1,500
D	\$0	\$5,500

(d) Outline how an insurer should account for this extended reporting coverage as per SSAP No. 65.

- A policy reserve classified as unearned premiums is required to run more than one year from the date of the policy.
- The amount of the policy reserve should be adequate to pay for all future claims arising from these coverage features.

21. Learning Objectives:

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

Learning Outcomes:

- (4g) Outline the function and regulation of captives.

Sources:

Cappelletti, A., "Captive Insurance," Society of Actuaries Study Note

Commentary on Question:

This question tests a candidate's knowledge of captive insurance.

Solution:

- (a) Identify two ART mechanisms, other than captive insurance.

Commentary on Question:

There are more than two ART mechanisms other than captive insurance. Only two were required for full credit. The model solution is an example of a full credit solution.

- Capital market securitization
- Industry loss warranties

- (b) Define the following types of captive insurers:

(i) Pure captive

(ii) Group captive

(i) Captive with a single-parent company that writes only risks from the parent and/or affiliates.

(ii) Captive formed by a group of similar companies from different owners that retains only the risks from the group of companies and/or their affiliates.

- (c) Provide two reasons why the decision to form a captive should not be based solely upon the benefit of tax mitigation.

Commentary on Question:

There are many possible reasons for this. Only two were required for full credit. The model solution is an example of a full credit response.

21. Continued

- Captives are frequently associated with offshore tax-havens. However, many countries include tax laws that limit the avoidance of tax on profits “transferred” to an offshore affiliate.
 - Much of the tax savings from a captive are achieved by means of the tax treatment of loss reserves. There is always the possibility that laws permitting tax savings could be changed with little notice to eliminate these savings.
- (d) Describe three drawbacks to creating a captive insurance company that are unrelated to taxes.

Commentary on Question:

There are more than three drawbacks. Only three were required for full credit. The model solution is an example of a full credit response.

- Cost of capitalization and administration at startup are high.
- Operating expenses for maintaining the captive can be high.
- Company is fully exposed to the risk of the captive carrying inadequate loss reserves.