SOCIETY OF ACTUARIES

Financial and Regulatory Environment – U.S.

Exam GIFREU

MORNING SESSION

Date: Thursday, May 2, 2019
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).

   a) The morning session consists of 13 questions numbered 1 through 13.

   b) The afternoon session consists of 9 questions numbered 14 through 22.

   The points for each question are indicated at the beginning of the question. Questions 10 - 13 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.

3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.

2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.

3. The answer should be confined to the question as set.

4. When you are asked to calculate, show all your work including any applicable formulas.

5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam GIFREU.

6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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Exam GIFREU-Front Cover

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular investment structure to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

****BEGINNING OF EXAMINATION****
Morning Session

1. (*5 points*) One of the key duties of a state Department of Insurance (DOI) is to closely supervise and regulate the underwriting operations of insurance companies domiciled in its state. There are several types of laws that a DOI may use to supervise an insurer's underwriting activities.

(a) (*2 points*) Describe the purpose of each of the following types of state laws regarding an insurer's underwriting activities:

(i) Declination, termination and disclosure laws

(ii) Unfair trade practice laws

(iii) Policy form laws

Aggressive application of underwriting regulation may interfere with another objective of regulators, such as the availability of insurance products to the public at reasonable rates.

(b) (*1 point*) Provide an example of an underwriting regulation that may limit availability.

Analysts employed by AZS Insurance Company have found that nurses, on average, are safer drivers compared to all other drivers. AZS decides to file automobile insurance policy rates in its state of operation that includes a 10% discount for being a nurse. It is known that 90% of nurses in the state are females.

(c) (*2 points*) Explain why the DOI may:

(i) Approve the filed rates

(ii) Not approve the filed rates

2. (*3 points*) You are given the following ceded reinsurance information for Sam Stone Insurance Company (SSIC) as of December 31, 2017. Amounts in the tables are taken from SSIC's Schedule F exhibits and are in thousands.

			Reinsurance Recoverable on Paid Losses and Paid Loss Adjustment Expenses				
				Overdue			
Reinsurer	**Authorized**	**Certified**	**Current**	**1 to 29 Days**	**30 to 90 Days**	**91 to 120 Days**	**Over 120 Days**
Talcott Re	NO	NO	350	180	120	150	50
Webster Re	NO	YES	340	230	150	200	0

Reinsurer	**Amounts Received Prior 90 Days**	**Known Case Loss & LAE Reserves**	**IBNR Loss & LAE Reserves**	**Unearned Premiums**	**Funds Held by Company Under Reinsurance Treaties**	**Letters of Credit**
Talcott Re	20	40	35	75	100	800
Webster Re	15	55	25	0	0	220

- Both reinsurers are based in the U.S. and are not affiliated with SSIC.
- There are no recoverable amounts in dispute.
- Talcott Re has a financial rating of A from A.M. Best and AA+ from S&P
- Webster Re has a financial rating of A– from A.M. Best and A from S&P

SSIC's state of domicile uses the following collateral factors for certified reinsurance.

State Rating	***Required Collateral***	***Reinsurer Financial Rating***	
		A.M. Best	***S&P***
Secure-1	0%	A++	AAA
Secure-2	10%	A+	AA+ to AA–
Secure-3	20%	A	A+, A
Secure-4	50%	A–	A–
Secure-5	75%	B++, B+	BBB+ to
Vulnerable-6	100%	B to F	BB+ to R

Determine SSIC's total Schedule F provision for reinsurance for the 2017 Annual Statement.

3. (*4 points*) Carla Brando went to On-the-Double Motors (ODM) to replace the all-season tires on her vehicle with winter tires to prepare for winter driving in the U.S. northeast. ODM performed this service and informed her that she should return to ODM before driving 100 miles on the new tires for a free inspection to ensure that the wheels were attached properly.

After the seasonal tire change, having driven 80 miles on the winter tires without any issues, Carla drove on the highway and was involved in a serious motor accident. One of the wheels on her vehicle detached and she lost control of the vehicle causing a total loss of the vehicle and permanent bodily injuries. After consulting with a lawyer, Carla decided to sue ODM, alleging that they were negligent in the installation of the wheels on her vehicle.

You are given the following details of the potential negligence case against ODM:

- ODM hires only fully licensed mechanics.
- ODM claims that the mechanic that worked on Carla’s vehicle tightened the bolts to the level indicated by the vehicle manufacturer.
- ODM claims that the accident was likely caused by a manufacturing defect of the nuts or the bolts for the vehicle’s wheel assembly.
- Carla has no direct evidence to suggest that the ODM mechanic that performed the seasonal tire change on her vehicle did anything negligently.
- Carla’s lawyer retained the services of an expert who will testify that the damage was likely caused by not properly tightening the nuts on the bolts.

(a) (*2 points*) Explain how the legal doctrine of *res ipsa loquitor* could be used by the plaintiff in this case.

(b) (*2 points*) Explain how the use of an expert witness for the plaintiff affects the application of *res ipsa loquitor*.

4. (*6 points*) On July 1, 2018, $1,000 in annual premium for an insurance policy is collected by the insurer and $150 is paid by the insurer to the agent for selling the policy. Assume that no losses occur in 2018, no reinsurance is in place, there is no investment income and no taxes apply.

(a) (*1.5 points*) Show the insurer's July 1, 2018 accounting entries for this policy using:

(i) U.S. statutory accounting principles

(ii) U.S. GAAP

There are no accounting entries for this policy recorded between July 1, 2018 and December 31, 2018.

(b) (*1.5 points*) Show the insurer's December 31, 2018 accounting entries for this policy using:

(i) U.S. statutory accounting principles

(ii) U.S. GAAP

(c) (*1 point*) Calculate the change during calendar year 2018, arising from this policy, in:

(i) U.S. statutory accounting Policyholders' Surplus

(ii) U.S. GAAP Equity

Continuing with the policy above, consider a quota share reinsurance program, effective July 1, 2018, with a 40% cession and a reinsurance ceding commission of 30%.

(d) (*1 point*) Calculate the change during calendar year 2018, arising from this policy with the quota share reinsurance in place, in:

(i) U.S. statutory accounting Policyholders' Surplus

(ii) U.S. GAAP Equity

(e) (*1 point*) Calculate the surplus relief in 2018 from the quota share reinsurance program applied to this policy using:

(i) U.S. statutory accounting principles

(ii) U.S. GAAP

5. (*4 points*) The “NAIC Own Risk and Solvency Assessment (ORSA) Guidance Manual” identifies five key principles that an effective ERM framework should incorporate at a minimum.

(a) (*2.5 points*) Describe three of the five principles identified by the NAIC.

Phillip Delano is Chief Risk Officer of the John Winthrop Insurance Group (JWIG). Phillip is responsible for the group’s ERM process and oversees the preparation of the group’s annual NAIC ORSA Summary Report.

You have the following information for JWIG:

- Writes business along the U.S. Atlantic coast with $2 billion in annual written premiums.
- Policyholders’ surplus of $700 million.
- Provides homeowners insurance, private passenger automobile insurance and commercial property insurance.
- Homeowners insurance is focused on high-value homes.
- Private passenger automobile insurance has third party liability limits ranging from $500,000 to $2,000,000.
- Commercial property insurance is focused on businesses with major operations in the Atlantic coast region.
- Reinsurance program consists of individual risk facultative property reinsurance and aggregate catastrophe reinsurance, both with high retention levels.

(b) (*1.5 points*) Describe three risks that Phillip should consider including in Section 2 of JWIG’s NAIC ORSA Summary Report.

6. (*5 points*) Some general insurance contracts are written for long-duration coverage periods (i.e., coverage periods that equal or exceed thirteen months). U.S. statutory accounting includes rules for the accounting of the unearned premium reserves (UPR) that applies specifically to these policies. These rules are detailed in the NAIC Statement of Statuary Accounting Principles (SSAP) No. 65, *Property and Casualty Contracts*.

(a) (*0.5 points*) Identify two general insurance contract types that are specifically excluded from this rule even when the coverage period is of long-duration.

After noting the excluded general insurance contract types, SSAP No. 65 identifies two conditions that must be fulfilled for the reporting of UPRs on long-duration general insurance contracts. The first condition is that the contract term is greater than or equal to thirteen months.

(b) (*0.5 points*) Identify the second condition.

For each of the three most recent policy years, the insurer is required to report the gross (i.e., direct plus assumed) UPR in an amount that is not less than the largest result of three tests as described in SSAP No. 65.

(c) (*2.5 points*) Describe these three tests.

(d) (*1.5 points*) Describe what the Statement of Actuarial Opinion (SAO) requires of the Appointed Actuary with respect to the UPR on long duration contracts.

7. (*5 points*) The state of Florida is susceptible to catastrophic wind and flood losses from hurricanes. After Hurricane Andrew in 1992, the state of Florida established the Florida Hurricane Catastrophe Fund (FHCF).

(a) (*1 point*) Describe the role of the FHCF in the Florida insurance market.

FHCF is mandated to charge actuarially indicated rates. Market rates are generally based on actuarially indicated rates. However, FHCF rates are substantially below market rates.

(b) (*1 point*) Explain why FHCF rates can be substantially below market rates.

The National Flood Insurance Program (NFIP) was created in 1968 to deal with flood risk. The NFIP includes some properties that pay subsidized rates to the NFIP for coverage.

(c) (*0.5 points*) Identify the type of property that would pay a subsidized NFIP rate.

The American Academy of Actuaries' Public Policy Monograph, "The National Flood Insurance Program: Challenges and Solutions," asserts that revenue from unsubsidized NFIP rate policies is inadequate.

(d) (*1 point*) Explain the reasoning for this assertion.

The NFIP is permitted to borrow from the Treasury when losses exceed revenue. The NFIP is required to repay these amounts.

(e) (*1.5 points*) Explain the current plan of the NFIP with respect to borrowed funds.

8. (*4 points*) You are given the following information for a U.S. general insurance company:

A	Assumed reserves from pools & associations
B	Ceded reserves from retroactive reinsurance
C	Ceded reserves from reinsurance that does not meet the risk transfer test
D	Other ceded reserves (not retroactive or financial reinsurance)
E	Statutorily permitted tabular discount on permanent disability workers compensation cases
F	The insurer's best estimate of uncollectible reinsurance

Each of the items A to F in the table above may, or may not, belong in the statutory balance sheet. Possible balance sheet locations for these items may include, but are not limited to:

- contra asset on the assets section of the balance sheet,
- reinsurance recoverable on the assets section of the balance sheet,
- loss reserves on the liabilities section of the balance sheet,
- write-in liability on the liabilities section of the balance sheet,

Identify where each item belongs or does not belong in the statutory balance sheet.

9. (*3 points*) The businesses of insurance and reinsurance often involves entities in different countries conducting business together. There are two key issues that must be considered in any legal dispute arising between individuals or corporations from different countries: comity and jurisdiction.

(a) (*2 points*) Describe these two issues as they pertain to private international law.

(b) (*0.5 points*) Identify two factors affecting international business that are not legal or financial considerations.

(c) (*0.5 points*) Identify two U.S. federal laws that influence international business.

Questions 10 to 13 pertain to the Case Study.   ***Each question should be answered independently.***

10. (*3 points*) You are given the following information for R-Dan General Insurance Company's (R-Dan's) NAIC RBC calculation as of December 31, 2017:

NAIC RBC Risk Charge	**Amount (in thousands)**
R_0 charge	60
R_1 charge	8,820
R_3 charge	2,210
R_4 charge	36,200
R_5 charge	53,110

Basis	**Value at Risk (VaR) for Risk Level**	**Catastrophe (VaR amounts in thousands)**		
		Earthquake (EQ)	**Hurricane (HUR)**	**Wildfire (WF)**
Gross of Reinsurance	**87.5%**	0	15,000	4,000
	99%	3,000	25,000	6,000
	99.5%	40,000	50,000	8,000
Net of Reinsurance	**87.5%**	0	12,000	4,000
	99%	2,000	20,000	6,500
	99.5%	30,000	35,000	7,000

Calculate R-Dan's NAIC RBC Authorized Control Level (ACL) as of December 31, 2017.

Questions 10 to 13 pertain to the Case Study.
Each question should be answered independently.

11. (*6 points*) You are an actuarial analyst at R-Dan General Insurance Company (R-Dan) reporting to R-Dan's senior management. In May of 2018, A-Eye Holdings, the parent company of R-Dan, has come under financial pressure in its other operations and needs additional capital.

A-Eye management notes that R-Dan has capital well above the NAIC RBC requirement. A-Eye management is considering cancellation of the scheduled capital infusion of $10 million for 2018 and moving $20 million in capital out of R-Dan to A-Eye before year-end 2018.

In June of 2018, R-Dan management has asked you for any concerns or implications regarding A-Eye's considerations regarding cancellation of the capital infusion and of moving capital out of R-Dan.

Describe six concerns or implications. At least two of the six concerns/implications should include quantitative elements.

Questions 10 to 13 pertain to the Case Study.
Each question should be answered independently.

12. (*7 points*)

(a) (*0.5 points*) Identify when it may be preferable for an Appointed Actuary to provide a range of reasonable estimates without a point estimate for unpaid claims.

(b) (*1 point*) Describe "materiality standard" in the context of appointed actuary work.

Sue Calvin considered the following two methods for evaluating the materiality standard regarding the risk of material adverse deviation (RMAD) in the Statement of Actuarial Opinion (SAO) for R-Dan General Insurance Company (R-Dan):

- Percentage of statutory surplus
- Percentage of net loss and loss adjustment expense reserves

(c) (*1 point*) Identify two other methods for selecting the materiality standard that you could consider appropriate.

(d) (*1.5 points*) Critique Sue Calvin's materiality standard for R-Dan.

(e) (*1 point*) Explain the consequences of using a materiality standard that is very large or very small.

(f) (*1 point*) Explain the relationship between the materiality standard and the risk of material adverse deviation.

Sue Calvin disclosed the existence of an RMAD in R-Dan's SAO because of the reserve amount booked by R-Dan in its Annual Statement. R-Dan could have booked an amount within Sue Calvin's range of reasonable estimates that would have avoided this need for an RMAD.

(g) (*1 point*) Determine the lowest point in the range of reasonable estimates that R-Dan could have been booked to avoid this need for an RMAD.

Questions 10 to 13 pertain to the Case Study.
Each question should be answered independently.

13. (*5 points*)

(a) (*2.5 points*) Calculate the following for R-Dan's Homeowners/Farmowners line of business:

(i) Accident Year 2016 development on number of claims closed (direct and assumed) without loss payment from 12 to 24 months.

(ii) Accident Year 2016 case basis net losses unpaid, including defense and cost containment expenses unpaid, at 12 months.

(b) (*1 point*) Explain how trends in outstanding claims severity can be derived from Schedule P.

(c) (*0.5 points*) Explain when it is not reasonable to use the trends derived in part (b).

Line 18.2 in the Assets section of R-Dan's balance sheet is showing a Net Deferred Tax Asset of 21,100.

(d) (*1 point*) Describe what this line item represents.

****END OF EXAMINATION****
Morning Session

USE THIS PAGE FOR YOUR SCRATCH WORK

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