SOCIETY OF ACTUARIES
Financial and Regulatory Environment – U.S.

Exam GIFREU

MORNING SESSION

Date: Thursday, October 30, 2014
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.

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

1. (*5 points*) Much of the recent work in insurer solvency supervision has been characterized as a movement from a rules-based approach to a principles-based approach.

(a) (*2 points*) Compare the rules-based approach to the principles-based approach regarding the establishment of regulatory capital requirements and financial oversight. Include one strength and one weakness of each approach.

Vaughan notes in "The Implications of Solvency II for U.S. Insurance Regulation" that "insurance supervision should reflect a careful balance of rules-based and principles-based approaches to supervision."

(b) (*2 points*) Describe and justify an approach to insurance supervision that is a combination of principles-based and rules-based regulation.

A guaranty fund is a state fund that provides a system to pay the claims of insolvent insurers.

(c) (*1 point*) Explain how guaranty funds can reduce market discipline and increase the amount of risk assumed by insurers.

2. (*4 points*) An insurer begins 2014 with an investment in 4% coupon bonds with a total value of 200,000,000. The bonds mature on December 31, 2017 and are intended to be held to maturity. Bond income is paid semiannually on June 30th and December 31st. You are given the following information:

- The tax rate is 35% and taxes are paid when cash is received.
- After-tax investment income is paid to the insurer's shareholders as it is received.
- There are no liabilities and no expenses to consider.
- The bonds are the only assets and source of income to consider.

(a) (*1.5 points*) Provide the insurer's statutory accounting entries on June 30, 2014 showing:

(i) Credits and debits to balance sheet accounts

(ii) Credits and debits to income statement accounts

(iii) Direct charges and credits to surplus

(b) (*1.5 points*) Explain why U.S. statutory accounting requires assets to be segmented into admitted assets and non-admitted assets.

(c) (*1 point*) Determine the admitted value for each of the following assets under U.S. statutory accounting for a general insurance company:

(i) Common stock purchased at 500,000 currently valued at 1,000,000

(ii) Building, for use as office space by the general insurance company, purchased at 200,000, depreciated by 25%, with a market value of 400,000

(iii) An agent's balance of 100,000, 95 days past due

3. (*5 points*) One of the key principles of a successful residual market for automobile insurance is to maintain a relatively small residual market population.

(a) (*0.5 points*) Explain the relationship between rate regulation and residual market population level.

The province of Ontario has instituted a "take all comers" rule as a non-monetary entry barrier to the automobile insurance residual market.

(b) (*3 points*) Describe the "take all comers" rule and critique its effectiveness in Ontario.

Fraudulent claims activity affects many lines of business in general insurance.

(c) (*1 point*) Identify and describe two types of fraudulent claims activity that affect general insurers.

(d) (*0.5 points*) Identify and describe one antifraud effort initiated by some states.

4. (*4 points*)

(a) (*2 points*) Describe two tort reforms enacted in the United States. Include the purpose of each in the description.

There are direct and indirect costs of the tort system related to general insurance. Direct costs include legal expenses, administrative expenses of managing torts, and amounts paid to compensate claimants.

(b) (*1 point*) Describe two indirect costs of the tort system related to general insurance.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., the Supreme Court ruled that federal judges are to examine the method or reasoning underlying the admission of expert evidence and to admit only evidence that was reliable and relevant.

(c) (*1 point*) Identify two of the five factors, known as the "Daubert factors," that judges take into account when evaluating the reliability, or scientific validity, of evidence.

5. (*4 points*)

(a) (*1 point*) Explain the rationale for government involvement in the provision of agriculture insurance.

(b) (*1 point*) Describe the main provision in the U.S. agricultural program that encourages producers to purchase agriculture insurance.

(c) (*2 points*) Compare government involvement in the provision of terrorism insurance in the United States and France.

6. (*6 points*) You are the only fully qualified actuary in a small actuarial consulting firm that you own. Your current clientele consists of several small personal lines general insurance companies.

It is early December 2013 and your firm has been offered an assignment where you would be the appointed actuary for a major publicly traded general insurer in your state, BSG Insurance Company. The contract is for a minimum of three years beginning with the actuarial report for the current year. This assignment will increase your firm's annual revenue significantly. The contract stipulates that 20% of the amount to be billed for the three years is to be paid in advance upon acceptance of the assignment. There is an option for the advance payment to be in the form of stock options for BSG.

The filing deadline is March 1, 2014 but the presentation to BSG's Board of Directors is during the first week of February. BSG management attempts to alleviate your concerns regarding the timing of the assignment by noting that the Board is only interested in a quick summary of the actuarial opinion and that it does not need to see the full report.

The prior year's report indicates that the carried reserves were at the lower end of the actuary's range of reasonable estimates. The actuary used several methods but relied on a highly complex stochastic model. You will not have the time to adequately review the stochastic model or replicate the analysis from it.

BSG management produces a letter outlining why the prior actuary is no longer the appointed actuary. In this letter, BSG states that it believes the prior actuary was overly conservative.

BSG carries a material amount of environmental impairment liabilities (EIL). In a review of third quarter 2013 data provided to you by the management of BSG, you note that there was a significant increase in the calendar year payments for EIL claims from prior accident years.

Assess your professional responsibilities in this scenario. Include in your assessment any applicable Actuarial Standards of Practice and guidance from the American Academy of Actuaries practice note on "Statements of Actuarial Opinion on Property and Casualty Loss Reserves." Your assessment should address four issues.

7. (*4 points*)

(a) (*0.5 points*) Describe the purpose of deferred tax assets and liabilities (DTA/L) in financial reporting.

(b) (*0.5 points*) Compare the treatment of DTAs and DTLs in statutory accounting.

(c) (*0.5 points*) Describe the proration provision of the 1986 Tax Reform Act.

(d) (*0.5 points*) Describe the Dividends Received Deduction (DRD). Include the purpose of the DRD in your response.

Tax accounting uses discounted reserves. The loss reserve discount factors are derived from Schedule P data and a methodology set by the Internal Revenue Service (IRS). You are given the following table of data for a line of business with information from Schedule P - Part 1 of an insurer's 2011 Annual Statement. This data is to be used to compute the loss reserve discount factors for accident year 2013.

Accident Year	Losses & LAE Paid	Losses & LAE Incurred
Prior	200,000	200,000
2002	220,000	220,000
2003	240,000	240,000
2004	300,000	300,000
2005	294,000	300,000
2006	279,000	300,000
2007	272,000	320,000
2008	270,000	360,000
2009	234,000	360,000
2010	190,000	380,000
2011	100,000	400,000

(e) (*2 points*) Calculate the IRS loss reserve discount factor that applies to accident year 2013 at 48 months of development (i.e., as of December 31, 2016). Assume a 5% annual discount rate.

8. (*5 points*)

(a) (*1 point*) Explain how the Dodd-Frank Act affects the state regulation of reinsurer solvency.

Looch General Insurance (LGI) has three reinsurers, Strong Re (Strong), Power Re (Power) and Forward Re (Forward). You are given the following reinsurance information for LGI:

	Strong	**Power**	**Forward**
Status	Unauthorized, Not Certified	Authorized	Unauthorized, Certified
Total reinsurance recoverables	150	150	100
Securing funds / collateral	70	10	25
Recoverables on paid loss & ALAE over 90 days past due, not in dispute	24	20	10
Recoverables on paid loss & ALAE, total	80	70	65
Amounts in dispute included above	11	10	5
Amounts company received from reinsurer in last 90 days of statement year	4	3	5
S&P Rating	AA+	A–	BBB+
A.M. Best Rating	A+	B++	A–

All amounts are in millions.

You are also given the financial rating/required collateral guide for certified reinsurers in the state of domicile for LGI:

State Rating Category	**Required Collateral**	**A.M. Best Rating**	**S&P Rating**
Secure-1	0.00	A++	AAA
Secure-2	0.10	A+	AA+ to AA–
Secure-3	0.20	A	A+, A
Secure-4	0.50	A–	A–
Secure-5	0.75	B++, B+	BBB+ to BBB–
Vulnerable-6	1.00	B to F	BB+ to R

(b) (*4 points*) Calculate LGI's total Schedule F provision for reinsurance.

9. (*4 points*) You have been hired as a consultant by the risk manager of Vandelay Manufacturing, Inc. (Vandelay), a company that manufactures self-defense products such as pepper spray canisters and stun guns. Vandelay manufactures its products in the United States and sells its products internationally, wherever such products are legal.

Over the past five years, the risk manager of Vandelay has noted that its liability insurance costs have quadrupled in the conventional insurance market due to increased claim activity for Vandelay and for the self-defense product industry. The risk manager seeks your advice on whether or not a captive insurer could meet Vandelay's liability insurance coverage needs and control its liability insurance costs.

Write a memo to the risk manager of Vandelay that assesses the plan for using a captive insurer. Your memo should consider the following issues:

(i) Selection of the type of captive

(ii) Selection of the jurisdiction of the captive

(iii) Financial costs and benefits

(iv) Tax implications

10. (*6 points*) Solvency II in the European Union uses a three-pillar system.

(a) (*1.5 points*) Describe each of the three pillars of Solvency II.

(b) (*1.5 points*) Compare the method of computation and regulatory purpose for the following levels of required capital in Solvency II:

(i) Solvency Capital Requirement (SCR)

(ii) Minimum Capital Requirement (MCR)

(c) (*1 point*) Compare the treatment of correlation of risk charges between categories of risk under NAIC RBC and the Solvency II SCR Standard Formula.

You are given the following information for a U.S.-based general insurer, Borr Insurance (Borr):

Item	**Amount (millions)**
2013 RBC charge for off-balance-sheet items	4.0
2013 RBC charge for fixed-income securities risk	3.5
2013 RBC charge for equities risk	5.0
2013 RBC charge for reinsurance credit risk	6.0
2013 RBC charge for non-invested assets credit risk	2.0
2013 RBC charge for reserves risk	14.0
2013 RBC charge for written premium risk	13.5
Policyholders' surplus as of Dec. 31, 2013	22.0
Nontabular discounts included in reserves	1.0
Tabular discounts included in reserves	5.0

- The RBC risk charges in the table above are before any credit risk charge adjustments.
- All of the tabular discounts are for workers compensation reserves.

(d) (*2 points*) Calculate the RBC ratio for Borr and identify the action level that results from this. Specify any actions of Borr and the regulator that are indicated at this action level.

11. (*5 points*) Total income by line of business is needed to measure performance, compute returns on capital, and regulate premium rates.

(a) (*1.5 points*) Describe two items that complicate the derivation of total income by line of business for general insurers.

(b) (*1.5 points*) Compare the allocation of surplus and capital to a line of business in the Insurance Expense Exhibit (IEE) procedure with that used in pricing a line of business.

You are given the following data for Nifty General Insurance Company (Nifty) from Part II of its past two IEEs (Allocation to Lines of Business Net of Reinsurance) for the Homeowners Multiple Peril (Homeowners) line of business. Amounts in the table below are in thousands.

Balance Sheet Items (amounts as of Dec. 31)	**2012**	**2013**
Unpaid Losses	1,500	1,640
Loss Adjustment Expense, Defense and Cost Containment Expenses Unpaid	80	90
Loss Adjustment Expense, Adjusting and Other Expenses Unpaid	250	290
Agents' Balances	600	650
Unearned Premium Reserves	3,200	3,300

- The investment gain ratio was 7.0% for 2013.
- The prepaid expense ratio is 20% for Homeowners.
- The Investment Gain Attributable to Capital and Surplus for Homeowners was 520,000 for 2013.

(c) (*2 points*) Calculate the following amounts for Nifty's 2013 IEE:

(i) Investment Gain on Funds Attributable to Insurance Transactions for Homeowners

(ii) Capital and Surplus allocated to Homeowners

12. (*4 points*) The NAIC establishes statutory accounting principles for insurers in the NAIC Accounting Practices and Procedures Manual through a number of Statements of Statutory Accounting Principles (SSAP).

(a) (*2 points*) Define Type I and Type II material subsequent events as noted in SSAP No. 9, *Subsequent Events*, and compare their treatments in statutory financial statements.

(b) (*1 point*) Describe two methods that can be used for the computation of the unearned premium reserve as noted in SSAP No. 53, *Property Casualty Contracts-Premiums*.

Paragraph 13 of SSAP No. 53 notes that "advance premiums result when the policies have been processed, and the premium has been paid prior to the effective date."

(c) (*1 point*) Describe the statutory financial treatment of advance premiums.

13. (*4 points*)

(a) (*1 point*) Explain the difference between a representation and a warranty on an insurance application.

(b) (*2 points*) Explain the difference between an express warranty and an implied warranty in product liability law and provide an example of each of them.

(c) (*1 point*) Explain the difference between public international law and private international law.

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

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