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

Exam GIFREU

AFTERNOON SESSION

Date: Thursday, October 29, 2015
Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 8 questions numbered 14 through 21 for a total of 40 points. 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****
Afternoon Session
Beginning with Question 14

14. (*6 points*) A U.S. state established a Second Injury Fund (SIF) as an industry pool. The SIF pays obligations and assesses insurers on a "pay-as-you-go" basis. The assessment of insurers for calendar year SIF payments is in proportion to the insurer's workers compensation claim payments for the calendar year.

Every workers compensation policy written in the state carries an endorsement that defines SIF payments as a benefit to the policyholder under the insuring agreement section of the endorsement. This effectively makes the assessments for Second Injury Fund obligations "losses" to the policy, not "taxes."

After fifteen years of operating, the pool's obligations had increased significantly. The state commissioned an actuarial study to determine the unfunded liability for the SIF. The unfunded liability was estimated on an undiscounted basis for the industry as a whole. The actuarial study also included a breakdown of the unfunded liability by the year in which the obligations were incurred and an estimate of the payout pattern for these amounts. The amount of the unfunded liability, by the year in which the obligations were incurred, is updated annually.

KGIC is a general insurance company in the state with the SIF. It has been writing workers compensation business in that state for over ten years.

(a) (*1 point*) Describe a method for estimating KGIC's share of the SIF unfunded liability.

(b) (*0.5 points*) Identify where in Schedule P KGIC's SIF obligations should be reported.

(c) (*1 point*) Recommend an approach for discounting KGIC's SIF unfunded liability obligations assuming that the state permits these obligations to be reported on a discounted basis.

(d) (*1 point*) Describe the accounting treatment for the discounting of SIF obligations in KGIC's Schedule P.

(e) (*1 point*) Describe the approach for discounting KGIC's workers compensation tabular indemnity reserves.

(f) (*1.5 points*) Describe three common approaches to the selection of a discount rate as noted in Actuarial Standard of Practice (ASOP) No. 20.

15. (*4 points*)

(a) (*2.5 points*) Describe five approaches to rate filing regulation for general insurance.

(b) (*1.5 points*) Explain why the degree of rate regulation varies in many jurisdictions from minimally regulated for ocean marine insurance to highly regulated for private passenger automobile insurance.

16. (*5 points*) Big Promise Insurance Company (BPIC), a general insurer domiciled in the state of Texas, specializes in insuring religious organizations.

BPIC places reinsurance with domestic authorized reinsurers, Giant XS Re and Regal Cat Re, as follows:

- Giant XS Re provides 5 million excess of 1 million for loss and defense and cost containment (DCC) expenses on a per location basis; and
- Regal Cat Re provides 25 million excess of 2 million for loss and DCC expenses per catastrophe, net of other reinsurance.

One of BPIC's programs provides coverage for the religious organization NCPA. NCPA has multiple buildings at each of eight locations.

On March 1, 2015, NCPA buildings located in two separate states are destroyed in arson fires with total losses at both locations. Arson is suspected in both fires. It is alleged that both fires were set by a group of disgruntled former parishioners.

On November 1, 2015, BPIC settles the fire losses paying 32 million for the fire loss in one location and 26 million for the fire loss in the other location. These amounts include both loss and DCC expenses. After payment, BPIC seeks reimbursement from both its reinsurers for the two catastrophes.

BPIC is notified on November 30, 2015 that Regal Cat Re takes the position that the two events constitute one catastrophe under the reinsurance agreement. BPIC disputes this position. Regal Cat Re refuses to pay BPIC any amounts until the dispute is resolved. Giant XS Re made an initial payment of 1 million to BPIC on November 1, 2015 but decides to delay any further payment pending the outcome of the Regal Cat Re coverage dispute.

(a) (*2 points*) Calculate BPIC's net paid and incurred losses and DCC expenses as reported in Schedule P for the NCPA fire losses as of December 31, 2015.

(b) (*3 points*) Calculate BPIC's total Schedule F Provision with respect to reinsurance recoverables for the NCPA fire losses as of December 31, 2015.

17. (*5 points*) General insurer BNGI engaged you as its Appointed Actuary to issue a statutory Statement of Actuarial Opinion (SAO) as of December 31, 2014. BNGI has limited staff, and its president prepares the NAIC Annual Statement on his personal computer. Based upon your discussions with BNGI management and the data you received, your independent estimate of unpaid claims is net of anticipated recoveries from salvage and subrogation. There is no applicable reinsurance, so your gross and net estimates are the same.

Relevant information from the Annual Statement and your Actuarial Report is as follows:

- BNGI reported 100,000 as a liability for loss and loss adjustment expenses.
- Your estimate of unpaid claims is 90,000.
- BNGI reported 1,200,000 in statutory Surplus as Regards Policyholders.

(a) (*1 point*) Select the materiality standard to be disclosed in your SAO. Justify your selection.

(b) (*1 point*) Indicate the type of Actuarial Opinion you would have rendered. Justify your selection.

Eight months after your issuance of all the statutory actuarial documents, an examination by the department of insurance noted an accounting error by BNGI. The insurer had reported an aggregate write-in for other-than-invested-assets in the amount of 80,000 which was described as miscellaneous receivables. This amount actually represented salvage and subrogation recoverables and should have been a contra-liability to the liability for loss and loss adjustment expenses. You were not aware that the write-in asset was for salvage and subrogation recoverables.

The reported liability for loss and loss adjustment expenses was actually 20,000 after the accounting correction. Your actuarial estimate was based upon data that included salvage and subrogation amounts. Thus, your estimate does not change from 90,000 with the correction of this accounting error.

(c) (*1 point*) Explain what is required of BNGI after being informed of this accounting error.

(d) (*2 points*) Explain what is required of you after being informed of this accounting error.

18. (*5 points*)

(a) (*2 points*) Describe four reasons that have been put forward as justification for governments to provide some insurance products directly to their citizens instead of relying on private insurance companies.

(b) (*0.5 points*) Describe what is meant by the term "social insurance."

(c) (*0.5 points*) Identify two examples of social insurance.

(d) (*0.5 points*) Explain what differentiates social insurance from government social welfare programs.

Government provision of insurance products is sometimes accompanied by unintended negative consequences.

(e) (*1.5 points*) Describe one possible unintended negative consequence for each of the following three insurance products provided by government:

(i) Bank deposit insurance

(ii) Unemployment insurance

(iii) Disability insurance

19. (*5 points*) A second floor addition to a home partially collapsed in April 2015 under a higher than normal load of weight. The collapse caused significant damage to the home and injured the homeowners and several guests. While the load was determined to be high, it was within the limits for the design specifications. It was found that the architect's design was deficient and did not meet the building code for the municipality.

It appears that the architect did not use reasonable care in designing the addition. The design deficiency was not noted by municipality staff when the design was submitted to the city in December 2012 and approved. Municipality staff responsible for design approval are professional architects and should have noted the design deficiency.

Prior to commencing construction of the addition, the contractor responsible for constructing the addition contacted the architect noting that the design may not be adequate. The contractor was reassured by the architect that everything was in order because the municipality approved it.

During construction, from March 2013 to May 2013, the municipality's building inspectors did not make note of any deficiencies in the construction.

In June 2015, the homeowner instigated a lawsuit against the architect, municipality staff (both the design approval professionals and the building inspectors) and the contractor responsible for constructing the addition.

The jurisdiction for the home has a two-year statute of limitations.

(a) (*0.5 points*) Identify two potential starting points for the statutory time period in applying the statute of limitations to this suit.

(b) (*0.5 points*) Identify which of the two starting points from part (a) is most likely to be used by the courts. Justify your answer.

One of the essential elements of negligence is the defendants' breach of duty of care owed to the plaintiff.

(c) (*2.5 points*) Assess the likelihood of a breach of duty being found against each of the four defendants (architect, municipality staff for design approval, municipal building inspectors, and contractor) in this suit.

(d) (*1.5 points*) Explain how the courts would likely view the use of governmental immunity by all municipality staff in this suit.

20. (*4 points*) You are given the following information about an insurer's retrospectively rated policies:

Retro Adjustment Period	Loss Evaluation Point in Months	Percentage of Loss Emerged Since Prior Evaluation	Selected Premium Development to Loss Development (PDLD) Ratio
First	18	75%	1.70
Second	30	15%	0.60
Third	42	7%	0.40
Fourth	54	2%	0.30
Fifth	66	1%	0.00

Policy Year	Completed Retro Adjustments as of 12/31/14	Reported Losses as of 12/31/14	Losses Reported at Prior Retrospective Adjustment	Booked Premium as of 12/31/14	Booked Premium from Prior Retrospective Adjustment
2010	3	672,000	650,000	910,000	910,000
2011	2	651,000	600,000	955,000	975,000
2012	1	605,000	325,000	960,000	800,000

	Development age in months				
	12	24	36	48	60
Cumulative Development Factors for Reported Losses (i.e., reported loss age-to-ultimate factors)	3.034	1.167	1.061	1.030	1.010

All premiums are fully earned for policy years 2010 to 2012 as of December 31, 2014. None of the unbilled premiums from the retrospectively rated policies are secured.

(a) (*3.5 points*) Calculate the premium asset on retrospectively rated policies as of December 31, 2014 arising from policy years 2010, 2011 and 2012.

(b) (*0.5 points*) Calculate the admitted portion of the premium asset from part (a) under the rules of U.S. statutory accounting.

21. (*6 points*)

(a) (*1.5 points*) Compare the treatment of natural catastrophe risk in the following regulatory capital formulas:

(i) NAIC Risk Based Capital (RBC)

(ii) Canadian Minimum Capital Test (MCT)

(iii) Solvency II Solvency Capital Requirement (SCR) standard formula

(b) (*1.5 points*) Explain the rationale for treating man-made catastrophe risks differently from natural catastrophe risks in regulatory capital formulas.

(c) (*1 point*) Describe how the Solvency II SCR standard formula deals with the risk of man-made catastrophes.

Insurance regulators are concerned with the funding of policyholder obligations after an insurer becomes insolvent. The funding of post-insolvency policyholder obligations is often accomplished by the establishment of guaranty funds. Guaranty funds can be pre-funded by risk-based premiums charged to all insurers in a market or funded post-insolvency by assessing the remaining solvent insurers.

(d) (*2 points*) Compare these two methods for funding guaranty funds with respect to:

(i) Sufficiency of funds

(ii) Risk of insolvency

****END OF EXAMINATION****
Afternoon Session

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