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

Exam GIFREU

AFTERNOON SESSION

Date: Thursday, November 3, 2016

Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 8 questions numbered 15 through 22 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.

****BEGINNING OF EXAMINATION****
Afternoon Session
Beginning with Question 15

15. (4 points) Describe an implicit risk margin used in U.S. statutory accounting for each of the following risk types:

- (i) Reserving
- (ii) Written premium
- (iii) Credit
- (iv) Asset

- 16.** (4 points) Your company writes workers compensation policies exclusively, both prospectively and retrospectively rated policies. You have selected the following estimates from an analysis of empirical data and the retrospective rating parameters.

Retro Adjustment Period	Loss Evaluation Point in Months	Selected Premium Development to Loss Development (PDL) Ratio	Percentage of Loss Emerged Since Prior Evaluation
First	18	1.75	60%
Second	30	0.75	25%
Third	42	0.45	10%
Fourth	54	0.35	5%

You have the following information for your company's retrospectively rated policies. Premium and loss amounts in the table are in thousands.

Policy Year	Completed Retro Adjustments as of 12/31/2015	Expected Loss Emergence after Last Completed Retro Adjustment	Premium Booked from Prior Retro Adjustment	Premium Booked as of 12/31/2015
2011	3	15,000	455,000	460,000
2012	2	20,000	335,000	340,000
2013	1	50,000	325,000	330,000
2014	0	280,000	0	320,000

No losses are reported after the fourth retro adjustment.

Calculate the total premium asset on retrospectively rated policies as of December 31, 2015 arising from policy years 2011 to 2014.

17. (4 points)

- (a) (1.5 points) Compare fair and unfair discrimination with respect to insurance rating.
- (b) (1.5 points) Compare the terms actuarial equity and social equity with respect to insurance rating.

The European Court has ruled that insurance companies may not use gender as a factor in determining insurance rates charged to policyholders. Some insurers have asserted that this may increase the overall cost of insurance.

- (c) (1 point) Provide the reasoning behind this assertion.

- 18.** (6 points) While you were with Trusty Actuarial Consultants (TAC), you were the appointed actuary responsible for the Statement of Actuarial Opinion (SAO) for JKL Insurance Company (JKL). You held this position for a number of years until September of 2015, when you left TAC to start your own business as a consultant.

The new actuary for JKL, Avery Youngfellow, is a consultant at TAC. Avery is fully qualified to complete SAOs but has never signed a SAO before and lacks the overall level of actuarial experience you have. Avery discussed the JKL account with you before accepting the role as appointed actuary. Avery has engaged you as a consultant to review a draft of the Actuarial Report and SAO for JKL as of year-end 2015.

In the past, you had selected the materiality standard for JKL's SAO as 10% of statutory surplus. You note that Avery has now selected a materiality standard equal to 5% of the net recorded loss and LAE reserves. The following table summarizes key information for JKL from year-end 2013 to year-end 2015. All amounts in the table are in millions.

	2013	2014	2015
Statutory surplus	40	38	30
Authorized control level risk-based capital	20	21	26
Net recorded loss and LAE reserves	130	145	170
Total recorded reinsurance recoverables	5	8	30

- Avery's range of estimates for the net loss and LAE reserves is 165 to 185 million.
- Avery has drafted a "Determination of Reasonable Provision" opinion.
- The draft SAO does not include any Relevant Comments paragraphs.

In your discussions with Avery, you comment on the significant increase in reinsurance recoverables. Avery notes that this was due to several large liability losses that had their amounts increase to exceed JKL's excess of loss reinsurance retention. While some of the reinsurers are slow-paying, Avery does not believe there are any issues with collectibility.

Subsequent to preparation of the draft, Avery discovered that there was 3 million in net loss and LAE reserves for an environmental liability loss that was inadvertently omitted from the Annual Statement and the actuarial reserve analysis. Avery informs you of this and notes that this amount is less than the materiality standard selected and does not believe any further action is required.

Write a memo to Avery outlining:

- (i) changes to the draft SAO that you believe are indicated; and
- (ii) actions that should be completed by JKL relating to the environmental liability loss that was omitted.

19. (5 points)

- (a) (1 point) Identify four desirable characteristics of a set of financial ratios that are used to predict insolvency, bankruptcy or profitability.
- (b) (1.5 points) Describe the three key variables used in liquidity ratios.
- (c) (1.5 points) Provide the following with respect to A.M. Best's quick ratio:
 - (i) Definition of the ratio
 - (ii) Shortcoming of the ratio

You are an actuary for a financially strong and stable primary insurer that is considering using proportional reinsurance for surplus relief. The insurer will cede no more than 20% of its written premiums under the proportional reinsurance agreement. You are given the following information for the insurer:

- Premium-to-surplus ratio does not exceed 2-to-1
 - Ceding commissions are 30%
- (d) (1 point) Calculate the maximum surplus relief as a percentage of surplus for this insurer from the proportional reinsurance agreement being considered.

- 20.** (7 points) Ordinarily, workers in the U.S. contracting a disease from performing the duties of their employment are barred from suing their employers as a result of workers compensation laws.

Some workers in the U.S. that developed lung disease from exposure to asbestos in their employment were able to sue their employers despite the existence of workers compensation laws.

- (a) (2 points) Explain why the workers' lawsuits were permitted to proceed.
- (b) (1 point) Describe the court interpretation of insurance policies that essentially exposed insurers to unlimited liability for asbestos claims.

Through the mid-to-late 1990s, the number of new asbestos cases in the U.S. decreased significantly. This was followed by a significant surge in new asbestos cases in the U.S. beginning in 1999.

- (c) (1 point) Describe two reasons for the surge in new asbestos cases.
- (d) (1 point) Identify two factors that caused a significant drop in the number of new asbestos cases from the high levels experienced in the period from 2001 to 2005.

Insurers in the United Kingdom did not experience the same level of liability costs as that experienced by insurers in the United States.

- (e) (2 points) Assess the contribution of the following three factors to the different level of liability costs:
 - (i) Exposure
 - (ii) Regulation
 - (iii) Rules of tort law

21. (6 points) When discounting loss reserves for financial reporting, the following four elements must be determined:

1. the types of losses that are permitted to be discounted;
2. the discount rate;
3. the payment pattern; and
4. the risk margins, if any.

Describe the four elements for discounting loss reserves, as noted above, for each of the following accounting standards:

- (i) Canadian accounting as used in the Canadian Annual Return;
- (ii) U.S. IRS tax accounting; and
- (iii) U.S. statutory accounting principles.

22. (4 points)

- (a) (2 points) Provide four public policy reasons for the government provision of insurance.
- (b) (2 points) Describe four features that differentiate social insurance programs from private insurance.

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

USE THIS PAGE FOR YOUR SCRATCH WORK

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