
SOCIETY OF ACTUARIES
Group & Health Specialty Exam

Exam GHSPC

Date: Friday, May 6, 2016
Time: 2:00 p.m. – 4:15 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 40 points.

This exam consists of 4 questions, numbered 1 through 4.

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

Tournez le cahier d'examen pour la version française.

****BEGINNING OF EXAMINATION****

- 1.** (9 points) You are a pricing actuary for GYIC, an organization that specializes in individual and group Medicare Supplement policies. You are beginning work on GYIC's 2016 rate increase filing. You are given the following experience data for the organization's Medicare Supplement blocks for 2014:

	Total Annual Member Months	Premium PMPM	Claims PMPM	Administrative Expense PMPM
Individual	15,000	\$150.00	\$82.50	\$22.00
Group	5,000	\$175.00	\$152.50	\$47.00

Assume that all policies in the state are subject to the standard NAIC model regulations related to standardized Medicare Supplement policies. Assume:

- an annual claims trend of 6% across all policies,
 - a target profit margin of 5%, and
 - constant PMPM administrative expenses compared to last year.
- (a) (2 points) Explain the key requirements for Medicare Supplement plans under NAIC Model Regulations.
- (b) (1 point) Identify and describe the primary state-by-state variations that can exist in Medicare Supplement policy regulations.
- (c) (2 points) Calculate the 2014 aggregate rate refunds, if any, to the policyholders under both the individual and group blocks. Show your work.
- (d) (4 points) Recommend rate increases for 2016 for both individual and group policies that are in full compliance with state regulations. Justify your answer.

2. (12 points) You are a valuation actuary for Company XYZ, a Canadian life insurance company. You have been tasked with explaining XYZ's required C-1 risk to management.

XYZ has the following assets:

Cash	\$500
Short-term asset 1	\$1,200
Short-term asset 2	\$2,000
Long-term asset 1	\$3,000
Long-term asset 2	\$5,000

Company XYZ uses two rating agencies, Goody's and P&Q.

The table below shows the ratings from each agency for XYZ's assets:

	Credit Rating	
	Goody's	P&Q
Short-term asset 1	P-1	A-2
Short-term asset 2	P-2	A-1
Long-term asset 1	B2	AAA
Long-term asset 2	A2	C

The table below shows the factors to be used for credit exposures, based on each agency's ratings.

Ratings	Factors
A-1	0.25%
P-1	0.25%
A-2	0.50%
P-2	0.50%
AAA	0.25%
B2	8.00%
A2	1.00%
C	16.00%

- (a) (2 points) Identify and describe the risk components that determine a Canadian life insurer's minimum capital requirement.
- (b) (4 points) Calculate the total C-1 risk component for Company XYZ. Show your work.

2. Continued

- (c) *(4 points)* XYZ's management is concerned about the overall level of C-1 due to the wide variation in ratings between the rating agencies. Describe the key pros and cons of switching to a single rating agency and recommend a strategy. Justify your answer.

- (d) *(2 points)* Identify and describe alternative strategies that management could employ to reduce its MCCR requirements.

3. (6 points) You are a consulting actuary hired by ABC insurance company that is in the process of purchasing a block of business from DEF insurance company. You have decided to proceed with a simplified valuation that only uses the following information (all values in millions):

	Year		
	2012	2013	2014
Annual Claims	\$30	\$35	\$40
Administrative Expense	\$3	\$4	\$5
Investment Income	\$1	\$1	\$2

The valuation date is 12/31/2015.

You have been working with the consulting actuary hired by DEF to evaluate the sale. Both parties are working on separate estimates of the block of business. In order to estimate the value of the block as of the valuation date, you are both using historical claims and administrative expense and projecting forward. You believe you should use 2012 to 2013, and 2013 to 2014 for both claims and administrative expense trends. However, the DEF consulting actuary believes that 2013 to 2014 alone should be the basis of the trends.

- (a) (4 points) Calculate the overall valuation amount using both the method you recommended and the method the DEF consulting actuary recommended. Show your work.
- (b) (2 points) ABC has asked you to perform a sensitivity analysis for the block using the following base assumptions:
- Claims trend at 8% +/- 1%
 - Admin trend at 4% +/- 0.5%
 - Investment income trends at 6% +/- 2%

Calculate the range of the estimated values of the block. Show your work.

4. (13 points) You are a consulting actuary advising RHP, a new health plan, on their participation in Massachusetts' Commonwealth Care Program.

For the 2013 Fiscal Year ending June 30, 2013, the Connector Authority established a based Medical Capitation Rate of \$450 before any member-specific adjustments, and set the low end of the rate range to be \$417.50. The Authority also pays a fixed administration fee of \$32.00 PMPM. To be competitive, RHP sets its administration fee at \$30.00 PMPM.

The following tables provide rating factors used in the risk adjustment model:

				Age/Gender Rating Factors		
Geography	Rating Factor	Plan Type	Rating Factor	Age	Male	Female
Boston Area	1.02	A	1.06	19-24	0.49	0.67
Central	1.16	B	0.95	25-34	0.70	0.87
North	0.95	C	0.89	35-44	0.91	1.03
South	0.98			45-54	1.25	1.23
West	0.88			55-64	1.50	1.36
				65+	1.61	1.51

Assume RHP has a 4Q Fiscal Year 2012 Average Total Rating factor (based on 4Q enrollment and Fiscal Year 2013 risk factors) of 1.015.

- (a) (2 points) Calculate the Authority's initial payment to RHP in First Quarter of Fiscal Year 2013. Show your work.
- (b) (4 points) During the Fiscal Year open enrollment period, the plan attracts a different mix of risk than its 4Q Fiscal Year 2012 risks. Assume RHP only has the following 5 members:

Member	Plan Type	Region	Age	Gender
1	A	North	27	Female
2	A	North	52	Female
3	B	North	35	Male
4	B	Central	44	Female
5	C	Central	54	Male

Determine the difference in the revised 1Q Fiscal Year 2013 payment to RHP (that would be paid in 2Q 2012) compared to the above initial 1Q 2013 payment. Show your work.

4. Continued

- (c) (4 points) Two of the five members have birthdays in the 2Q Fiscal Year 2013 (there were no birthdays in 1Q Fiscal Year 2013). The following is the revised demographic data for RHP's population:

Member	Plan Type	Region	Age	Gender
1	A	North	27	Female
2	A	North	52	Female
3	B	North	35	Male
4	B	Central	45	Female
5	C	Central	55	Male

Determine RHP's Payment in 2Q Fiscal Year 2013 and 3Q Fiscal Year 2013. Show your work.

- (d) (3 points) In addition to risk adjustment, there are other risk mitigation arrangements within the Commonwealth Care Program. Describe these arrangements and explain why risk adjustment alone may not be sufficient.

****END OF EXAMINATION****

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