
SOCIETY OF ACTUARIES
Group & Health Specialty Exam

Exam GHSPC

Date: Wednesday, October 29, 2014

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.** (10 points) You are given the following Medicare Supplement rate information:

Medicare Supplement Plan F Rates

	Carrier 1	Carrier 2
Rating Type	Attained Age	Issue Age
Age Band	Rates PMPM	Rates PMPM
0 – 69	\$175	\$195
70 – 74	\$205	\$225
75 – 84	\$225	\$250
85 +	\$255	\$250

Assume no rate increases are implemented.

- (a) (2 points) Describe the key requirements of NAIC model regulations for Medicare Supplement plans.
- (b) (1 point) Describe the key areas where there may be variations in Medicare Supplement laws among states that have adopted the NAIC model regulation.
- (c) (1 point) Describe different rating methodologies used for Medicare Supplement policies.
- (d) (4 points) Calculate which Medicare Supplement Plan F, from Carrier 1 or Carrier 2, would be least expensive over the life of the policy for the two Medicare-eligible relatives:
- (i) Paul, who just turned 72 and expects to live for 12 years, and
- (ii) Jeff, who just turned 58 and expects to live for 20 years.

Show your work.

- (e) (2 points) Calculate the monthly community rate that would be financially equivalent to the least expensive option determined above for:
- (i) Paul and
- (ii) Jeff.

Show your work.

2. (12 points) Genuine Life Insurance Company (GenLife) is a Canadian company selling only individual life insurance products. GenLife's leadership is looking to achieve further growth by diversifying into other lines.

GenLife has identified a small Canadian insurance carrier, Reality Health Insurance Company (RealHealth), which only has group health products. RealHealth's only clients are provincial and municipal governments.

You are provided with the following information on RealHealth:

- Annual premium for fully-insured non-refund contracts: \$6,700,000
- Annual premium for administrative services only (ASO) contracts: \$9,800,000
- Incurred But Not Reported (IBNR): all claims are assumed to be reported within one month of incurral

You are also given that GenLife's calculated component requirement for morbidity is \$10,000,000.

- (a) (4 points) Explain the significance and propose a mitigation strategy for two enterprise risks GenLife would be exposed to upon acquisition of RealHealth.
- (b) (1 point) Explain the difference between Tier 1 and Tier 2 capital, as defined by Office of the Superintendent of Financial Institutions (OSFI).
- (c) (6 points) Assuming there are no reinsurance treaties in place,
- (i) Calculate the morbidity component of the Minimum Continuing Capital and Surplus Requirement (MCCSR) for GenLife's group health block of business when RealHealth is acquired.
 - (ii) Calculate the morbidity component of the MCCSR assuming \$5,000,000 of the premium for RealHealth's insured products has a hold-harmless arrangement in place.
 - (iii) Calculate the adjusted net Tier 1 capital for RealHealth assuming RealHealth has intangible assets equal to 15% of their gross Tier 1 capital and no other available deductions.

Show your work.

- (d) (1 point) Explain the impact to the morbidity component of the MCCSR from purchasing reinsurance.

3. (6 points) You are an actuary for Urban Insurance Inc., a multi-line insurance company wishing to sell its dental business effective December 31, 2013. The business is expected to have no new sales. You are provided with the expected premiums and required capital (150% of MCCR) for the next 3 years.

Year	Premium	Required Capital
0	\$5,000	\$675
1	\$4,548	\$614
2	\$4,136	\$558
3	\$0	\$0

Assume:

Target post-tax profit on capital	12.0%
Interest on capital	4.0%
Tax rate	35.0%
Discount rate	9.0%

- (a) (4 points) Calculate the Embedded Value of the block of business as of 12/31/13 for 3 years.

<u>Year</u>	<u>Post-tax target profit</u>	<u>Post-tax Interest on Capital</u>	<u>Capital Cashflow</u>
0			
1	\$63	\$18	\$79
2	\$58	\$16	\$72
3	\$52	\$15	\$573
Discounted capital cashflow at the end of year 0			\$574.70
Capital at end of year 0			\$675.00
Cost of Capital			(\$100.30)
Discounted post tax target profits			\$147.31
Embedded Value at end of year 0			\$47.01

Show your work.

- (b) (2 points) Calculate the embedded value as of December 31, 2014 assuming the sale did not occur. Show your work.

4. (12 points) You are a Medicare Advantage (MA) actuary who has been hired by Green Bear, a health insurance company, to review their Medicare risk adjustment practices.

You have been given the following truncated list of risk adjustment factors under the current year's CMS-HCC model:

Characteristic	HCC Factor	Hierarchy (if applicable)
<i>Demographics</i>		
Male Age 65 - 69	0.350	N/A
Male Age 70-74	0.570	N/A
Female Age 65 - 69	0.400	N/A
Female Age 70-74	0.510	N/A
Medicaid/Originally Disabled	0.320	N/A
<i>Conditions</i>		
HCC10	0.200	HCC11 Trumps HCC10, HCC12 Trumps HCC11 and HCC10
HCC11	0.280	HCC11 Trumps HCC10, HCC12 Trumps HCC11 and HCC10
HCC12	0.410	HCC11 Trumps HCC10, HCC12 Trumps HCC11 and HCC10
HCC51	0.070	HCC52 Trumps HCC51
HCC52	0.120	HCC52 Trumps HCC51
HCC70	0.320	N/A
Disease Interaction - HCC11 & 70	0.080	HCC11 Trumps HCC10, HCC12 Trumps HCC11 and HCC10
Disease Interaction - HCC12 & 70	0.070	HCC11 Trumps HCC10, HCC12 Trumps HCC11 and HCC10

- (a) (2 points) Compare risk adjustment to:
- risk prediction, and
 - case mix adjustment.
- (b) (1 point) Outline the two most prevalent theories for the member selection patterns observed in Medicare MCOs versus traditional Medicare FFS.
- (c) (3 points)
- Identify the factors the CMS-HCC Risk Model considers in developing a beneficiary-specific risk score.
 - Describe factors listed in (c)(i).
- (d) (3 points) Calculate the CMS-HCC risk score for a female member aged 73 who was originally disabled and has documented HCCs 10, 11, 12, 51, and 70. Show your work.

4. Continued

- (e) (3 points) Calculate the total monthly payment to Green Bear for the member described in Part (d) above, assuming that the standardized county MA bid = \$725 PMPM, the standardized county MA benchmark = \$790 PMPM, and the Supplemental Member Premium = \$20 PMPM. Assume the rebate is 75% of savings. Show your work.

****END OF EXAMINATION****

USE THIS PAGE FOR YOUR SCRATCH WORK