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**SOCIETY OF ACTUARIES**  
**Group & Health Specialty Exam**

# Exam GHSPC

**Date:** Friday, April 27, 2018  
**Time:** 2:00 p.m. – 4:15 p.m.

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## INSTRUCTIONS TO CANDIDATES

### General Instructions

1. This examination has a total of 40 points.  
  
This exam consists of 5 questions, numbered 1 through 5.  
  
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.** (11 points)

- (a) (4 points) Explain the benefits and concerns of adding Prescription Drug utilization to the HHS-HCC Risk Adjustment Model.

The CMS discussion paper “March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting” outlined four hybrid drug-diagnosis models:

1. Imputation Only
2. Rx Dominant
3. Flexible Hybrid
4. Severity-Only Hybrid

- (b) (2 points) Describe for each of the four models the:

- (i) Incentives for drug utilization, and
- (ii) Sensitivity to reporting of associated diagnoses.

The CMS-HCCs had to be adapted into the HHS-HCCs for ACA risk adjustment because of prediction year, population, and type of spending.

- (c) (2 points)

- (i) Describe how the CMS-HCC handles each of these items, and reasons why the HHS-HCCs model is better for the ACA population.
- (ii) Explain why a concurrent model is used for the Individual and Small Group ACA markets instead of the prospective model used for Medicare Advantage.

**1. Continued**

(d) (3 points)

Enrollee	Gender	Attained Age	Condition(s)	Enrollment Date	Cost Sharing
1	Male	45	Asthma	1/1/2016	No
2	Female	50	Heart Arrhythmias	7/1/2016	94% Silver Plan
3	Male	60	Diabetes and Congestive Heart Failure	5/1/2016	No

Assume the following factors:

Age	Female	Male
45	0.58	0.37
50	0.69	0.48
60	0.80	0.70

Condition	Factor
Asthma	0.9
Congestive Heart Failure	3.6
Diabetes	1.2
Specific Heart Arrhythmias	3.1

94% Silver Plan Induced Utilization Factor = 1.1

No Cost Sharing Reduction Induced Utilization Factor = 1.0

- (i) Calculate the plan average Plan Liability Risk Score (PLRS) for 2016 based on the three enrollees' information, assuming a Silver model level. Show your work.
- (ii) Describe why the plan average PLRS would decrease if all three enrollees were instead on a Bronze plan. Justify your answer.

**2.** (6 points)

- (a) (2 points) Describe the factors that obscure emerging risk in an Enterprise Risk Management (ERM) program.
- (b) (4 points) State one sample question for each consideration that helps describe the business system and its environment for each factor identified in part (a).

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**3.** (10 points) You have been tasked with pricing a new Critical Illness Insurance (CII) plan in Canada.

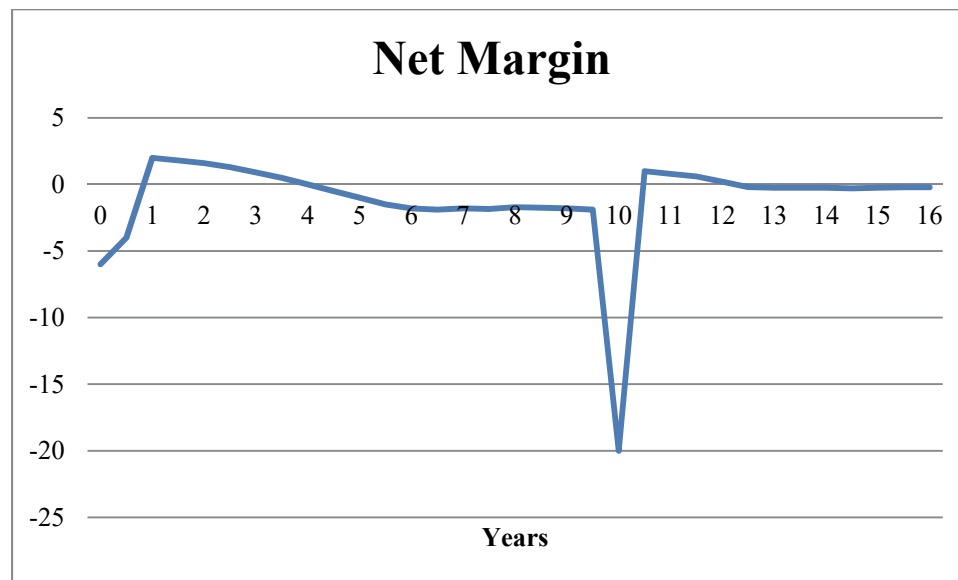
(a) (2 points)

(i) Describe the main approaches to developing CII premium rates.

(ii) Recommend a pricing strategy. Justify your recommendation.

(b) (1 point) Describe considerations when purchasing reinsurance for CII.

The following graph represents the projected Net Margin (Premiums – Claims – Expenses) for a particular CII policyholder.



(c) (3 points)

(i) Describe the policy feature that causes the large negative loss of cash.

(ii) Describe a reason why this policy feature was included.

(iii) Describe challenges in setting premium rates for this policy feature.



**3. Continued**

- (d) (2 points) Recommend if a cash flow test should be completed for the CII product shown in the graph as referenced under ASOP #7. Justify your answer.
- (e) (2 points) Your Chief Financial Officer (CFO) wants to invest reserves in 30-year bonds in order to achieve a higher yield.
  - (i) Identify and describe appropriate considerations an actuary should consider as part of the CFO's investment strategy.
  - (ii) Critique the CFO's investment strategy. Justify your answer.

4. (8 points) A Canadian Company has a block of Group Dental business with \$5 million of premium on December 31, 2017. The assumptions for the next two years are:

Targeted post-tax profit	11%
Targeted capital	150% MCCSR
Pre-tax earnings on capital	5%
Tax rate	40%
Expected lapse rate per annum	50% (occurs at end of year)
Expected renewal rate increase per annum	5% (occurs at end of year)
MCCSR factor	12%
Current statistical fluctuation factor for MCCSR	75%
Discount rate	10%

Assume that all remaining policies lapse and all remaining capital is released at the end of the two year projection period.

- (a) (6 points) Calculate the embedded value (EV) at December 31, 2017. Show your work.
- (b) (2 points) Describe the recommended practices for an actuarial appraisal to comply with ASOP 19.

**5.** (5 points)

- (a) (1 point) Describe the minimum standards set out in Insurance Code Principles (ICPs) as they relate to Own Risk Solvency Assessment (ORSA) requirements.
- (b) (2 points) Verify the accuracy of the following statements. Justify your answer.
  - (i) One of ORSA's two primary goals is to provide a legal entity view on risk and capital.
  - (ii) The ORSA summary report should be based on the insurer's internal reporting of ERM (Enterprise Risk Management) information.
  - (iii) ORSA prescribes standard bases and methodology so that summary reports are consistent between different insurers.
  - (iv) The prospective solvency assessment for Section 3 of the ORSA report should be based on current operations in a normal business environment.
- (c) (2 points) Describe the considerations that would make an effective ORSA.

**\*\*END OF EXAMINATION\*\***

**USE THIS PAGE FOR YOUR SCRATCH WORK**