

# Exam GHSPC

**Date:** Thursday, May 6, 2021

## INSTRUCTIONS TO CANDIDATES

### General Instructions

1. This examination has 6 questions numbered 1 through 6 with a total of 40 points.  
  
The points for each question are indicated at the beginning of the question.
2. 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 provided in this document.

### Written-Answer Instructions

1. Each question part or subpart should be answered either in the Word document or the Excel file as directed. Graders will only look at work in the indicated file.
  - a) In the Word document, answers should be entered in the box marked ANSWER. The box will expand as lines of text are added. There is no need to use special characters or subscripts (though they may be used). For example,  $\beta_1$  can be typed as beta\_1 (and ^ used to indicate a superscript).
  - b) In the Excel document formulas should be entered. Performing calculations on scratch paper or with a calculator and then entering the answer in the cell will not earn full credit. Formatting of cells or rounding is not required for credit.
  - c) Individual exams may provide additional directions that apply throughout the exam or to individual items.
2. The answer should be confined to the question as set.
3. Prior to uploading your Word and Excel files, each file should be saved and renamed with your five-digit candidate number in the filename.
4. The Word and Excel files that contain your answers must be uploaded before time expires.

*Recognized by the Canadian Institute of Actuaries.*

## Navigation Instructions

Open the Navigation Pane to jump to questions.

Press Ctrl+F, or click View > Navigation Pane:



**1.**

(7 points) You have been asked to describe key attributes in valuing care management vendors.

- (a) (2 points) Describe how care management vendors can impact medical costs.

ANSWER:

- (b) (1 point) Describe how to measure the effect of a medical savings initiative.

ANSWER:

- (c) (4 points) Describe the methods of various complexity to measure medical savings.

ANSWER:

## 2.

(7 points) ABC Health Insurance Company has issued a new product during a period of rapidly increasing claim costs. The Chief Risk Officer (CRO) has concerns regarding the following four issues with the new product.

1. In an attempt to secure a larger provider network for this period, non-negotiable provider contracts were written for a five year period with a common renewal date.
2. The product was initially priced as guaranteed issue for active and healthy people aged 30 to 40. The Marketing Department later changed the marketing strategy to focus on sedentary people aged 50 to 65.
3. A new claims management team has been hired.
4. The product was priced for a three year premium guarantee period.

(a) (3 points)

(i) Define the following Health Insurance Risks:

- Underwriting Risk
- Pricing Risk
- Claims Management Risk
- Provider Renewal Risk

ANSWER:

(ii) Evaluate how the concerns of the CRO relate to these risks.

ANSWER:

(b) (1 point) Describe key elements essential to Operational Risk Controls.

ANSWER:

## 2. Continued

You are reviewing a Risk Evaluation performed by another actuary. The Risk Evaluation was to consider the financial strength, risk profile, and risk environment of the organization. The Risk Evaluation contains the following information:

1. Limitations to the fundability of capital across the organization.
  2. The organization's long-term financial goals.
  3. The degree to which the organization's risks compensate for each other.
  4. The nature, scale, and complexity of the risks faced by the organization.
  5. The actual differences between the current and long-term risk environments.
  6. The extent to which the organization's exposure to risks are similar to the exposures of its competitors.
- (c) (1 point) Verify the accuracy of the Risk Evaluation, according to ASOP 46. Justify your response.

ANSWER:

- (d) (2 points) According to ASOP 46,

- (i) Describe considerations when performing stress tests and scenario tests.

ANSWER:

- (ii) Describe considerations to include when communicating your findings on stress tests and scenario tests.

ANSWER:

### 3.

(6 points)

- (a) (2 points) Describe the elements of the Affordable Care Act (ACA) designed to ensure a balanced risk pool.

ANSWER:

You are given the following information:

- Member A is male, aged 52 with the following diagnoses:

<b>Episode Treatment Group (ETG)</b>	<b>Severity Level</b>	<b>Description</b>	<b>Episode Risk Grouper (ERG)</b>	<b>Description</b>
163000	2	Diabetes	2.022	Diabetes w/significant complications/co-morbidity I
238800	3	Mood Disorder, Depression	4.033	Mood disorder, depression w/ significant cc/cb
666700	1	Acne	17.011	Lower cost dermatology I

- Member B is female, aged 48 with the following diagnoses:

<b>ETG</b>	<b>Severity Level</b>	<b>Description</b>	<b>ERG</b>	<b>Description</b>
386800	1	Congestive Heart Failure	8.043	Ischemic heart disease, heart failure, cardiomyopathy III
473800	3	Ulcer	11.022	Other moderate cost gastroenterology II

### 3. Continued

- Risk Adjustments:

ETG	Severity Level	Description	ERG	Description	Retrospective Risk Weights	Prospective Risk Weights
163000	2	Diabetes	2.022	Diabetes w/significant complications/co-morbidity I	0.9874	1.2810
386800	1	Congestive Heart Failure	8.043	Ischemic heart disease, heart failure, cardiomyopathy III	2.2870	2.0065
238800	3	Mood Disorder, Depression	4.033	Mood disorder, depression w/ significant cc/cb	0.8200	0.7913
473800	3	Ulcer	11.022	Other moderate cost gastroenterology II	2.3972	0.6474
666700	1	Acne	17.011	Lower cost dermatology I	0.1409	0.1023

- Demographic Risk Scores:

Age Range	Female	Male
45-54	0.7032	0.7331
55-64	0.7251	0.7628

### 3. Continued

(b) (4 points)

- (i) (3 points) Calculate the retrospective and prospective relative risk scores for Member A and Member B. Show your work.

*The response for this part is to be provided in the Excel document*

- (ii) (1 point) Explain the reasoning for the difference between the retrospective and prospective relative risk scores.

ANSWER:



## 4

(5 points)

- (a) (1 point) Describe advantages and disadvantages of propensity score matching.

ANSWER:

- (b) (1 point) Compare and contrast propensity score and risk adjustment.

ANSWER:

- (c) (3 points) Critique the study design and conclusions of the journal entry “Effects of a Population Health Community-Based Palliative Care Program on Cost and Utilization”.

ANSWER:

**5.**

(9 points)

(a) (3 points) According to ASOP 45,

- (i) Describe how the input data used in the application of risk adjustment models needs to be reasonably consistent.

ANSWER:

- (ii) Explain what the actuary should do if reasonable consistency cannot be achieved or if information concerning the quality and type of input data is not sufficient.

ANSWER:

- (iii) Explain what the actuary should consider when evaluating consistency of input data.

ANSWER:

## 5. Continued

In 2016, the Center for Medicare and Medicaid Services (CMS) received feedback indicating the Health and Human Services (HHS) risk adjustment model, which uses the HHS Operated Risk Adjustment Methodology, does not capture the risk associated with partial year enrollment.

(b) (4 points)

- (i) Discuss concerns regarding partial year enrollees and feedback from the industry on how to improve the methodology.

ANSWER:

- (ii) Discuss advantages and disadvantages of the following options to address partial year enrollment in calculating risk adjustment payment transfers as part of the HHS risk adjustment model:

- I. Adding a duration factor to the HHS risk adjustment model.
- II. Employing wholly separate models that account for duration of enrollment and metal level.

ANSWER:

(c) (2 points)

- (i) Define identification algorithms used in grouper models.

ANSWER:

- (ii) Discuss reasons that may make the use of commercially-available grouper models preferable for risk adjustment work.

ANSWER:

## 6.

(6 points) Your company sells a critical illness insurance policy with these options:

- \$60,000 benefit for an eligible-diagnosed critical illness during the 20-year term period; or
- Return of premium at the end of the 20-year period, if no benefit has been paid.

You are given the following information:

- $(H_1)^2 = 3.2(H_2)^2$
- Current RBC ratio is 325%
- Cash RBC Factor is 0.003
- Bonds RBC Factor is 0.01, aligning with subclass NAIC 2
- Equities RBC Factor is 0.20, aligning with common stock

(a) (4 points) Calculate the RBC ratio if the company changes its asset portfolio from 100% cash to

(i) 85% cash/15% equities

*The response for this part is to be provided in the Excel document*

(ii) 85% cash/15% bonds

*The response for this part is to be provided in the Excel document*

(b) (2 points) Assess whether either of the asset portfolio changes in part (a) require regulatory action and if so, propose an alternative asset allocation that requires no regulatory action. Assume no changes to the types of assets in each portfolio. Show your work.

*The response for this part is to be provided in the Excel document*

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