



Exam GHSPC

Date: Tuesday, October 30, 2018

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.

Recognized by the Canadian Institute of Actuaries.

Tournez le cahier d'examen pour la version française.

****BEGINNING OF EXAMINATION****

1. (12 points)

(a) (2 points)

(i) Describe the differences among pricing methodologies used for Medicare Supplement products.

(ii) Identify the typical reason a particular methodology will be chosen.

(b) (4 points) Describe factors and data sources utilized in developing the pricing assumptions for Medicare Supplement policies.

(c) (1 point) Describe requirements for Actuarial Communications as identified in ASOP 41.

(d) (2 points) You are provided the following information:

- Company GHI sold a block of policies in 2018.
- Policies are issue age rated.
- The state approved a 6% rate increase to be effective on January 1, 2019.
- These policies were issued in one state where there is a minimum loss ratio requirement for the projection year (2020) of 75%.
- Annual medical trend is 5%.
- Annual aging and underwriting wearoff is 3%.
- Assume rate increases are 100% effective on January 1st and that medical trend and claim aging are effective mid-year.
- 2018 experience is such that GHI received \$10 million in premiums and had \$7 million in incurred claims.

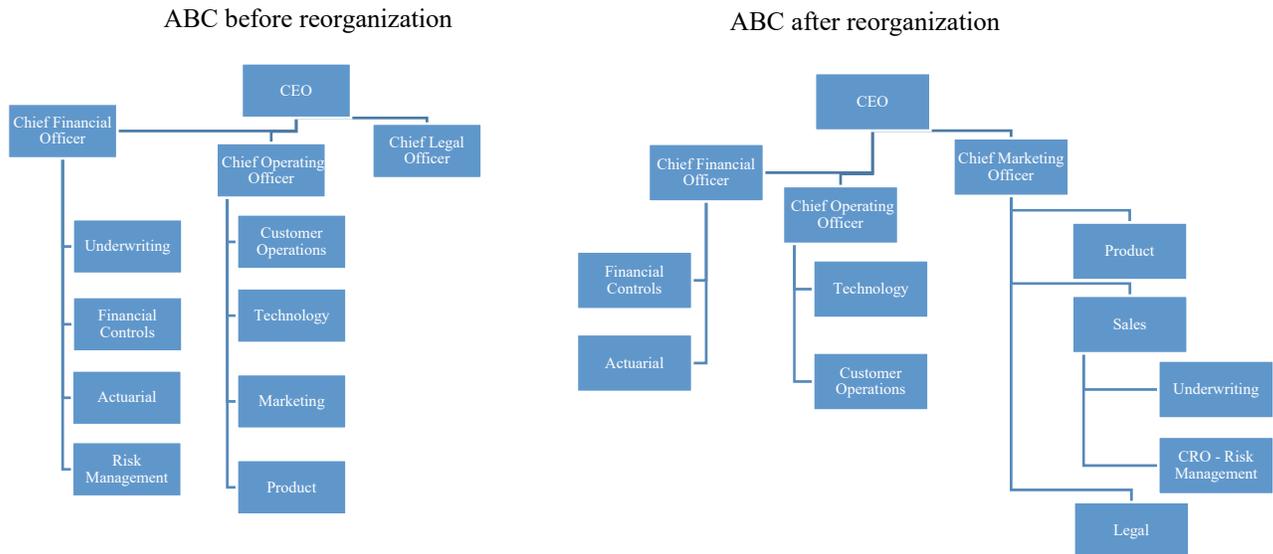
(i) Describe different loss ratio standards that must be met for Medicare Supplement Products under the NAIC Model Regulation.

(ii) Calculate the maximum rate increase for January 1, 2020 so that the projection satisfies the minimum loss ratio requirement. Show your work.

1. Continued

- (e) (3 points) Assume the only business of Company GHI is described in part (d). This business is subject to contractual arrangements such as provider fee schedules and hospital per diems. GHI is considering selling annuities starting in the near future.
- (i) Calculate the Claim Fluctuation underwriting risk for 2018. Show your work.
 - (ii) Evaluate when GHI must start utilizing the Life RBC formula [Blue Blank] as opposed to the Health RBC formula [Orange Blank] for their Medical Supplement business.
 - (iii) Compare and contrast the Health RBC and Life RBC formula as it relates to underwriting risk and insurance risk, respectively.

2. (8 points)



ABC Health has reorganized divisions, departments, and leadership. This organizational change was made to meet the Board’s objective of aggressive membership and market share growth targets.

The board has also approved the creation of an ERM program. The board stated they wanted both the insight and accountability that comes with an effective ERM program.

(a) (2 points)

- (i) Describe the reporting structure, scope, and purpose of an ERM committee.
- (ii) Evaluate the new organizational chart in relationship to the reporting structure, scope, and purpose of an ERM committee. Justify your answer.

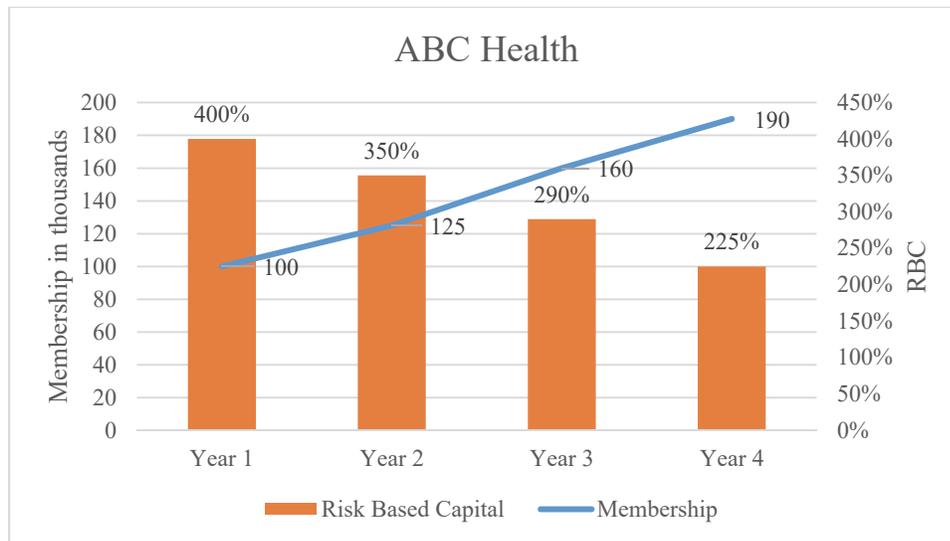
2. Continued

ABC Health is now four years into their aggressive growth strategy and things are not going well.

Some facts for ABC Health:

- The Chief Marketing Officer's compensation is tied solely to membership growth.
- The Chief Marketing Officer sets the incentive compensation goals for all departments that report to him.
- Actuarial has been tracking increasing loss ratios and a deterioration in the risk-based capital levels of ABC Health's book of business.

You are the new Chief Actuary and your actuarial team has delivered the requested information to you on key experience which is shown below.



- (b) (4 points) For each type of risk as defined in *Financial Enterprise Risk Management; Sweeting Ch. 7*:
- (i) Explain which types of risks ABC Health faces based on information presented.
 - (ii) Recommend one change for each of the significant risks identified in (i) that will mitigate risk. Justify your answer.

As Chief Actuary you have asked your team to conduct a stress and scenario test to evaluate varying business plans to mitigate further losses.

- (c) (2 points) Identify and describe the considerations related to stress and scenario tests noted in ASOP 46.

3. (7 points)

- (a) (4 points) Describe how discount rates might be determined when performing an Actuarial Appraisal.
- (b) (1 point) Verify the accuracy of each of the following statements regarding Actuarial Appraisals and Embedded Value. Justify your answers.
- (i) Adjusted net worth includes the value of intangible assets.
 - (ii) Embedded value is not an actuarial appraisal.
 - (iii) There is no advantage from illustrating the actuarial value of future business for just one year of issue.
 - (iv) Inforce Business Value (IBV) includes required capital.
- (c) (2 points) You are given the following information:

Time	Adjusted Net Worth (ANW)	Present Value of Book Profits (PVBP)	Present Value of Cost of Capital (PVCoC)	Value of New Business (VNB)
t-1	\$100M	\$115M	\$20M	\$0M
t	\$130M	\$150M	\$30M	\$40M

* Assume ANW has been adjusted to remove the impact of investor cash flows during the period.

- (i) Calculate the effective embedded value rate. Show your work.

Assume the risk discount rate (RDR) is 9%.

- (ii) Explain whether the combined experience variations and prospective assumption changes added value in (i).

4. (13 points)

- (a) (2 points) Describe risk adjustment issues within Massachusetts' healthcare reform:

You are given the following information:

	State	Plan A	Plan B
Actuarial Value (AV)		0.9	0.8
Risk Score (PLRS)	1.0	0.9	1.1
Rating Factor (ARF)	1.8	1.8	1.8
Induced Demand Factor (IDF)	1.1	1.1	1.1
Geographic Cost Factor (GCF)	1.0	1.0	1.0
Network Contract Effect		0.8	1.2
Average Monthly Premiums	\$600	\$480	\$720

	State	Plan A	Plan B
Members Covered	3,000	1,500	1,500

- (b) (8 points) Calculate the following for a low-cost network. Show your work.
- (i) (2 points) The Transfer Amount for Plan A
 - (ii) (3 points) The Gain (Loss) for the State, Plan A, and Plan B
 - (iii) (1 point) The Funds Transfer for Plans A and B
 - (iv) (2 points) Net Income as a Percentage of Premium for Plans A and B
- (c) (3 points) Describe issues and potential improvements to the ACA risk adjustment process.

****END OF EXAMINATION****

USE THIS PAGE FOR YOUR SCRATCH WORK