SOCIETY OF ACTUARIES
Group & Health Specialty Exam

Exam GHSPC

Date: Tuesday, October 31, 2017
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.

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****BEGINNING OF EXAMINATION****

1. (*10 points*)

(a) (*2 points*) Explain the economic fundamentals which in the last few years have caused insurance companies to experience financial difficulties with their long-term care (LTC) business.

(b) (*1 point*) You are considering the need to design your plan as a State Partnership LTC plan.

(i) Define a typical structure for a State Partnership LTC plan.

(ii) Evaluate the successfulness of State Partnership LTC plans. Justify your answer.

(c) (*2 points*) Explain how the Pension Protection Act of 2006 (PPA) created more favorable conditions for LTC Combo Insurance.

(d) (*5 points*) Describe all considerations, as mentioned in ASOP #18 – Long Term Care Insurance, when setting assumptions for total claim costs.

2. (*12 points*) You have been asked to evaluate a new individual health business line relative to your insurance company's Enterprise Risk Management (ERM) policy. You have just reviewed ASOP 46: Risk Evaluation in Enterprise Risk Management.

(a) (*2 points*)

(i) List the considerations relating to an Economic Capital Model while performing actuarial tasks relating to the design, development, and review of the model.

(ii) List the assumptions to consider when reviewing an Economic Capital Model.

Another actuary has developed an internal capital model which provides you with the output below:

- $TVaR_{95}(L)$ = $120M; known as average of the loss in the highest 5% distribution of loss
- $TVaR_{0}(L)$ = $67M; known as the Expected Loss
- Margin = $4M
- Expenses = $6M

Your company's ERM policy requires economic capital sufficient to cover the average of the highest modeled losses on the business considered. Your company has established Tail Value at Risk as the metric and determined $TVaR_{95}$ is their risk threshold.

(b) (*4 points*) Calculate the additional capital your company needs to allocate from surplus in excess of their premium to satisfy their internal ERM economic capital policy. Show your work.

You are provided the following additional information:

- Management prefers to maintain flexibility to invest in new opportunities
- Networks for your company and competitors are identical both in costs and providers
- ERM policy requires mark to market pricing of risk where available
- Unallocated Surplus = $44M
- Individual competitors' premiums:
    - Competitor A = $65M
    - Competitor B = $63M
    - Competitor C = $58M
- Reinsurance options for new business line:
    - Modified Coinsurance at 80%; Premium $30M
    - Funds Withheld Coinsurance at 80%; Premium $30.5M

2. Continued

(c) (*6 points*) Recommend, for each of the following, a business decision for your company to enter or not enter this market:

(i) Your company’s capital model

(ii) Your company’s ERM policy

(iii) ASOP 46

(iv) Reinsurance strategy

Justify your recommendations.

3. (*7 points*) According to Components of Insurance Firm Value and the Present Value of Liabilities:

(a) (*1 point*) Verify the accuracy of the following four statements with respect to the major components of Market Value of Insurance Equity. Justify your answers.

(i) Franchise value includes renewal business.

(ii) Franchise value is the present value of the “rents” that an insurer is expected to garner because it has scarce resources, scarce capital, reputation, and so forth.

(iii) Market Value of Tangible Assets can be netted with the put option value to produce the “net tangible value”.

(iv) Put option value arises from the limited liability enjoyed by equity holders when their firm repurchases shares in the marketplace.

(b) (*2 points*) Describe how the equity value changes as the firm decreases in insolvency risk, when analyzing the market value of:

(i) each of the four components separately

(ii) the four components on a combined basis

(c) (*2 points*)

(i) List four disadvantages of an indirect method of valuing liabilities.

(ii) List four advantages of a direct method of valuing liabilities.

3. **Continued**

(d) (*2 points*) Consider a situation in a which an insurer has

- Market Value of Tangible Assets of $210M
- Present Value of Liabilities of $200M
- Net Value of its Put Options to default together with its Franchise Value is $4M
- Market Value of Liabilities of $194M

Calculate the market value of the insurer's

(i) Assets

(ii) Equity

Show your work.

4. (*11 points*) You work for an insurance company which is interested in providing Medicaid managed care coverage in the State of Arizona.

(a) (*1 point*) Describe the goals of risk adjustment in Arizona's Medicaid program.

(b) (*1 point*) Describe situations where a claims based risk adjustment model will not be applied in developing their rates.

(c) (*1 point*) Describe how risk adjustment is calculated for new members.

You are given the following:

Your Plan Population	Cohort Weight	Condition (ERG) Factor	Age/Gender Factor	ERG Weight	Age/Gender Weight
Long Cohort	0.7	0.49	0.45	100%	N/A
Short Cohort	0.3	N/A	0.55	50%	50%

(d) (*2 points*) Calculate the Total Average Risk Score for your plan. Show your work.

(e) (*1 point*)

(i) Describe why the newborn population is an issue for risk adjustment.

(ii) Describe how Arizona has addressed the issue in (i).

(iii) Describe the Temporary Assistance to Needy Families (TANF) under age one risk adjustment methodology.

4. **Continued**

You are given the following:

Statewide Population	Cohort Weight	Age/Gender Factor
Long Cohort	0.84	0.422
Short Cohort	0.16	0.435

(f) (*1 point*) Calculate

(i) the average Arizona statewide risk score, and

(ii) your plan's relative risk score.

Show your work.

(g) (*1 point*) List the Medicaid costs not reflected in the Arizona calibrated model.

(h) (*3 points*) List and explain the considerations in the selection of risk characteristics according to ASOP 12.

****END OF EXAMINATION****

USE THIS PAGE FOR YOUR SCRATCH WORK