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**SOCIETY OF ACTUARIES**  
**Group and Health – Company/Sponsor Perspective**

# Exam CSP-GH

## MORNING SESSION

**Date:** Friday, May 9, 2008  
**Time:** 8:30 a.m. – 11:45 a.m.

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### INSTRUCTIONS TO CANDIDATES

#### General Instructions

1. This examination has a total of 120 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 60 points).
  - a) The morning session consists of 11 questions numbered 1 through 11.
  - b) The afternoon session consists of 11 questions numbered 12 through 22.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 since 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 morning or afternoon session for Exam CSP-GH.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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**\*\*BEGINNING OF EXAMINATION\*\***  
**CSP-GH: GROUP AND HEALTH**  
**Morning Session**

- 1.** (3 points) You are the consulting actuary for LAS HMO. You have been asked to provide an overview of managed care regulations.
- (a) Discuss state regulatory issues for HMO plans.
  - (b) Describe requirements typically found in state managed care legislation.
- 2.** (5 points) You work in the marketing department of a managed care organization (MCO) in the U.S.
- (a) Describe the challenges facing MCOs in today's marketplace.
  - (b) Describe major steps in the sales process and marketing's role in each of them.
  - (c) Describe criteria used for selecting advertising media.

- 3.** (5 points) Your CEO has asked you to model expected costs under the U.S. Medicare Part D standard prescription drug benefit plan for his mother, father, and uncle. The CEO has provided you with the following 2005 pharmacy costs for his family members from their prescription drug carrier. The costs are as follows:

	Member OOP	Total Cost
Father	\$1,200	\$1,500
Mother	\$5,000	\$6,000
Uncle	\$6,800	\$8,000

Assume that the rate of increase in prescription drugs is 7% per year. You also made the simplifying assumption that the 2007 benefits would be the same as the 2006 U.S. Medicare standard prescription drug benefit plan.

- (a) Estimate the 2007 total cost for each of these people under the Medicare Part D plan. Do not consider the impact of any member premium.
- (b) Estimate the 2007 costs that will be incurred for each family member by:
- (i) the member,
  - (ii) the federal government, and
  - (iii) their health plans.

4. (7 points) ABC Corporation is considering a risk transfer strategy that will cost \$7 million and will reduce its risk by 50%. You are the risk manager for ABC Corporation, and have been given the following:

Economic Capital Requirements (in millions)	
Credit Risk	\$75
Market Risk	\$50
Operational Risk	\$75
Diversification	-\$25
<u>Total Economic Capital</u>	<u>\$175</u>
Cost of risk	15%

- (a) Discuss the types of alternative risk transfer (ART) products.
- (b) Describe advantages and disadvantages of ART.
- (c) Determine if ABC Corporation should pursue this strategy. Show your work.

5. (11 points) You are the Chief Actuary of Eternal Vigilance Insurance (EVI). EVI has established aggressive 2009 strategic targets and operational goals. You have been asked to implement stronger risk management processes to address potential risks associated with achieving these targets.

Specific targets and actions in the 2009 strategic plan include:

	2007 Actual	2009 Target
<b>Targets</b>		
Target Loss Ratio	90%	85%
Target Margin	1%	5%
<b>Operational and Pricing Actions</b>		
Increase Sales (new members)	100,000	150,000
Reduce Commission Load	8%	6%
Reduce Expenses	12%	10%
Claim Accuracy	99.99%	98.0%
Claim Turnaround Time	45 days	30 days
Claim Cost Trend	10%	8%
Utilization Trend	3%	3%
Reinsurance Attachment Point	\$300,000	\$500,000
Increase % of Capitated Providers	0%	25%
Traditionally Contracted Providers	% of billed charges	Fee Schedule

- (a) (1 point) Outline benefits of establishing a formal ERM process.
- (b) (1 point) Describe three major steps in implementing a framework for ERM.
- (c) (3 points) Describe the operational and pricing categories of risk which might need to be considered in establishing a framework for reviewing risks.
- (d) (3 points) Describe specific risks to which the company could be exposed to due to the actions being taken above.
- (e) (3 points) Discuss keys to success you will want to consider in moving your current fee-for-service providers to capitation contract.

- 6.** (4 points) You recently attended an ERM Symposium on economic capital.
- (a) Describe the pitfalls a company might face if it does not consider embedded value of profits when making decisions.
  - (b) Discuss the benefits of economic capital.
  - (c) Outline the challenges of implementing economic capital.
- 7.** (5 points) HAL Company offers small group health insurance in several states. The regulations in these states require premium rates to be filed prior to use. You are the small group pricing actuary responsible for these filings.
- (a) Describe the actuarial standards you should consider in developing your rate filings.
  - (b) Describe the components of small group rating reform law that might affect your rate filings.

- 8.** (6 points) You are an actuary for an insurance company that does business in the U.S. and Canada. You have been asked to prepare a presentation on financial reporting.
- (a) (3 points) Discuss the major types of group insurance financial reporting in the U.S., including their purpose and how they relate to each other.
  - (b) (2 points) Discuss Canadian financial reporting and how it differs from the U.S.
  - (c) (1 point) Describe the various ruling bodies that govern the setting of reserves and liabilities.
- 9.** (7 points) You are the actuary for ABC company that is acquiring XYZ insurance company. You are responsible for reviewing the selling company's (XYZ's) actuarial appraisal.
- (a) Describe the key assumptions and considerations underlying the actuarial appraisal developed by the selling company, XYZ.
  - (b) Describe circumstances that lead to a proper buyer/seller fit.
  - (c) Discuss typical adjustments a potential buyer would make to the seller's analysis.
  - (d) Describe the potential uses of the buyer's actuarial analysis after the acquisition.
- 10.** (4 points) You are the consulting actuary for a regional HMO and have been asked to calculate the year-end claims IBNR.
- (a) Describe problems typically associated with HMO IBNR calculation approaches.
  - (b) Outline factors to consider when determining the claim trend level to use for reserving.

- 11.** (3 points) You are the consulting actuary preparing to meet with the Board of Directors of a medical association that is considering starting an HMO.
- (a) List factors that may be relevant in determining whether an HMO qualifies as a tax-exempt charitable organization.
  - (b) Discuss the means by which an HMO is identified as an insurance company for tax purposes.
  - (c) Discuss how substantial and insubstantial insurance activities of a tax-exempt health risk-bearing entity may be treated for tax purposes.

**\*\*END OF EXAMINATION\*\***  
**MORNING SESSION**

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**SOCIETY OF ACTUARIES**  
**Group and Health – Company/Sponsor Perspective**

# Exam CSP-GH

## AFTERNOON SESSION

**Date:** Friday, May 9, 2008

**Time:** 1:30 p.m. – 4:45 p.m.

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### INSTRUCTIONS TO CANDIDATES

#### General Instructions

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**\*\*BEGINNING OF EXAMINATION\*\***  
**CSP-GH: GROUP AND HEALTH**  
**Afternoon Session**

- 12.** *(4 points)* You have been asked to prepare a presentation for the disability products sold by your company.
- (a) *(1 point)* Describe the product development techniques used for group disability products.
  - (b) *(3 points)* Compare and contrast individual versus group disability products.

- 13.** (11 points) You are an actuary for the Hilts Group. Your CEO has asked you to provide an assessment of the Steve McQueen Health Insurance Company (SMHIC). The following information was taken from the SMHIC financial statements:

	Years Ended December 31,	
<u><i>Income Statement</i></u>	2007	2006
December 31,		
Operating revenues:		
Managed care premiums	\$6,857,301	\$5,728,162
Management services	876,455	883,084
Total operating revenues	7,733,756	6,611,246
Operating expenses:		
Medical costs	5,439,964	4,550,871
Selling, general, administrative	1,339,522	1,182,381
Depreciation and amortization	113,267	86,176
Total operating expenses	6,892,753	5,819,428
Operating earnings	841,003	791,818
Interest expense	52,446	58,414
Other income, net	107,791	66,021
Earnings before income taxes	896,348	799,425
Provision for income taxes	336,303	297,786
Net earnings	\$560,045	\$501,639
<u><i>Balance Sheet</i></u>		
December 31,	2007	2006
Assets:		
Total current assets	\$2,134,382	\$1,325,702
Long-term investments	1,130,572	1,125,632
Property and equipment, net	315,105	351,427
Goodwill	1,620,272	1,612,390
Other intangible assets, net	388,400	419,352
Other long-term assets	76,376	60,669
Total assets	\$5,665,107	\$4,895,172

### 13. Continued

Liabilities and stockholders' equity:

Current liabilities:		
Medical liabilities	\$1,121,151	\$752,774
Accounts payable	460,489	442,785
Deferred revenue	60,349	64,668
Current portion of long-term debt	10,000	10
Total current liabilities	1,651,989	1,270,227
Long-term debt	750,500	760,500
Other long-term liabilities	309,616	309,742
Total liabilities	2,712,105	2,340,469
Stockholders' equity	2,953,002	2,554,703
Total liabilities and stockholders' equity	\$5,665,107	\$4,895,172

- (a) Define the Dupont Formula as a means to determine ROE for an entity. Discuss the individual components of the formula.
- (b) Calculate the ROE for fiscal years 2006 and 2007. Show your work.
- (c) Identify and discuss the change in the principal components of ROE from 2006 to 2007. Show your work.
- (d) Discuss the ways in which ROE may or may not be the most reliable measure of financial performance.
- (e) Identify and calculate alternative measurements. Show your work.

- 14.** (7 points) You are given the following regarding your company's retirement benefit plan, which includes health, dental, and vision.

	<b>Prior Year</b>	<b>Current Year</b>	
APBO =	\$2,200,000	\$2,850,000	(beginning of year)
Service Cost =	\$ 350,000	\$ 370,000	
Benefits Paid =	\$ 210,000	\$ 200,000	(paid throughout the year)

Market Value of Plan Assets at the Start of the current year = \$22,000

Discount rate = 7.50%

- (a) Determine the interest cost.
- (b) Determine the value of the plan's gain or loss, and the amount, if any, which must be recognized under FAS 106.
- (c) Describe the restrictions that FAS 106 places on the methods of amortizing gains or losses.
- (d) Describe the accounting treatment and different approaches that can be used under FAS 106 if management decides to eliminate vision care for future retirees.

**15.** (7 points) You are the consulting actuary for Big Fish Insurance Co. (BFIC), who is exploring an acquisition of Little Fish Insurance Co. (LFIC). LFICs product portfolio consists of:

- group life insurance with waiver of premium option while disabled,
- AD&D,
- Short-Term & Long-Term Disability,
- group health insurance, and
- an HSA/Consumer-Directed Health Plan (CDHP).

BFIC has little experience with these products and its CFO has asked you to provide the following:

- (a) Claim reserve methods that might be appropriate for each of the Little Fish product lines.
- (b) Considerations in establishing these claim reserves.
- (c) Special considerations or adjustments for CDHP products.

- 16.** (7 points) You are an actuary auditing XYZ insurance company and have been given the following information for a block of group health insurance business:

Premium Mode	Annual
Premium (in millions)	\$1,200.00
Case Anniversary	September 1, 2007
Statement Date	December 31, 2007
Acquisition Expense	10%
Maintenance Expense	15%
Loss Ratio	65%

- (a) (5 points) Describe and calculate the following. Show your work.
- (i) Unearned Premium
  - (ii) Deferred Policy Acquisition Cost (DPAC)
  - (iii) Recoverability Testing
  - (iv) Premium Deficiency Reserve and DPAC (first assuming a loss ratio of 80% and then 90%)
- (b) (2 points) Briefly describe other group insurance related liabilities you would expect to find on a GAAP statement.

- 17.** (5 points) You are the chief actuary for Huddled Masses Insurance Company (HuMIC). The CFO has been reviewing the company’s orange blank and health RBC calculation. She is concerned that the \$22,740,000 calculated for “Other Underwriting Risk” is incorrect.

You are given the following:

HuMIC Disability Income Business		
<u>Coverage</u>	<u>Prior Year Incurred Claims</u>	<u>Earned Premium</u>
Group Long Term	\$38,000,000	\$45,000,000
Group Short Term	\$60,000,000	\$65,000,000
Non-Cancelable	\$30,000,000	\$35,000,000
Cancelable Individual	\$18,000,000	\$25,000,000

RBC Factors for Disability Insurance		
<u>Coverage</u>	<u>\$0 - \$50 Million</u>	<u>\$50 Million +</u>
Non-Cancelable	35%	15%
Other Individual	25%	7%
Group Long Term	15%	3%
Group Short Term	5%	3%

- (a) Provide an overview of the Claim Experience Fluctuation Risk
- (i) Define it.
  - (ii) Describe its calculation.
  - (iii) Explain the factors impacting it.
- (b) Confirm or refute your stated value of \$22,740,000. Show your work.

- 18.** (4 points) You are an actuary for Benevolent Health Insurance Company (BHIC). You have been given the following information on Braxton hospital, BHIC's exclusive facility provider.

	Admits per 1,000	Days per 1,000	LOS
Unmanaged Utilization	75	300	4.0
Optimal Managed Utilization	60	180	3.0
Optimal LOS by DRG applied to hospital case mix			2.7
The ALOS of patient audited charts			3.5
The necessary ALOS of patient audited charts			3.05
ALOS from Braxton's commercial population experience			2.9

- (a) Discuss effective ways to gauge the BHIC's degree of health care management including data elements.
- (b) Calculate Braxton's case mix/severity index. Show your work.

**19.** (4 points) ABC Company relied on your actuarial opinion in their purchase of XYZ Company. ABC Company now believes your incurred claim estimates were too low, causing them to overvalue the company. They are considering a lawsuit, and you are preparing a response.

- (a) Describe the considerations you used in developing your opinion regarding the liabilities.
- (b) Discuss the considerations you used in reviewing the information provided by XYZ for your opinion.

**20.** (5 points) The CEO of your company would like to create a new division which will offer reinsurance products. He has asked you to develop a report regarding these products.

- (a) Discuss the keys to being successful as a reinsurer.
- (b) Describe the methods of risk transfer.
- (c) Describe the considerations for reinsuring the following:
  - (i) POS products
  - (ii) PPO products
  - (iii) for Self-insured or ASO business

- 21.** (3 points) Your company is considering offering a Section 125 cafeteria plan to the employees. You have been asked to meet with the benefits committee to help them understand the tax issues in offering these benefits.
- (a) Describe the IRS requirements to establish and maintain the benefits as a cafeteria plan.
  - (b) Identify tax advantages and disadvantages for both the employee and the employer for such a plan.

- 22.** (3 points) You are the Chief Actuary for MNO Insurance Company. You have been chosen to head a committee which is developing a new individual health insurance product.

- (a) Outline the elements of a policy form
- (b) Discuss various renewal provisions

**\*\*END OF EXAMINATION\*\***  
**AFTERNOON SESSION**