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

# Exam CSP-GH

## MORNING SESSION

**Date:** Friday, November 4, 2011

**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 12 questions numbered 1 through 12.
  - b) The afternoon session consists of 10 questions numbered 13 through 22.

The points for each question are indicated at the beginning of the question. Questions 9-12 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.

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.

Tournez le cahier d'examen pour la version française.



## **CASE STUDY INSTRUCTIONS**

**The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.**



**\*\*BEGINNING OF EXAMINATION\*\***  
**Morning Session**

- 1.** (3 points) Cote de Rhone (CDR) is a large multinational company. You are the consulting actuary for CDR's pension plan. You have been asked by the senior management of CDR to prepare a document regarding the transition from Financial Accounting Standard Number 106 (FAS 106) to International Accounting Standard 19 (IAS 19).

Explain the role of the actuary under International Accounting Standards Board (IASB) rules pertaining to the actuarial and accounting valuation of post-retirement benefit.

- 2.** (4 points) You have been asked by the Chief Actuary of ABC HMO to prepare a study assessing the financial condition of the HMO.

- (a) (1 point) Describe the steps to initiate the study.
- (b) (3 points) Describe the key practical considerations in planning and conducting the study.

3. (5 points) You are the valuation actuary for a long term disability carrier. Social Security awards will reduce expected benefits by \$10,000 per year starting in year 3. Experience has found that 80% of claimants will receive the award.

Your current valuation assumptions are:

- Benefit period is 5 years
- Interest rate is 5% annually
- Termination rates are a combination of both mortality and recovery rates
- Contractual benefits shown below are payable at the end of the year:

	Benefit	Termination Rates
Year 1 Benefit	\$24,000.00	20%
Year 2 Benefit	\$25,200.00	15%
Year 3 Benefit	\$26,460.00	10%
Year 4 Benefit	\$27,783.00	5%
Year 5 Benefit	\$29,172.15	3%

- (a) (3 points) Evaluate the present value of this benefit, including the Social Security offset. Show all work.
- (b) (1 point) Describe aspects of long term disability contracts that are important with respect to claims reserves.
- (c) (1 point) Describe considerations for estimating incurred claims for long term disability contracts found on Actuarial Standards of Practice #5 “Incurred Health and Disability Claims.”

**4.** (4 points)

(a) (2 points) Create a table that identifies care management programs with respect to:

- (i) Place of service
- (ii) Provider of service
- (iii) Timing of service
- (iv) Features of service

In 2010, Pinot Noir Health Insurer (PN) started a disease management program with an outside vendor designed specifically for the management of diabetes. The vendor charges PN \$200 per member per year (PMPY) for each member contacted, regardless of the vendor's success of engagement with each member.

Diabetes-Related Claims Per Member Per Month (PMPM)

	<u>2009</u>	<u>2010</u>	<u>Member Months</u>
Diabetic Members Contacted by Program	\$250	\$240	1,000
All Other Members with Diabetic Claims	\$250	\$255	1,200

Vendor's Engagement Rate = 20%

Assume all members were enrolled for the full 12 months.

(b) (2 points)

- (i) Calculate the Return on Investment (ROI) of this program. Show your work.
- (ii) Recommend whether the program should be continued. Defend your answer.

- 5.** (5 points) You are a stop loss insurance actuary and are using a vendor's predictive model to improve your pricing accuracy and speed.
- (a) (2 points) Identify the differences between leveraged trend and leveraged variability.
  - (b) (1 point) Identify the different ways that stop loss carriers deal with members they expect to exceed the specific stop loss threshold.
  - (c) (2 points) Describe how you would customize and use your vendor's predictive model in order to price a stop loss contract.

- 6.** (3 points)
- (a) (1 point) Describe potential solutions to inadequate access to health care services in the United States.
  - (b) (1 point) Describe potential solutions to inadequate access to insurance coverage in the United States.
  - (c) (1 point) Describe the unintended consequences that may arise from legislators' efforts to address these access problems.

**7.** (3 points)

- (a) (2 points) Describe the funding, purchasing habits, and distribution channels that different sized employer groups might use in the health insurance market.
- (b) (1 point) List other considerations for employer groups unrelated to size.

**8.** (4 points) You are the pricing actuary at Just Health Insurance Company (JHIC) responsible for certifying the actuarial equivalence for Prescription Drug Plans (PDP) and Medicare Advantage Prescription Drug Plans (MA-PDP).

You have been asked by the Chief Financial Officer (CFO) of JHIC to prepare a presentation summarizing the process of certification of the actuarial equivalence of PDPs and MA-PDPs.

- (a) (1 point) List the available ASOPs that can be used as valuable sources of guidance when performing the actuarial certification.
- (b) (1 point) Identify the data sources available in developing manual rates.
- (c) (1 point) Define the factors that need to be considered for pricing.
- (d) (1 point) Describe the components of documentation supporting the actuarial certification.

**Questions 9 - 12 pertain to the Case Study.  
Each question should be answered independently.**

- 9.** (8 points) Great Expectations Insurance Company (GEIC) is exploring alternative funding arrangements for large medical groups (>50 employees).
- (a) (2 points) Describe what an Experience-Rating Arrangement is and explain how experience-rated premium would be calculated for medical insurance.
  - (b) (4 points) Calculate the 2011 Year-End Balance for the entire block of large groups using the 2011 financial projection assumptions. Assume all GEIC's large medical groups (>50 employees) renewed and entered a participating arrangement on January 1, 2011. Show your work.
  - (c) (2 points) Compare and contrast a Deferred Premium Arrangement with an Annual Retrospective Premium Arrangement.

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Each question should be answered independently.**

- 10.** (8 points)
- (a) (3 points) Calculate the forecasted 2011 Operating Margin for Great Expectations' Small Group business based on Charles Dickens' email of March 2, 2011. Show your work.
  - (b)
    - (i) (2 points) Determine the impact on Great Expectations' operating margin if small group medical rates are reduced as proposed by Oliver Twist in his email of March 4, 2011. Show your work.
    - (ii) (1 point) Recommend whether the company should proceed with Oliver's proposal. Justify your answer.
  - (c) (2 points) The company decides to implement Oliver's proposal. List three strategies and explain how each could mitigate the impact to operating margin.

**Questions 9 - 12 pertain to the Case Study.  
Each question should be answered independently.**

- 11.** (5 points) Great Expectations Insurance Company's (GEIC) tax advisor is examining its current tax liabilities, both as a stand-alone company and combined with potential acquisition Dombey Securities Management (DSM).
- (a) (1 point) Characterize the different sellers of group insurance products.
  - (b) (2 points) For calendar year 2010:
    - (i) Determine if GEIC qualifies as an insurance company under Internal Revenue Service (IRS) regulations. Show your work.
    - (ii) Determine if DSM qualifies as an insurance company under IRS regulations. Show your work.
    - (iii) Determine if the combined company would have qualified as an insurance company under IRS regulations. Show your work.
  - (c) (1 point) Compare and contrast the treatment of accrued claim liabilities between insurance companies and HMOs which are not considered insurance companies.
  - (d) (1 point)
    - (i) List factors in IRS Section 501c(3) which are relevant in determining whether a carrier qualifies as a tax-exempt charitable organization.
    - (ii) Assuming the potential acquisition with DSM did not happen, determine if GEIC would qualify as a tax-exempt charitable organization under Section 501c(3) as it was.

**Questions 9 - 12 pertain to the Case Study.  
Each question should be answered independently.**

- 12.** (8 points) Bob is the Vice President of Insured Medical and Dental lines of business at Great Expectations Insurance Company (GEIC). He is responsible for evaluating the capital needs of his lines of business before and after a potential acquisition of Copperfield Insurance Company's (CIC) Dental Unit.

Recent changes in law have updated the Underwriting Risk Factors Table for Health Risk Based Capital to categorize revenue in billions instead of millions.

Underwriting Risk Factors by Underwriting Revenue Tier

Coverage	\$0-3 Billion	\$3-25 Billion	\$25+ Billion
Comprehensive	15.0%	15.0%	9.0%
Medicare Supplement	10.5%	6.7%	6.7%
Dental	12.0%	7.6%	7.6%
Medicare Part D	14.1%	14.1%	10.9%
Other	13.0%	13.0%	13.0%

Managed Care Risk Adjustment Factor

Category	Description	Factor
0	Other	1.00
1	Contractual Fee Payments	0.85
2	Bonus/Withhold Arrangements	0.75
3	Capitation	0.40
4	Non-Contingent Expenses	0.25

You have also been given the following:

- Underwriting risk factors are based on 2010 premiums.
- Managed Care Adjustment Factors are based on 2010 claims.
- GEIC will keep CIC's Dental Provider contracts, which are all capitated.
- Assume CIC's Dental units 2010 membership, premiums, and claims are equal to GEIC's Dental data from 2008.
- GEIC's Insured medical offers comprehensive coverage only.
- GEIC's Large Group provider contracts are all either fee schedule, per diem, or case rates.
- GEIC's Small Group provider contracts are entirely Bonus/Withhold arrangements.
- GEIC's Dental provider contracts are all capitated.

**Questions 9 - 12 pertain to the Case Study.  
Each question should be answered independently.**

**12. Continued**

- (a) (2 points) Describe each of the risk components used in the health risk based capital formula.
- (b) (6 points) Calculate the overall change in H2 Underwriting Risk after the acquisition of CIC's Dental unit for only Bob's lines of business. Show your work.

**\*\*END OF EXAMINATION\*\*  
Morning Session**

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