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**SOCIETY OF ACTUARIES**  
**Group and Health Core Exam – U.S.**

# Exam GHCORU

## AFTERNOON SESSION

**Date:** Tuesday, October 28, 2014

**Time:** 1:30 p.m. – 3:45 p.m.

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### INSTRUCTIONS TO CANDIDATES

#### General Instructions

1. This afternoon session consists of 6 questions numbered 10 through 15 for a total of 40 points. 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 morning or afternoon session for Exam GHCORU.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.



**\*\*BEGINNING OF EXAMINATION\*\***

**Afternoon Session**  
***Beginning with Question 10***

**10.** (5 points)

- (a) (1 point) Define the key components of CDHP.
- (b) (2 points)
- (i) Describe the characteristics of HRAs and HSAs.
- (ii) Explain why certain attributes of HSAs make them more popular with employees than HRAs

You work as an actuary at Gilded Fillies, an insurance company. Your triplet cousins Blanche, Dorothy, and Rose, who are recent college graduates, just started working there too and have to enroll into a medical plan. Gilded Fillies offers the following two plans for their employees for the same premium.

- Plan A: HDHP with \$3,000 deductible and 80% coinsurance with the employer contributing \$1,500 to an HSA
- Plan B: PPO with \$1,000 deductible and 80% coinsurance with the employer contributing \$1,000 to an HRA

Blanche, Dorothy, and Rose have reached out to you for your advice regarding which plan to enroll in since they know you helped design these plans, and you have asked them for a brief health history.

- Blanche is a triathlete with no health problems other than an occasional sprain
  - Dorothy has asthma and type 1 diabetes and has averaged around \$3,500 in non-preventive medical expenses over the last few years and enjoys playing soccer recreationally
  - Rose hasn't been to a doctor in four years, smokes at least a pack of cigarettes a day, and doesn't really know much about her current state of health
- (c) (2 points) Recommend a plan in which each of them should enroll based on the information above. Justify your answer.

- 11.** (7 points) You work for Fillmore Consultants and provide benefits consulting to Mission Moving & Storage, who provides self-insured medical, dental, and vision benefits to its employees.

Mission's current dental plan:

- Type I/II/III services covered at coinsurance levels of 90%/70%/50% with a \$100 deductible
  - Annual maximum of \$2,000 on Type II/III Services
  - Non-contributory and participation is 100%
- (a) (1 point) Describe common provisions aimed at limiting anti-selection in dental plans.
- (b) (2 points) List common underwriting and rating parameters for group dental coverage, and describe considerations in using each.

As part of the union negotiations, Mission's employees have requested the following changes:

- Elimination of the \$100 deductible on Type II/III services
- An increase in Type I/II/III coinsurance levels to 100%/80%/70%
- A new orthodontic benefit, with coverage at 60%

In return, the union has conceded to make the plan contributory, with employees covering 30% of expected claims and expenses in the form of payroll deductions.

- (c) (2 points) Evaluate both the favorable and unfavorable impacts the proposed changes would have on Mission's costs.
- (d) (2 points) Recommend next steps to enable Mission to make a counterproposal.

**12.** (8 points) Company ABC is a large employer that for the past 10 years has provided the following benefits to its employees:

- Comprehensive Fully-Insured PPO Medical and Prescription Drug Coverage
- Voluntary Dental
- Voluntary Vision

Company ABC would like you to re-evaluate the compensation and benefits they offer using the Functional Approach.

- (a) (1 point) Explain why organizations use an organized system for classifying and analyzing risks to evaluate employee benefits strategies.
- (b) (1 point) Identify considerations in establishing an Employer's Total Compensation Policy.
- (c) (3 points) List considerations used in analyzing the benefits presently available at Company ABC and explain the rationale for reviewing these considerations.
- (d) (1 point) Describe the advantages of voluntary benefits.
- (e) (2 points) Explain how Company ABC can control adverse selection in choosing its voluntary benefits.

**13.** (8 points) You are an actuary for Beluga Health which specializes in providing insurance coverage to physicians. Currently, you insure a block of 10,000 long term disability (LTD) policies for 45-year-old male physicians. All policies have a six month elimination period and the following definition of disability: 24 month own occupation followed by any occupation to age 65.

(a) (1 point)

- (i) Define the any occupation definition of disability.
- (ii) Define the own occupation definition of disability.
- (iii) Explain how and why insurers use these definitions in combination in a policy.

(b) (3 points) Define each of the following LTD benefit provisions and assess how each incents a change in claimants' behavior:

- (i) Elimination period
- (ii) Benefit period
- (iii) Benefit amounts
- (iv) Offsets for other sources of income
- (v) Pre-existing condition exclusion

You have been given the following pricing assumptions for this coverage:

Lapse rates:

- Year 1: 35%
- Year 2: 20% of policies persisting from year 1
- Year 3: 10% of policies persisting from year 2
- Year 4 +: 0% of policies persisting from year 3

Once a member becomes disabled they do not lapse.

Disability rates (assume disabilities occur at the beginning of the year):

- Age 45: 0.5%
- Age 46: 0.6%
- Age 47: 0.7%

### 13. Continued

Probability of someone disabled meeting the any occupation definition of disability: 38%  
Probability of remaining disabled for greater than 12 months, given originally disabled: 84%  
Probability of remaining disabled for greater than 24 months, given originally disabled: 70%

Average annual salary: \$200,000

Annual salary inflation: 0%

Interest rate: 0%

Benefit replacement ratio: 60%

Disability claims are paid out annually based on the claimants status at the end of the year.

- (c) (4 points) Calculate the expected claim payments for each of the first three years since disability. Show your work.

**14.** (8 points) You are an actuary at Golden Gate Corporation, which currently offers medical benefits to its employees. You have been asked to develop a plan to offer prescription drug coverage for 2015.

- (a) (1 point) List and describe different prescription drug coverage types that are typically available.
- (b) (1 point) List and describe different formulary options that are available for prescription drug plans.

The PBM provides you the following 2013 claims experience for a group with similar characteristics to your own:

	Allowed Costs	Scripts	Annual Unit Cost Trend	Annual Utilization Trend
Non Specialty	\$45,000,000	900,000	10%	2%
Specialty	\$15,000,000	100,000	25%	4%

Assumed Distribution of Number of Scripts:

	Non Specialty	Specialty
Tier 1	70%	0%
Tier 2	15%	0%
Tier 3	10%	0%
Tier 4	5%	100%

Assumed Distribution of Allowed Cost:

	Non Specialty	Specialty
Tier 1	45%	0%
Tier 2	20%	0%
Tier 3	20%	0%
Tier 4	15%	100%

You are recommending offering the following 4-tier benefit structure:

	Member Cost Share
Tier 1	\$10 copay
Tier 2	\$25 copay
Tier 3	\$40 copay
Tier 4	25% coinsurance



## 14. Continued

- (c) (2 points) Explain how ASOP 23 applies to this situation.
- (d) (4 points) Calculate the expected utilization and plan cost, both by tier and in total, for 2015 for the proposed benefits. Show your work.

- 15.** (4 points) You are an actuary for a consulting firm named Delight. Your boss had to unexpectedly leave for Turkey, and asked you to calculate a retrospective refund for one of his large group clients. This was your first time calculating one, so you had to ask around Delight for guidance.

You are given the following:

- Premiums: \$500,000
- Investment earnings on money held: \$15,000
- Claims charged: \$475,000
- Expenses charged: \$50,000
- Risk charge: \$20,000
- Rate stabilization reserve addition: \$10,000
- Profit: \$30,000
- Prior formula balance carried forward: \$75,000

- (a) (1 point) Define prospective experience rating and retrospective experience rating.
- (b) (2 points) Define each component listed above with respect to retrospective experience rating.
- (c) (1 point) Calculate the retrospective refund. Show your work.

**\*\*END OF EXAMINATION\*\***  
**Afternoon Session**

**USE THIS PAGE FOR YOUR SCRATCH WORK**