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

# Exam GHCORU

## AFTERNOON SESSION

**Date:** Wednesday, November 2, 2016

**Time:** 1:30 p.m. – 3:45 p.m.

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### INSTRUCTIONS TO CANDIDATES

#### General Instructions

1. This afternoon session consists of 5 questions numbered 8 through 12 for a total of 40 points. The points for each question are indicated at the beginning of the question. Questions 9 and 10 pertain to the Case Study.
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.



## **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\*\***

**Afternoon Session**  
***Beginning with Question 8***

- 8.** (8 points) XYZ Inc. is a large U.S. employer that uses the functional approach in the development of their employee benefits plan. The benefit plan includes the following three health insurance options for its employees:

|        | <b>Deductible<br/>(Individual /<br/>Family Limit)</b> | <b>Employer<br/>Coinsurance</b> | <b>Out of Pocket<br/>Maximum<br/>(Individual / Family<br/>Limit)</b> |
|--------|---|---------------------------------|--|
| Plan 1 | \$500 / \$1,000                                       | 80%                             | None   |
| Plan 2 | \$500 / \$1,000                                       | 70%                             | \$2,500 / \$5,000  |
| Plan 3 | \$500 / \$1,000                                       | 50%                             | \$1,500 / \$3,000  |

John Sutter, who works for XYZ, is enrolled with Family coverage.

John's spouse, Rebecca, is also enrolled with Family coverage with her employer. Her employer's plan design includes:

- A deductible of \$250 per individual with a family limit of \$500
- Employer coinsurance of 80%
- An out of pocket maximum of \$4,000 per individual with a family limit of \$8,000

John and Rebecca have one child, Owen. All family members are covered under both plans.

The plans coordinate benefit payments as follows:

- The employee's plan is first payer, then the spouse's plan
- After the first plan has paid, the second plan covers any remaining claim amount according to its benefit structure.

## 8. Continued

You have been asked to audit the claims paid for this family. In the current year, the following claims have been made:

| Date        | Member  | Claim amount | Total paid by all benefit plans | Total paid by member |
|-------------|---------|--------------|---------------------------------|----------------------|
| February 20 | John    | \$300        | \$40                            | \$260                |
| March 6     | Rebecca | \$400        | \$120                           | \$280                |
| April 30    | Owen    | \$500        | \$400                           | \$100                |
| May 1       | John    | \$200        | \$160                           | \$40                 |
| May 30      | Owen    | \$700        | \$560                           | \$140                |

- (a) (2 points) Describe the functional approach for employee benefit plan design.
- (b) (1 point) Describe the general purposes served by having the employees share in the cost of the plan.
- (c) (1 point) Determine which parent's plan is first payer for Owen. Show your work.
- (d) (2 points) Determine the plan that John selected. Assume the deductible counts toward any out of pocket maximums. Show your work.

An analyst for XYZ projected the following claim amounts for next year:

| Date        | Member  | Claim amount |
|-------------|---------|--------------|
| February 20 | John    | \$3,000      |
| March 6     | Rebecca | \$1,500      |
| April 30    | Owen    | \$1,500      |
| May 1       | John    | \$24,000     |

- (e) (2 points) Determine which of John's plans would minimize the family's out-of-pocket costs next year. Show your work.

**Questions 9 and 10 pertain to the Case Study.  
Each question should be answered independently.**

- 9.** (6 points) Quantum Health Insurance will be introducing a new ACA individual Point of Service (POS) product in 2017. This product is intended to bridge the gap between its existing HMO and PPO offerings by allowing some out of network services and a combination of copays and deductibles in its plan designs. The individual HMO and PPO plans are its only current ACA plans. Quantum anticipates this product will attract membership currently in the existing products, as well as new uninsured membership.

Quantum provides you with the following data for 2014:

|                               | <b>Average<br/>Paid-to-Allowed<br/>Ratio</b> | <b>Non Essential Health<br/>Benefits Allowed<br/>PMPM</b> |
|-------------------------------|--|---|
| HMO Individual                | 0.715  | \$2.76  |
| PPO Individual                | 0.862  | \$3.65  |
| Quantum Legacy III Individual | 0.850  | \$1.25  |

Additionally, Quantum’s annual medical and pharmacy trend assumption is 6.8%.

Quantum’s new CFO is concerned about adverse selection in the new POS product. The CFO provides you with the following mapping for 2017, which shows the projected enrollment into the POS product:

|                               | <b>POS Enrollment Source</b> | <b>2014 Average<br/>Age/Gender Factor</b> |
|-------------------------------|------------------------------|---|
| Existing ACA Products         | 5%                           | 1.015                                     |
| Uninsured                     | 20%                          | 1.256                                     |
| Quantum Legacy III Individual | 29%                          | 1.004                                     |
| Other Carriers                | 46%                          | 1.085                                     |

## 9. Continued

Additionally, the CFO provides you with the following estimated 2014 allowed claims PMPM for the Uninsured and Other Carriers populations:

|                | <b>2014 Claims PMPM on an Allowed Basis</b> |
|----------------|---|
| Uninsured      | \$472.31                                    |
| Other Carriers | \$398.65                                    |

- (a) (1 point) Describe the ACA guidance on covered services and exclusions.
- (b) (5 points) The Index Rate under the ACA is defined as the expected average allowed PMPM claims for essential health benefits of the carrier's entire book of ACA products. Calculate a recommended morbidity adjustment that can be applied to the Index Rate. Show your work.

**Questions 9 and 10 pertain to the Case Study.  
Each question should be answered independently.**

- 10.** (10 points) You are a group Long Term Care (LTC) pricing actuary for Insurer XYZ responding to a request for proposal for a two-year LTC contract for a small employer. The prospective client will evaluate proposals from you and from Thunderball and will award the contract to the insurer with the highest present value of savings.

The employer provides the following information:

- Employees fall into one of three categories. The expected distribution of employees is:

|                | <b>Year 1 of Contract</b> | <b>Year 2 of Contract</b> |
|----------------|---------------------------|---------------------------|
| Female, age 37 | 35%                       | 50%                       |
| Male, age 47   | 30%                       | 35%                       |
| Female, age 52 | 35%                       | 15%                       |

- The daily benefit is \$100 with no increase for inflation
- The benefit period is two years
- The elimination period is three months

Assume the following:

- XYZ's retention matches Thunderball's retention
- XYZ's LTC death and recovery rates match Thunderball's long-term disability (LTD) death and recovery rates
- Death and recovery rates for females are 90% of the corresponding rates for males
- The annual discount rate is 3.50%
- XYZ's annual claim incidence rates are as follows:
  - Female, age 37: 1.8 per thousand
  - Male, age 47: 1.9 per thousand
  - Female, age 52: 2.0 per thousand
- The full benefit is paid at the sooner of the end of the calendar year or at the end of the benefit period
- The prospective client can obtain an annual internal rate of return of 15%

- (a) (2 points) List and describe key characteristics that should be considered when pricing group LTD and group LTC plans.
- (b) (8 points) Evaluate whether your company will win the business. Show your work.

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11. (10 points) You are an actuary for Insurer XYZ, whose PBM contract is expiring at the end of 2016. You have been asked by your CEO to evaluate PBM proposals received from the current provider and a competitor for 2017.

Details of the current contract terms and proposed contract terms for 2017 are as follows:

**2016 PBM Contract Terms:**

|        | Discounts off AWP |         |           | Dispensing fee per script |         |           |
|--------|-------------------|---------|-----------|---------------------------|---------|-----------|
|        | Brand             | Generic | Specialty | Brand                     | Generic | Specialty |
| Retail | 15.2%             | 72.5%   | 15.2%     | \$1.75                    | \$1.25  | \$1.75    |
| Mail   | 20.2%             | 76.5%   | 14.2%     | \$0.50                    | \$0.25  | \$0.50    |

**Proposed 2017 Contract Terms – Current PBM:**

|        | Discounts off AWP |         |           | Dispensing fee per script |         |           |
|--------|-------------------|---------|-----------|---------------------------|---------|-----------|
|        | Brand             | Generic | Specialty | Brand                     | Generic | Specialty |
| Retail | 16.8%             | 74.2%   | 16.2%     | \$1.25                    | \$1.25  | \$1.25    |
| Mail   | 21.5%             | 78.4%   | 15.0%     | \$0.00                    | \$0.00  | \$0.00    |

**Proposed 2017 Contract Terms – Competitor PBM:**

|        | Discounts off AWP |         |           | Dispensing fee per script |         |           |
|--------|-------------------|---------|-----------|---------------------------|---------|-----------|
|        | Brand             | Generic | Specialty | Brand                     | Generic | Specialty |
| Retail | 15.5%             | 75.0%   | 15.5%     | \$1.00                    | \$1.00  | \$1.00    |
| Mail   | 20.5%             | 79.0%   | 14.0%     | \$0.00                    | \$0.00  | \$0.00    |

You are provided with the following information to support your evaluation:

**2015 drug claims and utilization experience:**

|                | Brand        | Generic      | Specialty    |
|----------------|--------------|--------------|--------------|
| <b>AWP</b>     |              |              |              |
| Retail         | \$36,628,000 | \$86,861,000 | \$4,319,000  |
| Mail           | \$5,796,000  | \$10,322,000 | \$29,467,000 |
| <b>Scripts</b> |              |              |              |
| Retail         | 174,420      | 851,580      | 2,112        |
| Mail           | 8,280        | 46,920       | 8,120        |

**Annual trend rates:**

|                    | Brand | Generic | Specialty |
|--------------------|-------|---------|-----------|
| <b>Cost</b>        | 14.0% | 4.0%    | 13.0%     |
| <b>Utilization</b> | -2.3% | 2.7%    | 5.0%      |

## 11. Continued

- XYZ projects 120,000 members in 2017.
  - There is a new blockbuster specialty drug expected to be added to XYZ's drug formulary on January 1, 2017. The drug will be an add-on therapy for a disease which has prevalence of 180 per 100,000 members. Furthermore:
    - The estimated AWP per monthly script is \$750
    - 50% of afflicted members are assumed to take the drug monthly
    - XYZ will require the drug to be obtained through mail order
- (a) (2 points) Explain the components of health insurance pricing trends and how each applies to prescription drugs.
- (b) (8 points)
- (i) (2 points) Calculate the expected PMPM claims cost for 2017 under the current PBM contract terms. Show your work.
  - (ii) (5 points) Calculate the expected 2017 savings under each PBM contract proposal. Show your work.
  - (iii) (1 point) Define potential criteria for awarding the contract and recommend a proposal for approval. Justify your recommendation.

12. (6 points) Company XYZ is a global firm specializing in the development of electronic gaming systems. Its workforce is comprised of software developers, sales specialists and warehouse employees. The company provides all U.S.-based employees with a comprehensive employee benefits program.

You are the benefits director for Company XYZ. Among your many roles is to issue Summary Plan Descriptions (SPDs) to employees on the day of their six-month service anniversary with XYZ. Today's email is as follows:

*From: XYZ benefits director  
Subject: Summary Plan Description (SPD)  
Date: September 30, 2016*

*Congratulations on celebrating your six-month anniversary with XYZ today! In accordance with federal law, please review the attached SPD and let me know if you have any questions. Thank you!*

*XYZ benefits director*

The accompanying SPD is as follows:

**Plan Name:** Company XYZ Group Benefits Plan  
**Plan Year:** January 1 to December 31  
**Eligibility:** All employees and their eligible dependents  
**Waiting Period:** 30 days

**Benefit Summary:**

|  |   |
|--|---|
| <i>Deductible</i>                          | <i>\$1,000 in-network; \$2,000 out-of-network</i>   |
| <i>General Coinsurance</i>                 | <i>10% in-network; 20% out-of-network</i>           |
| <i>Out-of-Pocket Maximum</i>               | <i>\$10,000 in-network; \$20,000 out-of-network</i> |
| <i>Primary Care Physician</i>              | <i>Deductible + Coinsurance</i>                     |
| <i>Specialists</i>                         | <i>Deductible + Coinsurance</i>                     |
| <i>Inpatient &amp; Outpatient Hospital</i> | <i>Deductible + Coinsurance</i>                     |
| <i>Pharmacy</i>                            | <i>Deductible + Coinsurance</i>                     |

**Submission of Claims:**  
 Download and complete the claims submission form found on the XYZ benefits website ([www.xyz.com/benefits](http://www.xyz.com/benefits))

## 12. Continued

- (a) (2 points) List the general characteristics that make the communication of benefit programs challenging and describe how those characteristics may or may not apply to Company XYZ.
- (b) (2 points) Assess whether the SPD meets the ERISA-specified minimum standards to be considered a bona fide SPD. Assume the plan is subject to Title I of ERISA. Justify your position.

Two months have passed and Company XYZ lost a very large vendor contract. This loss necessitated the immediate overhaul of the entire group benefits plan and the termination of employment for several employees.

As a result, you immediately draft a Summary of Material Modification (SMM) as well as a targeted communication to the terminated employees on their rights under COBRA.

- (c) (2 points)
  - (i) Determine the date by which you must issue the COBRA rights to your severed employees. Justify your response.
  - (ii) Determine the date by which you must issue the SMM. Justify your response.

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

**USE THIS PAGE FOR YOUR SCRATCH WORK**

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