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

Exam GHCORU

AFTERNOON SESSION

Date: Wednesday, May 4, 2016
Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 6 questions numbered 9 through 14 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.

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Exam GHCORU

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 9

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

9. (*6 points*) Quantum's management team has engaged SkyFall to review prescription drug benefit plan costs. Quantum has received a proposal from a new PBM, whose 2016 contract terms are as follows:

Type of drug	Discount	Dispensing Fee
Generic	80%	$2.25
Preferred Brand	20%	$2.25
Non Preferred Brand	10%	$2.25
Specialty	5%	$2.25

The current PBM has indicated that the 2014 pharmacy contract terms in Exhibit 8 would be maintained in 2016.

You are given the following 2014 plan experience:

Type of drug	Number of scripts	Drug cost
Generic	800	$10,600
Preferred Brand	100	$15,200
Non Preferred Brand	75	$15,100
Specialty	25	$60,800

9. Continued

Assume:

- The average monthly membership in 2014 is 200
- Demographics are not expected to change between 2014 and 2016
- Ingredient cost trend is 5.00% per year
- Utilization trend is 1.25% per year
- Retention expenses are 18%
- The 2016 manual drug cost is $45 per member per month (PMPM)
- The credibility of the plan's experience is estimated by:

$$\sqrt{\frac{\text{member months}}{18{,}000}}$$, as prescribed by the regulator.

Under the current PBM contract terms, you calculate the expected 2016 prescription drug costs to be $115,000.

(a) (*5 points*)

(i) (*4 points*) Calculate the expected 2016 prescription drug claim costs under the proposed PBM contract terms.

(ii) (*1 point*) Quantum's objective is to have 2016 prescription drug claim costs to be no higher than expected under the existing PBM contract terms. Calculate the number of scripts that would have to be shifted from preferred brand to generic to meet this objective.

Show your work.

(b) (*1 point*) Calculate the 2016 prescription drug premium under the proposed PBM contract terms, assuming no shift in utilization. Show your work.

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

10. (*9 points*) Moonraker's long-term disability (LTD) three-year premium rate guarantee is expiring. When the premium rates were initially established, Moonraker insisted that the premium rate for both plans be equal for ease of communication with employees.

Over the three-year period, there have been a disproportionate number of Plan 2 LTD claims.

The group LTD carrier has insisted on a 10% premium rate increase overall.

Moonraker has contacted you to discuss the rate increase.

(a) (*2 points*) Describe elements that contribute to the potential for adverse selection for LTD plans, with respect to:

(i) Plan design

(ii) Characteristics of employers

(iii) Characteristics of employees

(b) (*2 points*) Describe general approaches to control adverse selection in flexible benefit plans.

(c) (*2 points*) For illustrative purposes, you have created the following U.S. employee profiles:

	Faye	Fred	John	Morgan
Gender	Female	Male	Male	Female
Age	57	32	40	24
Plan	1	2	1	2

Each employee earns the average salary for their respective age/gender group.

10. Continued

Furthermore:

Annual Income	Effective Income Tax Rate
< $15,000	15%
$15,000 - $29,999	20%
$30,000 - $44,999	25%
$45,000 - $74,999	30%
$75,000 - $99,999	35%
$100,000 or higher	40%

Calculate the after-tax replacement ratio for Faye and Fred. Assume employee contributions are paid with post-tax dollars. Show your work.

(d) (*3 points*) Management is investigating the possibility of leaving Plan 1 premiums unchanged, and applying the required premium increase to Plan 2 only. Derive the required percentage premium increase for Plan 2 if the Plan 1 premium rate remains unchanged. Assume Faye, Fred, John and Morgan are the only employees. State any assumptions and show your work.

11. (*12 points*) Your client, Yates Inc., has the following plan information and enrolled membership:

	Consumer-Driven Health Plan	Traditional Plan
Actuarial Value	73%	87%
2015 PMPM Premium Equivalent Rates	$450	$550
2015 PMPM Employee Payroll Contributions	$135	$165
2015 Members (same as 2014)		
State A	3,000	10,000
State B	6,000	15,000
Total	**9,000**	**25,000**
2014 PMPM Incurred Claims Experience	$250	$375

Both the consumer-driven health plan (CDHP) and traditional plans are administered by Howe Insurance.

Yates Inc. is exploring a fully-insured Private Exchange model to replace the current plans. The Private Exchange includes two carriers: Howe Insurance and Hornby Financial. The Private Exchange has two coverage options for 2016, Silver and Gold. You are given the following information:

	Silver	Gold
Actuarial Value	70%	85%
Projected 2016 PMPM Incurred Claims		
- For a CDHP member	$275	$333
- For a Traditional plan member	$345	$419

Hornby Financial has 10% lower claims costs in State A due to more favorable provider contracts.

Assume the annual trend is 7.0% and administrative expenses are 0%.

(a) (*1 point*) Identify advantages and disadvantages of implementing a Private Exchange from the point of view of Yates Inc.

11. Continued

(b) (*8 points*) Yates Inc. will move to the Private Exchange model if total expected 2016 costs under the Private Exchange model are no higher than the projected incurred claims under the current plan design.

(i) (*2 points*) Develop plan election and carrier selection assumptions for the members under the Private Exchange model. Justify your response.

(ii) (*6 points*) Assess whether Yates Inc. will move to a Private Exchange model, using your assumptions from part (i). Show your work.

(c) (*3 points*)

(i) Calculate the minimum monthly employer defined contribution (in dollars) under the Private Exchange model that would result in no increase to the employee's cost-sharing percentage. State any assumptions made and show your work.

(ii) Calculate the change in total annual employer and employee costs from 2015 to 2016, reflecting your response in part (i). State any assumptions made and show your work.

12. (*5 points*) You are the actuarial manager for Granville Dental Insurance Company. An actuarial analyst working for you has a client that sponsors a self-funded dental PPO plan.

The main provisions of this plan are as follows:

Coverage	In-Network	Out-of-Network
Annual deductible	$0	$50
Coinsurance		
Type 1	95%	95%
Type 2	95%	95%
Type 3	90%	80%
Type 4	80% no max	70%, $1,000 lifetime max

Your actuarial analyst has suggested the following to reduce dental claim costs for her client:

- Offer the client individual stop-loss coverage to protect against high claimants
- Lower the Type 1 coinsurance level to 75% for both in-network and out-of-network claims

(a) (*1 point*) Draft an email to your actuarial analyst critiquing her suggestions.

(b) (*2 points*) Recommend alternative strategies to reduce dental claim costs. Justify your response.

(c) (*2 points*) The client receives the following claims for one individual in one year in chronological order (all within reasonable and customary limits):

Service	Claim Amount
Emergency treatment for molar pain	$1,500
Molar extraction	$2,300
Braces	$3,000
Routine cleaning and x-rays	$400
Root canal	$1,000

Calculate the amount reimbursed by the plan, assuming:

(i) All claims are in-network

(ii) All claims are out-of-network

Show your work.

13. (*3 points*) Broughton Co. is a U.S. company with 500 employees. The company has a traditional group benefits plan that covers the employee only with no benefits available to dependents.

A recent employee benefits survey has revealed that:

- Employees want access to additional benefits. The following benefits were specifically identified (none of which are currently offered by Broughton Co.):
  - Parking and mass transit reimbursement
  - Vision program
  - Short Term Disability
  - Employee Term Life Insurance
  - Spousal or Domestic Partner Term Life Insurance
  - Gym membership
- Employees with families want their dependents to be covered by the plan

Management is exploring the possibility of introducing a cafeteria plan, and wishes to investigate low-cost alternatives that address the employee survey results at the same time.

(a) (*1 point*) Describe the different types of cafeteria plans available.

(b) (*2 points*) Recommend a cafeteria plan to Management. Justify your response.

14. (*5 points*) You are a group benefits actuary and have been assigned to develop 2016 renewal rates for a local employer's medical plan. The following information is provided:

Experience Period:	July 2013 – June 2014
Average Monthly Number of Employees:	120
Average Monthly Number of Members:	300
IBNR reserve at July 1, 2013:	$300,000
IBNR reserve at June 30, 2014:	$350,000
Paid claims during Experience Period:	$1,200,000
Pooling Threshold:	$100,000 per member
Pooling Charge:	8.5% of non-pooled incurred claims
Large Group Manual Rate (effective Jan. 2015):	$260 per member per month
Industry Factor based on SIC code:	1.10
Annual net claims cost and pooling trend:	10.00%

Furthermore, you are given the following:

Credibility Factors	
Total Member Months	Credibility Factor
1 to 299	0%
300 to 2,499	20%
2,500 to 3,499	30%
3,500 to 4,999	40%
5,000 to 5,999	50%
6,000 to 7,199	60%
7,200 to 8,399	70%
8,400 to 9,599	80%
9,600 to 12,199	90%
12,200 and over	100%

Non-Claim Expenses (% of premium)	
General Administration	7.2%
Profit margin	3.0%
Premium tax	1.8%
ACA Health Insurer Tax	2.0%
Broker Load (commission)	1.5%

Large Claim Report July 2013 to June 2014	**Total Claims Paid**
Claimant 1	$125,000
Claimant 2	$110,000
Claimant 3	$150,000

14. Continued

(a) (*1 point*) Describe the rating variables you should consider when normalizing claim cost data for manual rate development.

(b) (*4 points*) Calculate the renewal rate per employee per month for calendar year 2016. Show your work.

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

USE THIS PAGE FOR YOUR SCRATCH WORK