

# Exam GHCORU

## AFTERNOON SESSION

**Date:** Wednesday, October 31, 2018

**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. Question 10 pertains 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.

*Canadian version of this exam is recognized by the Canadian Institute of Actuaries.*

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\*\***

**Afternoon Session  
Beginning with Question 9**

- 9.** (7 points) Fulton Inc. (“Fulton”) wants to explore offering a 3-year hospital indemnity plan. You have been asked to develop a sample rate on an issue age basis. Fulton will be underwriting on an accept or reject basis.

Assume:

- 5% interest rate
- Claims and decrements occur at the end of the year

Attained Age	Annual Incidence Rate	Average Annual Claim
50	10.0%	\$ 200
51	12.5%	\$ 225
52	15.0%	\$ 250
53	17.5%	\$ 275
54	20.0%	\$ 300
55	22.5%	\$ 325
56	25.0%	\$ 350
57	27.5%	\$ 375
58	30.0%	\$ 400
59	32.5%	\$ 425

Duration	Annual Lapse and Mortality	Underwriting Selection / Cumulative Anti- Selection
1	30%	60%
2	20%	80%
3	10%	100%
4	10%	120%
5	10%	140%
6	10%	160%
7	10%	180%
8	10%	200%
9	10%	220%
10	10%	240%

- (a) (1 point) List and describe major considerations in the rate setting process.
- (b) (1 point) Describe durational influences on claim costs that should be considered in the rate setting process.
- (c) (3 points) Calculate net premium for a 55-year old. Show your work.
- (d) (2 points) Describe when and how each of ASOPs 23, 25 and 41 apply to your rate-making and rate filing process.

**Question 10 pertains to the Case Study**

**10.** (7 points) Dr. No wants to offer a more competitive compensation package to his employees and approaches you, his benefits consultant, about adding group term life insurance.

- (a) (2 points) Dr. No asks for your help clarifying requirements and options for group term life products.
- (i) List the eligibility provisions for most basic group term life policies.
  - (ii) Describe a viatical assignment and why Dr. No’s employees may want to participate in one.

Dr. No received two quotes from Companies A and B for group term life insurance coverage.

Company	Face Amount	Total Annual Premium
A	\$60,000 per employee regardless of salary	\$64,000
B	1x current employee salary	\$66,000

- (b) (3 points) Calculate the claims cost as a percentage of premium for each quote using Thunderball’s claim rate found in exhibit 6 and Dr. No’s 2014 employee census. Show your work.

Dr. No realizes that the group term life policy does not provide total and permanent disability coverage. He asks you to price Moonraker’s Plan 2 policy for his employee Mike, a 38 year old male with an annual salary of \$84,000, using the table below.

		Reserve amount per \$2 with 3% COLA		
		Elimination Period		
Sex	Age	1 month	3 month	6 month
M	Under 30	19	11	6
M	30-39	31	18	11
M	40-49	34	28	23
M	50-59	41	33	29
M	60+	63	50	47

**10. Continued**

(c) (2 points)

- (i) Describe total and permanent disability coverage.
- (ii) Calculate Dr. No's monthly cost to provide this benefit to Mike. Show your work.

11. (6 points) Ruth lives in the US and was prescribed a specialty drug with an average wholesale price (“AWP”) of \$10,000 for a 35 days supply.

You are given the following:

Ruth’s Plan Design	
Tier	Copay/Coinsurance*
Generic	\$5 copay
Brand	\$100 copay
Specialty	50% coinsurance

\* \$0 deductible, \$3,000 out-of-pocket max

Insurer Discounts/Dispensing Fees	
Cost	Discount/Fee
Discount (% of AWP)	25%
Dispensing fee per prescription	\$2

- (a) (1 point) Describe the stages of the Prescription Drug Lifecycle.
- (b) (1 point) Calculate the net plan cost for one 35 days supply, assuming this was Ruth’s first claim of the year. Show your work.
- (c) (1 point)
- (i) Define step therapy.
- (ii) Describe the rationale for adding step therapy for an expensive drug.

Ruth’s insurance company is making changes to the formulary for next year. Step therapy is being added to the specialty drug Ruth has been prescribed, and the generic therapeutic equivalent has an AWP of \$30.

- (d) (1 point) Calculate the cost change from adding step therapy for both the insurance company and for Ruth.

The generic therapeutic equivalent is not effective for Ruth, and she is approved to take the specialty drug again.

- (e) (1 point) Describe another formulary management strategy that could be used in this case to control cost.



**11. Continued**

- (f) *(1 point)* Compare and contrast US and Canadian prescription drug pricing benchmarks, regulation, and contracting.

- 12.** (10 points) You are an actuary who works for Mutual of AnyState, an insurance company that currently offers medical products.

The Chief Actuary has asked your team to research dental insurance because the company is considering entering the dental insurance market. Your manager has asked you to do the following:

- (a) (1 point) Describe the type of dental products available in the market.
- (b) (1 point) Describe why a dental Preferred Provider Organization (“PPO”) is a good initial product offering for Mutual of AnyState. Justify your response.
- (c) (2 points) Describe risks for Mutual of AnyState and recommend risk mitigation techniques with respect to the following:
  - (i) Pricing dental insurance products.
  - (ii) Entering the dental insurance market.

Below is the benefit structure the sales department proposed to senior management as a benchmark PPO plan.

	Class I	Class II	Class III	Class IV
Coverage and Service Examples	?	?	?	?
Copay	\$10 for all procedures	\$50 for all procedures	\$100 for all procedures	Varies by procedure
Deductible	\$0 per year		\$100 per year	
Coinsurance	In-network: 100% Out-network: 90%	In-network: 80% Out-network: 70%	In-network: 50% Out-network: 40%	In-network: 30% Out-network: 20%
Maximum	\$2,500 annual max per person		\$10,000 lifetime maximum per person	

- (d) (3 points)
  - (i) (1 point) Describe the coverage for each class of dental benefits including service examples.
  - (ii) (2 points) Recommend four changes to the PPO plan that would help with any or all of the following: lower utilization, lower cost, reduce anti-selection risk, and reduce underwriting risk. Justify your response.

## 12. Continued

- (e) (1 point) Describe the impact the Affordable Care Act has had on the dental insurance market.

Below are the claims for one member in one policy year (incurred in the order displayed).

<b>Service</b>	<b>Total Allowed Amount</b>
<b>X-Rays</b>	\$80
<b>Fillings</b>	\$450
<b>Root Canal</b>	\$500
<b>Partial Denture</b>	\$900

- (f) (2 points) Calculate the cost for both the member and for Mutual of AnyState for the policy year, based on the PPO plan proposed by the sales department, assuming the member:
- (i) Went to only in-network providers
  - (ii) Went to only out-of-network providers

Show your work.

13. (5 points) Large Company (“LC”) is a US-based employer that offers three self-insured medical benefit options to its employees. You are given the following:

		Expected Annual utilization per 1,000 members	Expected Copay frequency per 1,000 members	Copay Amount	Number of Members	Actual to Expected Net Claim Cost Per Member Per Month (PMPM)
Option A	Hospital Inpatient	300 days	0	\$0	5,000	1.2
	Hospital Outpatient	900 cases	810	\$20		
	Physician Visits	4,000 visits	3,700	\$10		
Option B	Hospital Inpatient	250 days	0	\$0	2,500	0.8
	Hospital Outpatient	900 cases	595	\$40		
	Physician Visits	3,000 visits	2,760	\$20		
Option C	Hospital Inpatient	100 days	0	\$0	2,500	1.5
	Hospital Outpatient	400 cases	360	\$50		
	Physician Visits	2,000 visits	1,800	\$20		

	Allowed Charge per Service
Hospital Inpatient	\$5,000
Hospital Outpatient	\$1,500
Physician Visits	\$200

- (a) (3 points) Calculate the average impact of adverse selection (%) on net claims across the three options. Show your work.
- (b) (2 points) LC is interested in mitigating the impact of adverse selection.
- (i) List design approaches that LC can use to mitigate adverse selection.
- (ii) Describe pricing approaches that LC can use to mitigate adverse selection.

**THIS PAGE INTENTIONALLY LEFT BLANK**

**14.** (5 points) You approach the CEO of US-based Kings Company with a proposal to move to a private exchange.

- (a) (1 point) Explain considerations for Kings Company when determining its defined contribution approach for offering its plans on a private exchange.

Kings Company currently offers two medical plans to its employees. Current attributes of the plans are:

	<b>Plan 1</b>	<b>Plan 2</b>
Actuarial Value	90%	60%
Enrollment (members)	41	41
Monthly Premium Rate (PMPM) – Current	\$525.00	\$350.00
Employer Subsidy % – Current	63%	63%
Employer Subsidy Contribution (PMPM) – Current	\$330.75	\$220.50
Employee Payroll Contribution (PMPM) – Current	\$194.25	\$129.50
Monthly Premium Rate (PMPM) – Private Exchange	\$600.00	\$300.00

PMPM = Per member per month

Kings Company is considering moving to the private exchange and making equal subsidy contributions PMPM for each plan. The aggregate subsidy dollars must remain equal to the current amount, assuming no change to enrollment.

- (b) (1 point) Calculate the monthly employer subsidy PMPM and new monthly employee payroll contributions PMPM if the current plans move to the private exchange. Show your work.
- (c) (1 point) Explain why employee contributions would change for Kings Company if the current plans move to the private exchange.
- (d) (1 point) Explain whether projected enrollment would change after moving to the private exchange.

## 14. Continued

Instead of moving to the exchange, the CEO of Kings Company suggests making Plan 2 non-contributory, while keeping Plan 1 contributory.

- (e) *(1 point)* Explain potential implications of having a non-contributory health plan option.

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

**USE THIS PAGE FOR YOUR SCRATCH WORK**