

Exam GH 101

Date: Tuesday, November 18, 2025

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 7 questions numbered 1 through 7 with a total of 50 points.

The points for each question are indicated at the beginning of the question.

2. 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 provided in this document.

Written-Answer Instructions

1. **Each question part or subpart should be answered in the Excel file.** Graders will only look at work in the Excel file.

a) In the Excel document formulas should be entered. Performing calculations on scratch paper or with a calculator and then entering the answer in the cell will not earn full credit. Formatting of cells or rounding is not required for credit, as long as your work and assumptions are clear to an individual with average Excel experience reviewing the submitted file.

b) Individual exams may provide additional directions that apply throughout the exam or to individual items.

2. The answer should be confined to the question as set.
3. Prior to uploading your Excel file, the file should be saved and renamed with your five-digit candidate number in the filename.
4. The Excel file that contains your answers must be uploaded before the five-minute upload period expires.

The Excel spreadsheet has additional data and information applicable to this question.

1.
(8 points)

- (a) (3 points) Describe risks and opportunities in the steps of the product development cycle by completing the table below.

Step	Risks	Opportunities
Innovate		
Design		
Build		
Sell		
Assess		
Revise		

All responses are to be provided in the Excel spreadsheet.

- (b) (1 point) Explain the actuarial team's role in mitigating risk in the products development cycle.

All responses are to be provided in the Excel spreadsheet.

- (c) (1 point) Describe considerations for marketing group medical product to:

- Plan Sponsors
- Consumers

All responses are to be provided in the Excel spreadsheet.

- (d) (3 points) Contrast the design phase of the product development cycle for both ACA Individual and Medicaid products.

All responses are to be provided in the Excel spreadsheet.

*The Excel spreadsheet has
additional data and information applicable to this question.*

2.
(7 points)

- (a) (1 point) List and describe considerations for developing the administrative expense component of gross premium.

All responses are to be provided in the Excel spreadsheet.

- (b) (2 points) Describe risks that insurers should consider when determining risk and profit charges on each of the following types of groups:

- Small Groups
- Large Groups
- Self-Insured Accounts
- Jumbo Accounts

All responses are to be provided in the Excel spreadsheet.

Company XYZ is evaluating its expense cost structure to have a more competitive gross premium in the market. The Chief Actuary proposes XYZ charge 3.7% percent of net premium collected for expenses.

You are given:

- XYZ's current expense structure charges \$2,000 per contract written
- XYZ has the following contracts:

Contract	Net Premium
Contract 1	\$50,000
Contract 2	\$30,000
Contract 3	\$45,000
Contract 4	\$60,000
Contract 5	\$75,000

2. Continued

- (c) (2 points) Calculate the change in expense revenue collected between the proposed 3.7% of net premium methodology and the current \$2,000 fixed cost structure. Show your work.

All responses are to be provided in the Excel spreadsheet.

The Chief Actuary has outlined two goals for next year's pricing:

- Encourage larger cases to enroll with XYZ due to lower gross premiums year over year.
- Take advantage of new technological advances to charge a lower overall expense amount for the book of business.

- (d) (2 points) Assess whether the change in expense revenue methodology will meet the Chief Actuary's pricing goals. Justify your response.

All responses are to be provided in the Excel spreadsheet.

The Excel spreadsheet has additional data and information applicable to this question.

3.
(6 points)

- (a) (1 point) Describe the factors that influence employee choice in benefit plans.

All responses are to be provided in the Excel spreadsheet.

You are a pricing actuary at ABC Insurer responsible for the XYZ employer account. XYZ offers its employees two health plan options.

Plan A is a consumer driven health plan and Plan B is a traditional health plan where both plans have the same covered services, network and medical management.

You are given:

	Plan A	Plan B
Benefits	1.0	1.5
Premium Rates	\$400.00	\$600.00
XYZ Contributions	\$400.00	\$400.00
Expected MLR	90%	90%

You have the following in Year 1:

Risk Group	Relative Health Status (Morbidity)	# of Employees - Plan A	# of Employees - Plan B
1	50%	35	0
2	60%	10	15
3	110%	5	5
4	120%	0	20
5	325%	0	10
Total	100%	50	50

3. Continued

- (b) (2 points) Calculate the Year 1 actual-to-expected loss ratio. Show your work.

All responses are to be provided in the Excel spreadsheet.

Your client is concerned regarding employee selection between plans if the rate change as suggested in part (b) is universally applied.

- (c) (2 points) Illustrate the effect if equal rate changes are applied to Plan A and Plan B and XYZ's contribution remains at \$400.

All responses are to be provided in the Excel spreadsheet.

- (d) (1 point) Recommend alternative premium proposals or policy changes for Year 2 to minimize the risk of a rate spiral. Justify your response.

All responses are to be provided in the Excel spreadsheet.

The Excel spreadsheet has additional data and information applicable to this question.

4.

(4 points) XYZ Company has hired you as a benefit director to help build out a benefit administration department for its health insurance plan.

- (a) (2 points) Describe the external environmental factors that the benefit director must monitor that could impact the current plan.

All responses are to be provided in the Excel spreadsheet.

- (b) (2 points)

- (i) (1 point) Identify why it is difficult to compare benefit programs between employers.
- (ii) (1 point) Describe methods to compare benefit programs between employers.

All responses are to be provided in the Excel spreadsheet.

The Excel spreadsheet has additional data and information applicable to this question.

5.
(9 points)

- (a) (1 point) Describe analytical pricing considerations in developing prescription drug plan premiums.

All responses are to be provided in the Excel spreadsheet.

You are given the following data for a pharmacy claim:

Allowed amount	\$80.00
Dispensing Fee	\$2.00
Vaccine Fee	\$1.00
Sales Tax	0%
Discount	70%

New contract terms were recently negotiated:

- Dispensing fee changes to \$1.50
- Discount changes from 70% to 72%

- (b) (2 points) Calculate the new allowed amount for the claim. Show your work.

All responses are to be provided in the Excel spreadsheet.

5. Continued

You are analyzing the impact of cost share on pharmacy claims.

You are given:

Nominal Copay	\$15.00
Dispensing fee	\$1.50
Discount	80%

Average Wholesale Price	Frequency	Avg AWP Per Prescription
\$0-15	20%	\$8
\$15-50	20%	\$30
\$50-125	25%	\$80
\$125-250	15%	\$175
\$250+	20%	\$600

- (c) (2 points) Calculate the effective copay. State your assumptions. Show your work.

All responses are to be provided in the Excel spreadsheet.

- (d) (1 point) Explain the value of the effective copay in evaluating pharmacy claims.

All responses are to be provided in the Excel spreadsheet.

5. Continued

You are given:

Sales Tax	0.0%
Vaccine Fee	\$1.00
Dispensing Fee	\$1.50
Ingredient Cost	\$77.00
Discount	72.0%
Pharmacy Rebates	5.0%

- (e) (2 points) Calculate the net member and plan liability for the following member cost share scenarios:

- (i) (1 point) 20% member coinsurance
- (ii) (1 point) \$16 member copay

Show your work.

All responses are to be provided in the Excel spreadsheet.

- (f) (1 point) Recommend a formulary management program that can impact a plan's expected cost and utilization. Justify your response.

All responses are to be provided in the Excel spreadsheet.

*The Excel spreadsheet has
additional data and information applicable to this question.*

6.
(7 points)

- (a) (1 point) Compare and contrast prospective and retrospective experience rating.

All responses are to be provided in the Excel spreadsheet.

You are the pricing actuary for Green Insurance Company which writes groups with 5,000 or more employees. Green has only used prospective experience rating in its premium setting at the group level.

Sales & Marketing proposes adding an experience refund feature to the policy where groups will receive all excess profit if the groups performs better than 96%.

You are given

- Green's target net loss ratio is 96%
- Premium and claims experience over a three-year period.
- Net premium is after all expense deductions and claims are fully developed.

- (b) (2 points) Calculate Green's total profits (losses) from 20X1 to 20X3 under the current prospective experience rating and Sales & Marketing's proposal. Show your work.

All responses are to be provided in the Excel spreadsheet.

- (c) (1 point) Critique Sales & Marketing's proposal.

All responses are to be provided in the Excel spreadsheet.

6. Continued

You are given:

- Pool charges for Specific Stop Loss attaching at \$1M = 1% of Net Premium.
- Annual claims by claimant with at least \$1M in claims

Green's CFO is considering the following risk mitigation measures and profit sharing alternatives.

- 1: Add a specific stop loss with a \$1M attachment point.
- 2: Increase the risk charge from 4% to 5% before profit-sharing.
3. Accumulate shared profits in a premium stabilization fund to cover future claims up to a fund maximum of \$500,000 before distribution. At policy termination, Green will keep the fund balance.

- (d) (3 points) Calculate the effects of the risk mitigation measures and profit sharing alternatives based on Green's experience. Show your work.

<i>All responses are to be provided in the Excel spreadsheet.</i>

The Excel spreadsheet has additional data and information applicable to this question.

7.

(9 points) You are the actuary for Company ABC, which self-insured its medical risk. Your CFO would like to better understand how Total Risk Assessment works and what it does that is different from a traditional experience rating.

(a) (1 point)

(i) (0.5 points) Define Starting Value Risk.

(ii) (0.5 points) Define Assumption Risk.

All responses are to be provided in the Excel spreadsheet.

(b) (3 points)

(i) (1 point) Describe Random Variation Risk.

(ii) (2 points) Sketch two graphs by completing the tables below that illustrate the Random Variation Risk.

All responses are to be provided in the Excel spreadsheet.

In the Excel spreadsheet, you are given more information.

(c) (3 points) Calculate the following risk measures, using the table below:

(i) (1 point) Expected excess or shortfall PMPM.

(ii) (1 point) Chance of exceeding the budget.

(iii) (1 point) Chance of exceeding the budget by \$12M or more.

Show your work.

All responses are to be provided in the Excel spreadsheet.

7. Continued

(d) (2 points)

- (i) (1 point) Assess the adequacy of the current PAD assumption of 5%.
- (ii) (1 point) Recommend actions ABC could take to reduce the chances of exceeding their budget.

<i>All responses are to be provided in the Excel spreadsheet.</i>

****END OF EXAMINATION****