

Exam GHVRU

Date: Wednesday, May 1, 2024

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 11 questions numbered 1 through 11 with a total of 70 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.

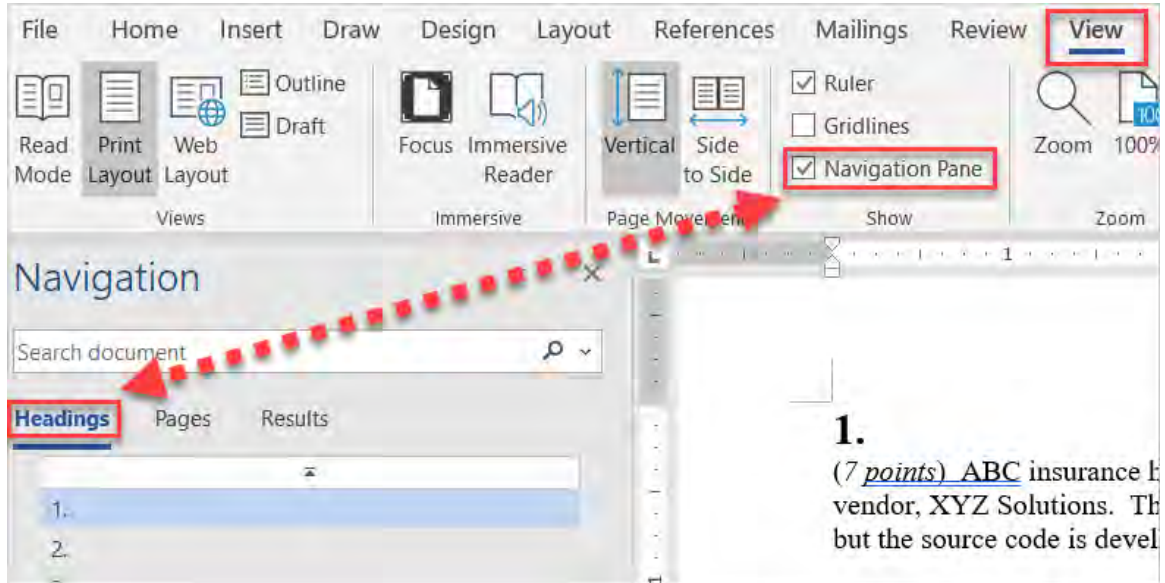
Written-Answer Instructions

1. Each question part or subpart should be answered either in the Word document or the Excel file as directed. Graders will only look at work in the indicated file.
 - a) In the Word document, answers should be entered in the box marked ANSWER. The box will expand as lines of text are added. There is no need to use special characters or subscripts (though they may be used). For example, β_1 can be typed as beta_1 (and ^ used to indicate a superscript).
 - b) 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.
 - c) 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 Word and Excel files, each file should be saved and renamed with your five-digit candidate number in the filename.
4. The Word and Excel files that contain your answers must be uploaded before time expires.

Navigation Instructions

Open the Navigation Pane to jump to questions.

Press Ctrl+F, or click View > Navigation Pane:



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

1.

(10 points) You work for a company that added small group commercial health business six months ago, and you are responsible for coming up with the hospital claims reserve. You have three years of detailed hospital claim information for large group commercial health business in the same market. You only have total admits and paid hospital claims by month for the small group business.

(a) (3 points)

- (i) Describe four ways you could set a monthly Incurred But Not Reported (IBNR) reserve estimate for small group hospital claims, including the data needed to use each approach.

ANSWER:

- (ii) Propose a ranking of the four methodologies listed in part (a) (i), with #1 being the best and #4 being the worst in terms of methodologies to use when setting the small group IBNR reserve for hospital claims. Justify your answer.

ANSWER:

In the Excel spreadsheet, you are provided information on the hospital claims as well as your intern's IBNR reserve estimate of \$29,330,000 as of 6/30/20X2.

(b) (3 points)

- (i) Critique the intern's IBNR reserve estimate.
- (ii) Recommend the hospital IBNR reserve that you would record at 6/30/20X2. Justify your answer and show your work.

The response for this part is to be provided in the Excel spreadsheet.

1. Continued

In the Excel spreadsheet, Exhibits 1 and 2 provide enrollment and a history of paid claims by month for a block of small group dental business that has been declining in enrollment over the last few years. Assume claims are fully complete by 18 months from incurred date.

- (c) (3 points) Calculate the unpaid claim liabilities as of 8/1/20X2 using a development method that addresses the enrollment decline for the following completion ratios. Show your work.
- (i) 3-month average completion ratios
 - (ii) 6-month average completion ratios
 - (iii) 9-month average completion ratios

The response for this part is to be provided in the Excel spreadsheet.

- (d) (1 point) Recommend which completion ratios to use in your final estimate. Justify your answer.

ANSWER:

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

2.

(5 points)

(a) (1 point)

(i) Describe the Gordon Constant Growth Model (GCGM).

ANSWER:

(ii) Describe why the GCGM assumes the price-to-earnings (P/E) ratio of companies with high growth rates will be expected to drop in a context of rising interest rates.

ANSWER:

(b) (1 point) Describe why stock prices are imperfect metrics for the financial analysis of health plans.

ANSWER:

Portwater Health is considering a merger with Carabelle Insurance Company.

In the Excel spreadsheet, you are provided with the financial information for both companies in Exhibit 1.

(c) (1 point) Calculate the following performance metrics for Portwater and Carabelle separately. Show your work.

(i) Total Asset Turnover

(ii) Return on Assets

(iii) Total Leverage Ratio

(iv) Return on Equity

The response for this part is to be provided in the Excel spreadsheet.

2. Continued

- (d) (1 point) Calculate the two annual profit margin ratios most commonly used by financial analysts for Carabelle and Portwater separately. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

Your intern made the following statements:

- GAAP profit margins for insured businesses are overstated relative to statutory profit margins.
 - "Same-size" analyses are done on a per capita basis to reflect the impact of size on operating measures.
- (e) (1 point) Critique the accuracy of the intern's statements. Justify your answer.

ANSWER:

3.

(4 points) Company X, a regional, publicly-traded insurer, entered the health insurance market in State A two years ago.

(a) (2 points)

- (i) State reasons why Company X would want to compare its financial ratios to its competitors.

ANSWER:

- (ii) List characteristics that, when similar, improve comparisons of financial ratios between Company X and competitors.

ANSWER:

Megacorp is a national, publicly-traded health insurer and is the largest competitor in State A. You have been asked to focus your comparison on Megacorp and its subsidiaries:

- Juniorcorp, operating in State A
- RegionalCare, a regional HMO health insurer that Megacorp has recently acquired

(b) (2 points)

- (i) Identify sources of data you could use to prepare your comparison.

ANSWER:

- (ii) Describe factors you should consider when evaluating the data sources identified in part (b)(i).

ANSWER:

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

4.

(7 points)

- (a) *(1 point)* State the formula for the premium deficiency reserve (PDR) calculation.

ANSWER:

You are a valuation actuary at HGA insurance company which offers a broad spectrum of medical, long-term care (LTC), and long-term disability (LTD) products. Actual inflation is higher relative to any inflation assumption reflected in HGA's benefits and expenses.

- (b) *(2 points)* Describe potential impacts from higher inflation to

- (i) The contract reserve

ANSWER:

- (ii) The PDR

ANSWER:

4. Continued

Assume the following:

- Discount rate is 0%
- All reserve balances are \$0 as of 12/31/20X2

Using the Health Reserves Guidance Manual (HRGM) grouping, your total PDR for 12/31/20X3 is \$1,200,000

In the Excel spreadsheet, you are provided data from HGA insurance company forecasts.

(c) (3 points) Calculate:

- (i) Current total claim and contract reserve as of 12/31/20X3.
- (ii) Gain/Loss for the 12/31/20X3 income statement after adjusting for reserves.

Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(d) (1 point) List eight items that should be disclosed in an actuarial communication for the reserves established in (c).

ANSWER:

5.

(4 points) TRT Insurance Company is adding the following new products:

- Issue age individual Medicare Supplement business
- Attained age individual Medicare Supplement business
- Individual long-term care (LTC)
- Individual long-term disability (LTD)
- Group LTD
- Individual Medicare Advantage plans

(a) (2 points) Explain how each of the new products will affect the overall size of contract reserves held by the company. Justify your answer.

ANSWER:

Additionally, TRT issues a new block of 10,000 individual policies. Assume the following:

- The policies charge a net level premium
- Policies are in force for eight years
- Premiums are paid at the beginning of each year
- Lapses occur at the midpoint of each year
- Claims occur at the end of each year

Persistency for year 1	100%
Persistency for years 2-8	85%
Claims in year 1, in millions	\$10
Annual claims trend for years 2+	5%
Non-claims expenses	\$0
Annual interest rate	4%

(b) (2 points) Calculate the net level premium for the block. Show your work.

<i>The response for this part is to be provided in the Excel spreadsheet.</i>

6.

(4 points) You are an actuary preparing your company's NAIC Annual Statement in accordance with applicable standards of practice.

(a) (3 points)

- (i) Describe the types of actuarial opinions you may issue for health insurance liabilities and assets.

ANSWER:

- (ii) Explain when an actuary may issue each type of actuarial opinion.

ANSWER:

You are considering the following separate situations:

- The company has less than \$1 million total premium and less than \$1 million in combined expense reserves
- The cost of writing the actuarial opinion is 2.5% of the assumed annual premiums
- The actuary is calculating the Retiree Group Benefit Obligations
- The actuarial opinion is meant to fulfill a contractual obligation that includes the review of a work product of another actuary

- (b) (1 point) Explain whether each situation may exempt an actuary from the actuarial opinion requirements.

ANSWER:

7.

(7 points) You are the actuary for XYZ Health Insurance Company and have been asked to assist with the financial statements.

- (a) (1 point) Describe the four core activities of health insurance operations.

ANSWER:

- An XYZ client has purchased a one-year fully-insured policy effective on 1/15/20X2.
- The premium is payable in two semi-annual payments of \$3,000 each due on 1/15/20X2 and 7/15/20X2.
- On 12/31/20X1, the client paid the first semi-annual premium.
- As of 7/31/20X2, the client has not yet paid the second semi-annual premium.

- (b) (3 points) State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
12/31/20X1	
1/31/20X2	
2/28/20X2	

On 8/31/20X2, the client cancels its contract effective 7/15/20X2.

- (c) (1 point) State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
7/31/20X2	
8/31/20X2	

You are preparing a Request for Information and Documentation of Findings based on ASOP 21.

- (d) (2 points) Compare and contrast the relationship and responsibilities of a Responding Actuary and a Reviewing Actuary.

ANSWER:

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

8.

(5 points) You are a consulting actuary advising Company XYZ on its retiree medical benefits program. XYZ currently offers its Medicare-eligible retirees a traditional plan with full coordination of benefits with Medicare, such that retirees generally have no out-of-pocket costs, other than a \$50 per month retiree premium contribution.

- (a) (1 point) List the reasons why an employer would offer a retiree medical group benefits program.

ANSWER:

XYZ is considering offering an account-based subsidy and access to a private exchange where retirees can select a Medicare Supplement (Medigap) or Medicare Advantage plan. You have been asked to review the impact of the change on the retiree population.

The private exchange has three plan options available to these retirees:

- Standard Medigap Plan F
- Standard Medigap Plan G
- Medicare Advantage Plan with the following design:
 - \$500 copayment per inpatient admission
 - \$30 copayment per PCP office visit
 - \$60 copayment per specialist office visit

The current Medicare Part B deductible is \$226.

In the Excel spreadsheet, you are given Medigap plan design information.

Consider two newly eligible Medicare beneficiaries with the following assumed claims for the upcoming year:

Retiree A (unhealthy):

- 4 inpatient hospital admissions at a cost of \$20,000 per admission
- 12 specialist office visits at a cost of \$300 per visit

Retiree B (healthy):

- 2 primary care provider (PCP) office visits at a cost of \$100 per visit

8. Continued

- (b) (1 point) Calculate the annual expected out-of-pocket costs for each of the two retirees under each of the three plan options. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

- (c) (1 point) Recommend a plan option for each retiree based on the results of part (b).

ANSWER:

The monthly premiums per retiree for the three exchange plan options are as follows:

- Medigap Plan F: \$350
- Medigap Plan G: \$335
- Medicare Advantage Plan: \$100

XYZ intends to provide a monthly subsidy that will at least cover the premium of the cheapest plan option. Any subsidy that exceeds the premium of the plan chosen by a particular retiree will be forfeited.

You determine that 20% of the participants are in the “unhealthy” category and 80% are in the “healthy” category. For modeling purposes, you assume that retirees will choose the plan option recommended in part (c) based on their health category.

- (d) (2 points) Calculate the monthly subsidy amount such that the total out-of-pocket cost (including premiums) to XYZ’s retirees will be the same as under the current traditional plan. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

9.

(9 points) You have recently been appointed Chief Human Resources Officer (CHRO) of YMe Enterprise. The CEO of YMe has tasked you with understanding all pertinent legislation governing the company's benefit plan to ensure compliance. As CHRO, you have been designated the named fiduciary of YMe's benefit plan.

(a) (2 points)

- (i) State the functions a fiduciary typically performs for an ERISA-governed employee benefit plan.

ANSWER:

- (ii) Describe the requirements ERISA imposes upon you as named fiduciary.

ANSWER:

(b) (2 points) Compare and contrast the key plan documents required for plan members under ERISA and the ACA.

ANSWER:

A part of your responsibility as CHRO is to review plan participant claim appeals.

(c) (2 points)

- (i) Explain ERISA claim appeal requirements.

ANSWER:

- (ii) Describe the additional claim appeal procedures required by the ACA.

ANSWER:

9. Continued

YMe is laying off some of its workforce. You've been tasked with communicating potential COBRA costs to the affected employees.

You are provided the following information about recent terminations and the current health plan offering:

Member	Relationship	Reason for Termination	Termination Date	COBRA Notification Date	Coverage Election Date
A	Employee	Job Elimination	January 1, 20X1	January 1, 20X1	January 1, 20X1
B	Dependent (Child of A)	NA (Dependent)	NA	January 1, 20X1	January 1, 20X1
C	Employee	Job Elimination	January 1, 20X2	January 1, 20X2	February 1, 20X2
D	Employee	Gross Misconduct	January 1, 20X1	January 1, 20X1	February 1, 20X1
E	Employee	Job Elimination	January 1, 20X1	January 1, 20X1	April 1, 20X1

Health Insurance Monthly Premium

Status	Employer portion	Employee portion
Employee	\$150	\$50
Dependent	\$75	\$25

- Assume all terminated employees maintain coverage through their full eligibility period
 - Assume premiums increase by 8% annually
- (d) (3 points) Calculate the annual COBRA cost for each member for 20X1, 20X2, and 20X3. State your assumptions. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

10.

(5 points) You are an actuary responsible for financial reporting at Company X. Customer premiums for Company X’s group medical coverage are due monthly.

- (a) (2 points) Describe three accounting sub-entries related to group medical premiums using the table below:

Purpose of the sub-entry	Description of the asset/debit item	Description of the liability/credit item	Timing of the sub-entry

You notice that for its group medical block, Company X records an Unpaid Claim Liability (UCL) rather than separate liabilities for In Course of Settlement (ICOS) claims and Incurred But Not Reported (IBNR) claims.

- (b) (1 point) Explain why Company X might record a UCL rather than separate estimates of ICOS and IBNR liabilities.

ANSWER:

Company X also offers group long-term disability (LTD) coverage.

- (c) (2 points) Compare and contrast liabilities applicable to group medical and group LTD coverages.

ANSWER:

11.

(10 points) The table below summarizes the silver and bronze plans available on the ACA exchange for a given market.

Gross Monthly Premium PMPM

Age	BestPrice Bronze	BestPrice Silver	QualityXR Bronze	QualityXR Silver	ValueNow Bronze	ValueNow Silver
30	\$280	\$360	\$300	\$375	\$270	\$350
40	\$320	\$390	\$350	\$415	\$300	\$400

- (a) (1 point) Identify the benchmark plans for ages 30 and 40 in this market. Justify your response.

ANSWER:

Chris and James are both making \$35,000 per year. Chris just turned 30 and James just turned 40. Through your research, you find out that the maximum contribution percentage for individuals making \$35,000 per year is 7.5%.

- (b) (3 points) For each individual, Chris and James:
- Calculate the premium subsidy for each available plan.
 - Calculate the net monthly premium for each available plan.

Show your work.

The response for this part is to be provided in the Excel spreadsheet.

11. Continued

BestPrice projected the following PMPM claim costs for their Silver plan when they developed their premiums:

- 30 Year Old: \$310
- 40 Year Old: \$335

After reviewing the pricing, the actuary determines that an incorrect trend was used and the projected PMPM claim costs should have been:

- 30 Year Old: \$294
- 40 Year Old: \$318

Keeping the non-benefit load percentage the same, BestPrice changes their premiums to reflect the new projected claim costs.

- (c) (2 points) Calculate the new net monthly premium for each plan for both Chris and James. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

Several new plans enter the market and offer the following monthly premiums on the exchange:

Age	NewHealth Silver	SteelPlan Silver	CityPlan Silver
30	\$300	\$320	\$400
40	\$350	\$370	\$450

- (d) (2 points) Calculate the net monthly premium for each plan for both Chris and James in this expanded market. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

11. Continued

(e) (2 points)

- (i) Describe how increased competition in the ACA exchange marketplace can impact consumers.

ANSWER:

- (ii) Explain how the ACA risk adjustment program has affected how insurers view potential enrollees.

ANSWER:

- (iii) Describe the impact of cancelling cost sharing subsidies on the ACA exchange marketplace.

ANSWER:

****END OF EXAMINATION****