
CURATED PAST EXAM ITEMS

- Questions -

GH 201-U – Valuation and Regulation, U.S.

Important Information:

- These curated past exam items are intended to allow candidates to focus on past SOA fellowship assessments. These items are organized by topic and learning objective with relevant learning outcomes, source materials, and candidate commentary identified. We have included items that are relevant in the new course structure, and where feasible we have made updates to questions to make them relevant.
- Where an item applies to multiple learning objectives, it has been placed under each applicable learning objective.
- Candidate solutions other than those presented in this material, if appropriate for the context, could receive full marks. For interpretation items, solutions presented in these documents are not necessarily the only valid solutions.
- Learning Outcome Statements and supporting syllabus materials may have changed since each exam was administered. New assessment items are developed from the current Learning Outcome Statements and syllabus materials. The inclusion in these curated past exam questions of material that is no longer current does not bring such material into scope for current assessments.
- Thus, while we have made our best effort and conducted multiple reviews, alignment with the current system or choice of classification may not be perfect. Candidates with questions or ideas for improvement may reach out to education@soa.org. We expect to make updates annually.

Course GH 201-U

Curated Past Exam Questions

Learning Objective 1: Reserving

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1. Fall 2020 FV-A #1

Skwire 39 – Claim Reserves for Short-Term Benefits

(6 points) You are a consulting actuary specializing in calculating claim reserves for comprehensive medical benefit plans.

- (a) (2 points) Describe considerations for establishing claim reserves for short-term benefits.

ANSWER:

- (b) (1 point) Describe ways you can check the reasonability of your claim reserve calculation.

ANSWER:

A client expressed interest in increasing its medical plan's deductible from \$100 to \$2,000.

- (c) (1 point) Explain the effects this change could have on your client's year-end claim reserves.

ANSWER:

Another client inquired about the use of stochastic reserve methods.

- (d) (2 points)

- (i) List and describe four stochastic modeling techniques.
- (ii) List considerations for applying stochastic modeling to estimating reserves.

ANSWER:

2. Fall 2020 FV-A #3

GH201-100-25 – Health Reserves

See accompanying Excel file for data tables used in this question.

(5 points) You are a valuation actuary for Ridge Run Consulting and have been asked to calculate the year-end reserves for your clients using the development method.

- (a) (2 points) Describe characteristics of coverage for which the development method is appropriate.

ANSWER:

Skyline Health, Canyon Health, and Stagecoach Health are three insurance companies offering various types of healthcare coverage. Each company has provided claim patterns for their most recent twelve months of incurred claims.

- (b) (2 points) Recommend whether or not the development method is appropriate for each company. Justify your answer.

ANSWER:

Comet Health is another health insurance company that has provided its paid claims pattern for claims incurred in January as well as the total paid claims for incurred months January through December. It was determined that the development method is appropriate to use.

- (c) (1 point)
- (i) Calculate the completion factor for each lag using January's completion pattern. Show your work.
 - (ii) Calculate the total year-end reserve using the completion factors developed in part (i). Show your work.

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

3. Fall 2020 FV-A #5

ASOP #42 – Determining Health and Disability Liabilities
PDR Discussion Paper

(6 points)

(a) (1 point)

- (i) Compare and contrast the purpose of premium deficiency reserves (PDRs) for statutory accounting and for Generally Accepted Accounting Principles (GAAP) accounting.
- (ii) Explain how PDRs may impact statutory and GAAP accounting differently.

ANSWER:

You are the reserving actuary for an insurance company. You used the following projections to set a PDR as of 12/31/2019.

Projected Underwriting Gain/Loss by Year and Line of Business in \$M			
	Year		
	2020	2021	2022
Group Dental	3	2	2
Group Long-term Disability	2	3	4
Group Major Medical	1	1	1
Group Short-term Disability	-5	-4	-3
Individual Critical Illness	-1	-1	1
Individual Major Medical	-4	-2	1

The actual 2020 results in \$M before the application of any PDR were as follows:

Earned Premium	50
Incurred Claims	42
Expenses	10

The PDR as of 12/31/2020 is \$3M.

- (b) (3 points) Calculate the total net gain/loss for 2020 using the above information. Show your work.

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

- (c) (2 points) List and describe ASOP 42 considerations for estimating premium deficiency reserves.

ANSWER:

4. Spring 2021 FV-A #5

GH201-100-25 – Health Reserves

(5 points) You are an actuarial associate in the Group Life valuation area.

You have been provided the following historical paid claims data. Based on past experience, all claims are paid within 5 months of incurral.

Incurral Year	Months Between Incurral and Payment					Total Paid Claims
	0	1	2	3	4	
	Number of Claims Paid					
2018	792	396	264	132	72	\$175,000,000
2019	912	455	302	154	84	\$210,000,000

You also received the following information splitting recent 2020 claims activity by incurral and paid month.

Incurral Month	Number of Claims by Paid Month			Total Paid Claims Through 12/31/2020
	Oct 2020	Nov 2020	Dec 2020	
Oct 2020	38	23	12	\$8,900,000
Nov 2020		46	23	\$8,400,000
Dec 2020			38	\$4,600,000

Based on recent internal studies, the average annual mortality rate increase is 4% and the average annual wage increase is 3%. Group life benefit amounts are typically in proportion to wages.

- (a) (2 point) Recommend completion factors for use in reserving. Show your work.

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

- (b) (1 point) Calculate the number of incurred but not paid (IBNP) claims and the IBNP dollar amount for incurral months Oct 2020 to Dec 2020 using the completion factor method. Show your work.

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

Your boss mentions that there are some unusual patterns in the claims data.

- (c) (2 points) Propose questions to investigate based on your analysis of the patterns in the claims data. Justify your answer.

ANSWER:

5. Fall 2021 FV-A #2

GH201-100-25 – Health Reserves
PDR Discussion Paper

(9 points)

- (a) (2 points) List factors the actuary should consider when projecting claims for a Premium Deficiency Reserve (“PDR”) calculation.

ANSWER:

Woodford Insurance Company (“Woodford”) sells individual Medicare Supplement policies, and the business has experienced significant losses in the last two years. The PDR for Woodford’s Medicare Supplement business is \$0 for this year end.

- (b) (1 point) Describe two reasons why a PDR of \$0 may be appropriate for Woodford’s Medicare Supplement business.

ANSWER:

Bayshore Insurance Company (“Bayshore”) insures a five-year group medical contract for which scheduled premium increases were expected to be sufficient to maintain profitability at issue for all five years. Results in the first year were consistent with expectations but now during its second year, Bayshore has updated its claims projections as shown in the following table:

Year	Annual Results (\$000)			
	Earned Premiums	Original Claims	Revised Claims	Expenses/ Commissions
1 (actual)	432	360	360	52
2 (expected)	443	371	378	53
3 (expected)	454	382	396	54
4 (expected)	464	392	414	56
5 (expected)	475	403	417	57

- (c) (1 point) Calculate the PDR at the end of year 2 for the group medical contract given the premium rate increases are guaranteed through year 5 and assume a discount rate of 0%. Show your work.

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

Denmain Insurance Group (“Denmain”) acquires this group medical contract from Bayshore during year 2 and intends to terminate it at the end of year 5. You are given the following about Denmain’s testing groups for its other lines of business:

Testing Group	Income Statement Original Actual Results for Year 2 (\$000)			
	Earned Premium	Incurred Claims	Expenses/ Commissions	Underwriting Gain/Loss
Group Disability	\$714	\$649	\$78	-\$13
Group Long-Term Care	\$741	\$631	\$86	\$24
Group Dental	\$300	\$255	\$35	\$10
Individual Major Medical	\$472	\$425	\$80	-\$33
Individual Medicare Supplement	\$47	\$52	\$3	-\$8
Totals	\$2,274	\$2,012	\$282	-\$20

Testing Group	Projected Underwriting Cash Flows by Year (\$000)				
	3	4	5	6	7
Group Disability	-\$14	\$3	\$4	\$5	\$7
Group Long-Term Care	\$19	\$22	\$21	\$23	\$25
Group Dental	\$13	\$10	\$9	\$6	\$5
Individual Major Medical	-\$22	\$0	\$5	Termed	Termed
Individual Medicare Supplement	-\$9	-\$7	-\$5	-\$4	\$0

- (d) (1 point) Calculate the PDR at each testing level for the Denmain businesses including the business acquired from Bayshore. Show your work.

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

- (e) (1 point) Recommend a grouping for the PDR at the reporting level for Denmain including the business acquired from Bayshore. Justify your answer.

ANSWER:

- (f) (1 point) Calculate the PDR at the reporting level for Denmain including the business acquired from Bayshore using your recommended grouping from (e). Show your work.

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

- (g) (1 point) Recommend a method to allocate the PDRs from (f) by product for internal reporting purposes. Justify your answer.

ANSWER:

- (h) (1 point) Calculate the PDR at the reporting level for each product using the method recommended in part (g). Show your work.

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

6. Fall 2021 FV-A #3

GH201-100-25 – Health Reserves

(8 points) You are an actuary on the reserving team at Crisium Insurance. You are provided with the following for the small group and individual medical blocks of business:

Inpatient authorization data (see Excel).

Percentage of authorization data missing:

Incurring Month	1	2	3	4	5	6	7	8	9	10	11	12
Missing Data %	3%	3%	3%	3%	3%	3%	3%	3%	3%	5%	10%	15%

Claims paid and incurred to date (\$000s):

Incurring Month	1	2	3	4	5	6	7	8	9	10	11	12
Medical/Surgical	\$909	\$1,093	\$1,165	\$1,137	\$1,099	\$975	\$1,110	\$1,164	\$935	\$897	\$781	\$774

Cost per day estimates from lag analyses:

Incurring Month	1	2	3	4	5	6	7	8	9	10	11	12
Medical/Surgical	\$930	\$1,012	\$1,068	\$1,083	\$1,042	\$1,026	\$939	\$1,081	\$969	\$1,153	\$1,046	\$942

Assumed credibility of lag analyses:

Incurring Month	1	2	3	4	5	6	7	8	9	10	11	12
Medical/Surgical	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	80%

Average contracted cost/day for inpatient claims is \$1,100 for months 1-10.

Months 1-10 contracted cost/day has a seasonality factor of 1.0.

Month 11 contracted cost/day has a seasonality factor of 1.05.

Month 12 contracted cost/day has a seasonality factor of 0.95.

- (a) (5 points) Calculate the total estimated inpatient Incurred But Not Reported (IBNR) reserve as of the end of the year. Show your work.

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

- (b) (1 point) Describe issues with using authorization reports when estimating an IBNR reserve.

ANSWER:

- (c) (2 points) Explain four different ways to add conservatism when using authorized days to estimate your IBNR reserve in (a). Justify your answer.

ANSWER:

7. Fall 2021 FV-A #5

GH201-100-25 – Health Reserves

ASOP #5 – Incurred Health and Disability Claims

Question pertains to the Case Study

(8 points) You are a senior actuary for Skyfall and have been asked to do reserve work for the Quantum Legacy III – Individual product.

You are given the following:

- For months that are estimated to be 70% or more complete:
 - Use the age to ultimate method.
 - Utilize September Year 3 incurred data for the age to ultimate factors.
 - For months that are estimated to be less than 70% complete:
 - Utilize a PMPM or projection method.
 - Utilize the corresponding month of the prior year for the PMPM or projection method.
 - Use a 7% annual trend assumption for the PMPM method.
- (a) (4 points) Calculate the incurred but not reported (IBNR) reserve as of September 30, Year 4. Show your work.

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

The Chief Actuary wants you to perform a run-out study of the reserves calculated as of September 30, Year 4, utilizing the data paid through December 31, Year 4.

- (b) (3 points) Calculate the difference between the original reserve and the revised reserve from the run-out study. Show your work

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

- (c) (1 point) List considerations of Actuarial Standard of Practice #5 that can be used in estimating incurred claims.

ANSWER:

8. Spring 2022 FV #1

GH201-100-25 – Health Reserves

ASOP #21 – Responding to Financial Audits

(8 points) You are the consulting valuation actuary for Randolph Health Insurance (RHI).

- (a) (1 point) Describe the considerations regarding the quality of data to be used for reserving according to Actuarial Standard of Practice No. 23.

ANSWER:

- (b) (1 point) Describe the considerations when setting initial lag factors for the age-to-age development method.

ANSWER:

In the Excel file, you are provided with RHI's cumulative paid claims by incurred month from January 2019 through December 2021 and member count for each month.

The CEO has asked you to provide an IBNR estimate as of 12/31/2021 with the following information and assumptions:

- Use the smoothed age-to-age factors by applying the averaging technique using the most recent six months of claims data and assuming all claims complete after 12 months
 - Use the projection method to replace the incurred claim estimates for months where the completion factors are less than 30%
 - Trend rate is 10% per annum.
 - Use the January 2019-December 2020 experience period to develop the PMPMs.
- (c) (6 points) Calculate the IBNR estimate as of 12/31/2021. Show your work.

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

9. Fall 2022 FV #1

PDR Discussion Paper

(8 points) You are a valuation actuary responsible for Osgoode Insurance Company's Premium Deficiency Reserve (PDR) calculation.

- (a) (2 points) Compare and contrast the testing and reporting contract grouping levels with respect to:

- i. The purpose of the contract grouping

ANSWER:

- ii. Factors impacting how the contract grouping is accomplished

ANSWER:

- (b) (1 point) Describe the components that should be included when documenting the assessment of whether a PDR is needed.

ANSWER:

Osgoode Insurance Company offers long-term disability (LTD) and long-term care (LTC) coverage. The LTC membership has been gradually shrinking in recent years, and the company has learned that the vendor software it uses to process LTC claims will no longer be supported as of July 1, 2024. Osgoode Insurance Company will incur expenses in 2024 to obtain and implement replacement software. Osgoode Insurance Company projects the following for its LTC and LTD lines of business:

Year	Annual Projected Results – Long-Term Care (\$000s)		
	Earned Premium	Incurred Claims	Expenses
2023	653	588	59
2024	692	609	113
2025	714	663	58
2026	735	671	65

Year	Annual Projected Results – Long-Term Disability (\$000s)		
	Earned Premium	Incurred Claims	Expenses
2023	2,755	1,873	614
2024	2,975	1,993	688
2025	3,184	2,229	703
2026	3,423	2,396	771

You have been asked to begin the process to assess PDR at the reporting level. Management proposes grouping the LTC and LTD lines of business and provides the following rationale:

- LTC and LTD are both long-term products
 - Since LTC membership is expected to continue to shrink, the LTC block is not material as its own grouping
 - The LTD block has consistently higher underwriting gains and can help offset the 2024 projected loss for LTC resulting from the cost of migrating to the new claims processing software
- (c) (1 point) Describe American Academy of Actuaries guidance concerning the treatment of expenses that you should consider in your assessment of Osgoode's PDR.

ANSWER:

- (d) (2 points) Critique management's proposal.

ANSWER:

You are asked to calculate the PDR for Osgoode Insurance Company. Assume the following:

- Annual interest rate of 1.5%
- Cash flows for premium occur on January 1 of each year
- Cash flows for claims and expenses occur on July 1 of each year

- (e) (2 points) Calculate the PDR as of December 31, 2022 in the below scenarios. Show your work.

- i. LTC and LTD are tested and reported separately

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

- ii. LTC and LTD are combined for testing and reporting purposes

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

10. Fall 2022 FV #4

Skwire 39 – Claim Reserves for Short-Term Benefits

GH201-100-25 – Health Reserves

ASOP #23 – Data Quality

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

(9 points)

- (a) (2 points) Describe considerations associated with establishing reserves for short-term benefits.

ANSWER:

You are an actuary at Creative Actuarial Consulting Company (CACC) and have been provided the dental claims data from your largest US client BigCo. A review of the data has not yet been performed.

In the Excel spreadsheet, you are provided with BigCo paid claims by incurred month from January 2020 through March 2021, along with membership and earned premium for each month. You notice a gap in data as a result of dental offices being closed from March 15, 2020 through June 15, 2020 due to the Covid-19 lockdown.

- (b) (1 point) Describe considerations for setting reserves for BigCo on March 31, 2021.

ANSWER:

- (c) (2 points) Calculate the IBNR reserve as of March 31, 2021 using the age-to-ultimate development method. Show your work.

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

- (d) (1 point) Evaluate the reasonableness of the reserve from (c) using membership and premium data. Show your work and justify your answer.

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

BigCo requests a memorandum outlining your findings, including any limitations. CACC uses the following table to assess compliance with ASOP 23.

Analysis of Issues and Recommended Practices	Level of Compliance	Recommendation for Improvement
Selection of Data		
Review of Data		
Use of Data		
Reliance on Data Supplied by Others		
Reliance on Other Information Relevant to the Use of Data		
Confidentiality		

- (e) (3 points)

- (i) (2 points) Assess the level of compliance for each listed consideration. Justify your answer.

ANSWER:

- (ii) (1 point) Recommend improvements to BigCo for each deficient consideration.

ANSWER:

11. Spring 2023 VR #1

GH201-100-25 – Health Reserves

Skwire 39 – Claim Reserves for Short-Term Benefits

(12 points) Canadian insurance company XYZ has offered group life and long-term disability (LTD) coverages for decades. In January 20X1, the company started to offer accidental death and dismemberment (AD&D), short term disability (STD), and supplemental health coverage to their existing clients.

As an actuarial analyst, you are asked to prepare reserve calculations for all lines of business.

- (a) (2 points) List and describe the types of claim reserves and claim liabilities required in regulatory statements.

ANSWER:

- (b) (3 points)

- (i) List and describe basic techniques to estimate claim reserves.

ANSWER:

- (ii) Recommend reserve methods for each of XYZ's products. Justify your answer.

ANSWER:

In the Excel spreadsheet, you are provided with the historical supplemental health paid claims since the coverage became effective in January 20X1.

- (c) (4 points) Calculate the total incurred health claims from January 20X2 to June 20X2 using an average of the most recent six months' age-to-age factors. Show your work.

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

- (d) (1 point) Critique the use of the development method in part (c).

ANSWER:

- (e) (2 points) Calculate the Incurred But Not Paid (IBNP) reserve as of June 30, 20X2 by applying both credibility weights and an alternative method. State your assumptions and show your work.

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

12. Fall 2023 VR #1

GH201-100-25 – Health Reserves

(10 points) You are the valuation actuary for ABC Insurance Company.

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

(a) (2 points)

(i) Describe the Tabular method, Examiner's method, and Factor method.

ANSWER:

(ii) Explain for which lines of business it is appropriate to use each method.

ANSWER:

In the Excel spreadsheet, Exhibit 1 provides paid claims by incurred month for four scenarios.

(b) (3 points) Recommend whether the development method is appropriate for each scenario. Justify your answer.

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

Guidance from your chief actuary is that there must be a minimum of 10 months of claim payments when using the development method.

In the Excel spreadsheet, Exhibit 2 provides paid claims by incurred month with large paid claims removed.

(c) (1 point) Recommend the incurred month to be used as the basis for an age-to-ultimate development factor reserve. Show your work and justify your answer.

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

- (d) (2 points) Calculate the IBNR as of January 31, 20X2 using your recommendation from (c). Show your work.

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

In the Excel spreadsheet, Exhibit 3 provides new information regarding reported unpaid large claims. Assume all large claims have been reported and the discharge date for all members is December 31, 20X2.

The Medical Director of ABC Health Insurance Company has reviewed the medical conditions for each member in the hospital and provided you the following information:

Hospital	Contract Terms
A	60% Percent of Charges
B	40% Percent of Charges
C	\$4,000 Average Cost Per Day
D	\$2,500 Average Cost Per Day

Additionally, there is a financial arrangement that caps insurer liability at \$300,000 per member per year.

- (e) (2 points) Calculate the total case reserve for the members in Exhibit 3. Show your work.

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

13. Fall 2023 VR #2

GH201-100-25 – Health Reserves

ASOP #42 – Determining Health and Disability Liabilities

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

(9 points) You are the valuation actuary for a large multi-line managed care organization. Your chief actuary has tasked you with identifying and measuring non-claim liabilities. There are three distinct blocks of business with different provider or outcome-based contingencies:

- Non-Grandfathered Small Group Fully Insured
 - This block is subject to ACA regulations.
 - Providers are solely reimbursed by a set fee schedule.
- Grandfathered HMO Small Group Fully Insured
- Large Group with Claim Stabilization Reserves (CSR)

- (a) (1 point) Identify and describe any provider or outcome-based liabilities that should be accounted for on the Non-Grandfathered Small Group Fully Insured block.

ANSWER:

- (b) (1 point) Identify and describe considerations when setting the liabilities in part (a).

ANSWER:

For the Grandfathered HMO Small Group Fully Insured block, there are four groups of providers that are reimbursed with the following structure:

- Inpatient services
 - \$100 PMPM target
 - If inpatient experience is lower than the target amount, providers keep 40% of the surplus.
- Physician services
 - \$50 PMPM target
 - Physician claims are subject to a 10% withhold. If a positive balance exists in the fund, providers will earn up to the withhold amount.
 - The withhold on physician services will be applied against any deficits created by losses in inpatient services. In the Excel spreadsheet, you are provided additional financial data for each provider group.

- (c) (2 points) Calculate the withhold and incentive liabilities for each provider group. Justify your answer and show your work.

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

- (d) (1 point) Describe considerations when accounting for physician withholding.

ANSWER:

- (e) (1 point) Describe considerations when estimating provider-related assets and liabilities.

ANSWER:

- (f) (1 point) Describe Claim Stabilization Reserves (CSR), including their advantages to employer groups.

ANSWER:

Assume the following for four large group customers each with a CSR:

- The minimum CSR is 5% of premium.
- Risk charges are 2% of premium.
- Interest is 5% of the prior CSR.
- Groups do not have to retroactively fund a minimum CSR.

In the Excel spreadsheet, you are provided additional financial data for each large group customer.

- (g) (2 points) Calculate the maximum experience refund for each of the four large group customers. Justify your answer and show your work.

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

14. Spring 2024 VR #1

GH201-100-25 – Health Reserves

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

(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)

- a. 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:

- b. 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)

- a. Critique the intern's IBNR reserve estimate.
- b. 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.

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.
- a. 3-month average completion ratios
 - b. 6-month average completion ratios
 - c. 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:

15. Spring 2024 VR #4

GH201-100-25 – Health Reserves

PDR Discussion Paper

ASOP #42 – Determining Health and Disability Liabilities

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

(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:

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:

16. Fall 2024 VR #1

Skwire 39 – Claim Reserves for Short-Term Benefits

GH201-100-25 – Health Reserves

ASOP #23, #41, and #5

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

(10 points) You are a valuation actuary for Enchancia Managed Care (EMC).

(a) (1 point) Define the following terms:

- (i) Valuation date
- (ii) Incurral date
- (iii) Reporting date
- (iv) Reporting lag
- (v) Payment lag

ANSWER:

EMC previously only sold large group major medical policies but has expanded its offerings to include small group major medical policies beginning January 20X2.

You are given the following methodology to calculate IBNR for the small group block:

- Use the loss ratio method for the two most recent incurred months.
- Use the development method for payment for all other incurred months.
- Factors should be based on the arithmetic average of the large group development factors from claims incurred in calendar 20X1.
- The small group pricing loss ratio is 80%.
- The large group pricing loss ratio is 85%.

In the Excel spreadsheet, you are provided claim and membership information for the small and large group blocks.

(b) (3 points) Calculate the incurred but not reported (IBNR) claims on the emerging small group block as of June 20X2. Show your work.

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

- (c) (1 point) Assess whether the methodology prescribed is appropriate in this situation. Justify your response.

ANSWER:

- (d) (3 points) Explain how the following situations may affect your IBNR methodology and estimate:

- (i) EMC installs a new claim adjudication system which accelerates reporting and payment times.

ANSWER:

- (ii) A pandemic causes widespread and sustained closures of medical offices.

ANSWER:

- (iii) The small group block becomes subject to a risk adjustment mechanism.

ANSWER:

- (iv) The small group block only offers high-deductible health plans.

ANSWER:

- (v) EMC experiences an increase in the proportion of its total claims that are inpatient claims.

ANSWER:

- (vi) EMC changes its provider reimbursements from a fee-for-service model to a capitation model.

ANSWER:

After you have completed your analysis, one of your analysts hands you a draft actuarial memorandum to review.

- (e) (2 points) Critique the following excerpts from the actuarial memorandum, citing relevant guidance from applicable ASOPs.
- (i) “We relied on EMC’s accounting department for the large group claims development figures. We have reviewed, but not audited, the data and consider it reasonable for this purpose.”

ANSWER:

- (ii) “The loss ratio assumption came from EMC’s actuarial pricing team.”

ANSWER:

- (iii) “Experience for the small group block is emerging, so we cannot conduct follow-up studies to confirm our initial estimates.”

ANSWER:

- (iv) “We have documented the methods, assumptions, and sources of data used. Members of EMC’s valuation team can follow this documentation to assess the reasonableness of our work.”

ANSWER:

17. Fall 2024 VR #4

PDR Discussion Paper

(10 points)

- (a) (2 points) Describe the three fundamental principles when establishing a premium deficiency reserve.

ANSWER:

- (b) (1 point) Explain the difference between a contract reserve and a premium deficiency reserve.

ANSWER:

ABC, a newly established health insurer, is launching its first product line of major medical business beginning January 1, 20X2. ABC's projected profits, in accordance with its business plan presented to its state regulator, is as follows:

	<i>In \$ Millions</i>		
	20X2	20X3	20X4+
Earned Premium	10	100	200
Incurred Claims	8	80	160
Expenses/Commissions	7	18	32

ABC intends to book a premium deficiency reserve of \$5 million on its GAAP balance sheet as of December 31, 20X1.

- (c) (2 points) Critique the following statements made by the CFO. Justify your answer.

- (i) ABC should book a premium deficiency reserve of \$5 million on its GAAP balance sheet as of December 31, 20X1.

ANSWER:

- (ii) ABC should book a premium deficiency reserve of \$0 on its statutory balance sheet as of December 31, 20X1.

ANSWER:

ABC is evaluating a strategic acquisition of XYZ, another health insurer. You are given the following projection of the XYZ's underwriting cash flows across its three lines of business.

<i>In \$ Millions</i>	20X2	20X3	20X4	20X5	20X6+
Individual ACA Silver Plans	10.0	5.0	3.0	3.0	1.0
Individual ACA Gold Plans	-30.0	-15.0	-8.0	-3.0	1.0
Group LTD	5.0	3.0	-7.0	-5.0	5.0
Individual LTC	3.0	2.0	1.0	1.0	0.5
Total	-12.0	-5.0	-11.0	-4.0	7.5

- (d) (2 points) Calculate XYZ's premium deficiency reserve at the end of 20X1 using the projected underwriting cash flows and a 5% discount rate. Show your work.

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

- (e) (1 point) Recommend two courses of action that XYZ could take, beyond making changes to its assumptions or projection methodology, to reduce its premium deficiency reserve.

ANSWER:

ABC is also considering acquiring another organization that has a large block of ASO business.

- (f) (2 points) Compare and contrast premium deficiency reserves and reserves for insufficient administrative fees for self-insured contracts.

ANSWER:

18. Spring 2022 FV #4a-c

GH201-100-25 – Health Reserves

PDR Discussion Paper

(7 points) You are the lead reserving actuary at Family Insurance Company (FIC), a small health insurance company whose primary market is selling Affordable Care Act (ACA)-compliant insurance.

Recently, a new type of head lice has emerged which causes more severe reactions due to secondary infections. Most kids infected need to be treated with antibiotics, while a few have also required hospitalization. Unfortunately, there is no treatment to stop the spread of these lice, and schools across the country have switched to remote learning. As a result, many parents have also been required to switch to working from home.

- (a) (1 point) Describe three different ways to incorporate conservatism into Incurred But Not Reported (IBNR) estimates.

ANSWER:

- (b) (1 point) Recommend which method from (a) FIC should use for the ACA business. Justify your answer.

ANSWER:

Your team has compiled the following information about the ACA business.

	Year 1	Year 2	Year 3
Premium PMPM	\$598	\$600	\$626
Claims PMPM	\$481	\$540	\$513
Marketing Expense PMPM	\$55	\$50	\$52
Claims Department Expense PMPM	\$15	\$25	\$26
FIC's Salaries	\$47,640,000	\$60,150,000	\$67,080,000
Discount Rate	0%	0%	0%
Number of Members	198,500	200,500	215,000

- (c) (1 point) Calculate the Premium Deficiency Reserve (PDR) that should be recorded at 12/31/Year 2. Show your work.

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

Course GH 201-U

Curated Past Exam Questions

Learning Objective 2: Financial Statements

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1. Fall 2020 FV-C #3a-c

GH201-400-25 – Health Insurance Accounting Basics
PDR Discussion Paper

(9 points) You are the appointed actuary for Value-not-Cheap Insurance Company (VNC). You are given the following excerpts from VNC's 2019 financial planning pro-forma analysis:

All figures in \$'M	Commercial	Medicare	Medicaid
Revenue	100.0	25.0	11.0
Claims	87.0	21.0	10.0
Administrative Expenses	11.0	4.5	0.9

- (a) (2 points) Identify the considerations in determining the need for a premium deficiency reserve.

ANSWER:

VNC's Medicare block of business from the given data includes a block of guaranteed renewable Medicare Supplement business.

- (b) (1 point) Justify whether you have sufficient information to calculate a premium deficiency reserve on this block of business as of 12/31/2019.

ANSWER:

- (c) (3 points) With regards to the requirements of VNC as regulated by the National Association of Insurance Commissioners (NAIC)

- (i) (2 points) Describe the publicly available statutory financial reports that VNC is required to submit to the NAIC.

ANSWER:

- (ii) (1 point) Describe the confidential statutory financial reports that VNC is required to submit to the NAIC

ANSWER:

2. Fall 2020 FV-C #6

GH201-400-25 – Health Insurance Accounting Basics

(10 points) You are the appointed actuary for ABC Insurance Company (ABC).

- (a) (1 point) List the three main concepts that have influenced the development of NAIC Statutory Accounting Principles guidance.

ANSWER:

- (b) (3 points) Explain six distinct ways in which GAAP accounting differs from statutory accounting.

ANSWER:

You are given the following information about ABC:

Table below also provided in Excel file

Paid Amounts (in Millions \$)

		Paid Month															
		Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
Incurred Month	Oct-18 and prior	\$11.2	\$2.3	\$2.6	\$0.5	\$0.3	\$0.1	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$17.2
	Nov-18		\$5.6	\$3.6	\$2.3	\$0.6	\$0.3	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$12.8
	Dec-18			\$7.8	\$2.4	\$3.2	\$0.6	\$0.3	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$14.7
	Jan-19				\$6.2	\$2.6	\$2.3	\$0.7	\$0.3	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$12.5
	Feb-19					\$8.9	\$2.9	\$1.5	\$0.7	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$14.7
	Mar-19						\$5.9	\$3.0	\$2.5	\$0.7	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$12.8
	Apr-19							\$6.2	\$3.1	\$1.5	\$0.8	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$12.3
	May-19								\$7.0	\$3.5	\$1.7	\$0.9	\$0.4	\$0.2	\$0.1	\$0.1	\$13.9
	Jun-19									\$7.3	\$3.7	\$1.8	\$0.9	\$0.5	\$0.2	\$0.1	\$14.5
	Jul-19										\$7.9	\$3.9	\$2.0	\$1.0	\$0.5	\$0.2	\$15.5
	Aug-19											\$8.1	\$4.1	\$2.0	\$1.0	\$0.5	\$15.7
	Sep-19												\$7.2	\$3.6	\$1.8	\$0.9	\$13.6
	Oct-19													\$8.1	\$4.1	\$2.0	\$14.2
	Nov-19														\$8.1	\$4.1	\$12.2
	Dec-19															\$8.4	\$8.4

Unpaid claim liability as of 12/31/2018 \$13.8
 Unpaid claim liability as of 12/31/2019 - prior years' services \$0.3
 Unpaid claim liability as of 12/31/2019 - current year services \$15.2

- (c) (1 points) Calculate ABC's claims expense for 2019 for annual GAAP reporting. Show your work.

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

- (d) (2 points) Justify whether a change in the following items would impact statutory income, statutory surplus, or both:

- (i) (1 point) Prepaid Expense Assets

ANSWER:

- (ii) (1 point) Claims Overpayment Receivables

ANSWER:

ABC offers major medical insurance in certain cities where it is able to keep costs low due to a narrow HMO network where providers are paid under a global capitation arrangement. In order to expand rapidly to new geographic areas, ABC is thinking of adding PPO providers into its network by paying them Fee-For-Service.

- (e) (2 points) Critique the strategy of using Fee-For-Service providers to enhance a capitated provider network.

ANSWER:

- (f) (1 point) Recommend an alternative strategy that can help ABC expand rapidly into new geographic areas. Justify your answer.

ANSWER:

3. Spring 2021 FV-C #4

GH201-400-25 – Health Insurance Accounting Basics

<i>Question pertains to the Case Study</i>
--

(14 points) You are an actuary at Royale Health. Due to volatility in medical claim costs, Royale Health's large group employer clients with ASO plan designs are evaluating options to take on less risk.

To address this need, Royale Health has launched a new product, called "Shared Returns" (SR).

Under the SR product, Royale Health takes responsibility for any claims risk. However, it establishes a loss ratio "corridor":

- If an employer's loss ratio for a policy year falls below a "floor" of X%, the employer receives a refund from Royale Health at the end of that year to bring the loss ratio back up to X%.
- If an employer's loss ratio for a policy year exceeds a "ceiling" of Y%, any potential refund for the following year is applied to the prior year's loss ratio to bring it back down to Y%. Any remaining refund is then distributed to the employer.

(a) (2 points) Describe some benefits and drawbacks of this new product for:

- (1 point) Royale Health
- (1 point) A large group employer client

ANSWER:

You are provided with the following information for Royale Health's clients that have the SR product:

	Client A	Client B	Client C	Client D	Client E
Insurer's Expected Annual Loss Ratio	85%	85%	85%	95%	80%
Loss Ratio Floor	80%	80%	80%	90%	75%
Loss Ratio Ceiling	90%	90%	90%	100%	85%

(b) (4 points) Calculate the refund that Royale Health owes to its clients on 12/31/2019 for calendar year 2019. Show your work.

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

(c) (2 points) Assess the impact of the 2019 refund on Royale Health's:

a. (1 point) Income Statement

b. (1 point) Balance Sheet

ANSWER:

(d) (4 points) Calculate the Refund Reserve for Royale Health as of 06/30/2020 using:

a. (2 points) The year-to-date method

b. (2 points) The pro-rated ultimate method

Show your work.

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

(e) (2 points) Explain four alternatives that Royale Health can use to reduce its large group employer clients' risk. Justify your response.

ANSWER:

4. Spring 2021 FV-C #7

ASOP #21 – Responding to Financial Audits

GH201-400-25 – Health Insurance Accounting Basics

Question pertains to the Case Study

(9 points) You are an actuary at XYZ Insurance (XYZ), a new company that started its operations on January 1, 2020. You are provided with the following information:

At month end	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Collected Premium	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Advance Premium	\$200	\$300	\$100	\$200	\$100	\$300	\$200	\$100	\$300
Due Premium	\$100	\$200	\$300	\$400	\$100	\$100	\$100	\$300	\$200
Statutory Policy Reserve	\$1000	\$1100	\$1200	\$1300	\$1400	\$1500	\$1600	\$1700	\$1800
\$100,000 in Acquisition Expense at Jan 1st that the company is planning to defer									

Paid Claims		Payment Month								
		Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Incurred Month	Jan	\$200	\$300	\$250	\$50	\$50	\$0	\$50	\$0	\$0
	Feb		\$100	\$500	\$100	\$200	\$50	\$0	\$100	\$0
	Mar			\$200	\$500	\$400	\$50	\$50	\$100	\$50
	Apr				\$100	\$600	\$150	\$100	\$50	\$50
	May					\$300	\$400	\$200	\$100	\$50
	Jun						\$200	\$600	\$200	\$50
	Jul							\$250	\$500	\$100
	Aug								\$200	\$400
	Sep									\$100
		\$200	\$400	\$950	\$750	\$1550	\$850	\$1250	\$1250	\$800

Unpaid Claim Liability		UCL Estimate at Month End								
		Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Incurred Month	Jan	\$500	\$300	\$200	\$100	\$50	\$0	\$0	\$0	\$0
	Feb		\$800	\$250	\$150	\$100	\$150	\$50	\$0	\$0
	Mar			\$50	\$500	\$100	\$50	\$50	\$0	\$50
	Apr				\$800	\$250	\$200	\$100	\$50	\$100
	May					\$750	\$300	\$100	\$50	\$200
	Jun						\$700	\$200	\$100	\$250
	Jul							\$750	\$300	\$100
	Aug								\$800	\$300
	Sep									\$800
		\$500	\$1100	\$500	\$1550	\$1250	\$1400	\$1250	\$1300	\$1800

- (a) (4 points) Construct a quarterly statutory pretax income statement for each quarter for XYZ. Show your work.

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

- (b) (4 points) XYZ wants to protect itself against excessive risk.
- (i) (2 points) Describe how US health insurers can use contractual vehicles to transfer risk to another party.
- (ii) (2 points) Explain how XYZ's pretax income statement will need to be adjusted under each type of risk transfer vehicle.

ANSWER:

XYZ has just received a request for information with regards to a financial audit.

- (c) *(1 point)* Describe what you should consider when responding to the request for information, in compliance with applicable Actuarial Standards of Practice.

ANSWER:

5. Fall 2021 FV-C #2a-f

GH201-400-25 – Health Insurance Accounting Basics

(10 points) You are an actuary for ABC Insurance Company (ABC). ABC offers Administrative Services Only (ASO) contracts to employers with the option to purchase Individual Stop Loss (ISL) coverage. ABC is considering working with a reinsurance company, XYZ. You have been asked to determine what reinsurance coverage, if any, would be best for company ABC.

- (a) (1 point) List the benefits that ABC, as a third party vendor, provides in an ASO contract.

ANSWER:

- (b) (1 point) Explain why the “premium equivalents” accounting model may not be appropriate for ASO contracts.

ANSWER:

- (c) (2 points) Compare and contrast quota share reinsurance with excess of loss reinsurance options, in regards to ABC’s ISL coverage.

ANSWER:

You are given the following information:

ABC Individual Stop Loss (ISL) Data	2018	2019	2020
ABC ISL premium collected:	\$5,237,000	\$4,845,000	\$5,757,000
ABC ISL pooling point:	\$100,000	\$115,000	\$125,000
ABC ISL claims paid:	\$5,168,000	\$3,659,000	\$4,950,000
ABC ISL claims in excess of \$500,000:	\$2,714,000	\$996,000	\$1,975,000
ABC ISL expenses:	\$467,000	\$472,000	\$543,000
ABC ISL member months:	83,591	69,478	74,545

Options for Reinsurance Coverage offered by XYZ:

- 50% Quota Share Reinsurance
- Excess of Loss Reinsurance above \$500,000

XYZ Reinsurer Data	2018	2019	2020
Expense allowance (% of Ceded Premium):	10%	10%	10%
PMPM premium for \$500,000 attachment point:	\$24.07	\$25.75	\$27.56

- (d) (4 points) Recommend which reinsurance coverage ABC should purchase from XYZ, if at all, in 2021 based on the information above. Show your work. Justify your recommendation.

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

XYZ introduces a new option in 2022 to their excess-of-loss reinsurance product whereby ABC would pay 10% of stop loss claims in excess of \$500,000 and XYZ would pay the remaining 90%. The price of this new coverage is 90% of XYZ's premium for excess-of-loss above \$500,000.

- (e) (1 point) Assess whether or not ABC should continue with your proposed recommendation from part (d) in 2022 based on this new option. Justify your response. Show your work.

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

ABC is expecting significant growth in their ISL block of business in the next few years. For 2025, ABC is expecting to earn \$300,000,000 in ISL premiums.

- (f) (1 point) Explain whether or not ABC should continue with your proposed recommendation from part (d) in 2025. Justify your response.

ANSWER:

6. Fall 2021 FV-C #4

GH201-400-25 – Health Insurance Accounting Basics

(11 points) ABC is a health insurance company owned by a larger multi-entity company named XYZ.

(a) (2 points) Describe the differences between the “accounting view” and the “actuarial view” for:

(i) (1 point) Claims expense

ANSWER:

(ii) (1 point) Revenue

ANSWER:

You are given the following information:

Service Month	Claims Paid:						
	Within Service Month	1 Month After Service Month	2 Months After Service Month	3 Months After Service Month	4 Months After Service Month	5 Months After Service Month	6 Months After Service Month
Jan-21	\$600	\$300	\$200	\$100	\$50	\$25	\$0
Feb-21	\$550	\$350	\$150	\$50	\$25	\$50	\$0
Mar-21	\$650	\$250	\$100	\$150	\$100	\$75	\$0
Apr-21	\$700	\$300	\$200	\$75	\$75	\$50	\$0
May-21	\$450	\$350	\$250	\$125	\$100	\$25	\$0
Jun-21	\$800	\$300	\$150	\$75	\$50	\$75	\$0
Jul-21	\$700	\$200	\$100	\$175	\$125	\$50	\$0
Aug-21	\$750	\$500	\$150	\$100	\$75	\$25	\$0
Sep-21	\$650	\$300	\$250	\$50	\$100	\$75	\$0
Oct-21	\$550	\$350	\$200	\$100	\$75	\$50	\$0
Nov-21	\$400	\$400	\$300	\$400	\$50	\$25	\$0
Dec-21	\$800	\$400	\$200	\$100	\$50	\$25	\$0

**UNPAID CLAIMS
LIABILITY***

As Of	
Jan-21	\$700
Feb-21	\$900
Mar-21	\$1,100
Apr-21	\$1,250
May-21	\$1,500
Jun-21	\$1,500
Jul-21	\$1,500
Aug-21	\$1,500
Sep-21	\$1,250
Oct-21	\$1,250
Nov-21	\$1,500
Dec-21	\$1,600

* Excluding PfAD

A Provision for Adverse Deviation (PfAD) of 10% applies on unpaid claims liabilities.

(b) (4 points) Calculate the claims expense for each quarter of 2021 using:

(i) (2 points) The “accounting view”

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

(ii) (2 points) The “actuarial view”

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

Show your work.

- (c) (1 point) Describe what additional information you would need to calculate the “actuarial view” of claims expense for 1Q’22 at the end of March 2022.

ANSWER:

- (d) (1 point) Explain whether the “accounting view” or the “actuarial view” is more appropriate for a pricing exercise. Justify your response.

ANSWER:

You are asked to consolidate the financial statements of ABC and all other related entities for XYZ.

- (e) (1 point) Describe the purpose of an “elimination entry” in a consolidated income statement.

ANSWER:

- (f) (2 points) Describe three examples of an “elimination entry”.

ANSWER:

7. Spring 2022 FV #8

GH201-400-25 – Health Insurance Accounting Basics

(10 points) You are an actuary at Arsenal Insurance Company (AIC).

- (a) (2 points) Compare and contrast the benefits for AIC of a provider incentive program versus a fee-for-service model.

ANSWER:

- (b) (2 points) Explain how two types of provider incentive programs are structured.

ANSWER:

You are given the following information:

- On 1/1/2021, AIC signs a provider incentive program with Diaby Ankle Rehabilitation Center (DARC) for the calendar year 2021.
- On 5/31/2021, AIC forecasts the full year payout of the program to DARC to be \$2.4M. AIC continues to accrue for this program at the same rate throughout the program year.
- On 12/31/2021, AIC and DARC determine the annual settlement is worth \$2.0M.

- (c) (2 points)

- a. (1 point) Create the accounting entry for this program on May 31, 2021.

ANSWER:

- b. (1 point) Create the accounting entry for this program on December 31, 2021.

ANSWER:

In May 2022, DARC informs AIC that one of the quality metrics used to calculate the \$2.0M payment was incorrect, which caused an overpayment from AIC to DARC at Dec 31, 2021.

- (d) (2 points) Describe challenges associated with provider incentive programs for insurers.

ANSWER:

- (e) (2 points) Describe potential steps to address the challenges from part (d).

ANSWER:

8. Spring 2022 FV #12a-b

GH201-400-25 – Health Insurance Accounting Basics
Skwire 9 – Gov't Health Plans (US)

(5 points) With respect to the Medicaid Part D program:

- (a) (2 points) Outline how a prescription drug plan (PDP) shares financial risk with CMS.

ANSWER:

- (b) (3 points) Explain the importance of estimating Part D settlements before the final true-up with CMS.

ANSWER:

9. Fall 2022 FV #2

Read. Think. Write.

ASOP #41 – Act. Communications

(6 points)

- (a) (1 point) List the Academy qualifications required for issuing a Statement of Actuarial Opinion.

ANSWER:

You are a consulting actuary who has been engaged by US-domiciled ABC Health Insurer to provide a Statement of Actuarial Opinion for the NAIC health annual statement as of December 31, 2021. You have been provided all of the data files and calculations used by the opining actuary in the prior year. As part of your initial effort, you have noted the following:

- (i) ABC has a Medicare Supplement block where premiums are established by issue age and ABC is holding policy reserves. In 2021, ABC reduced these policy reserves by switching from a net level premium method to a two-year full preliminary term method (2YFPT).
- (ii) ABC started a new line of business in 2021 by selling individual health insurance policies on the ACA exchange. The CFO indicated that they have not established any provision related to risk adjustment despite the strategy of attracting healthier members.
- (iii) ABC is estimating unpaid claim liabilities for the individual health insurance line of business using completion factors from the more established Medicare Supplement line of business.
- (iv) ABC has a small block of long-term care (LTC) insurance. You noted that all assets are invested in bonds with a duration of 5 years or less. When you asked the CFO about asset adequacy analysis, they indicated that such analysis was not performed because it is not required for the NAIC Health Blank.
- (v) In 2021, ABC made major modifications to the underwriting guidelines for LTC insurance. As such, ABC changed the assumed pattern of incurred claims by duration for calculation of policy reserves for policies issued under the new underwriting guidelines.
- (vi) For ABC's group medical insurance business, they establish an explicit claim margin by subtracting 3% from each calculated completion factor for the most recent 24 months (e.g., a completion factor calculated as 95% complete would be reduced to 92% to determine the unpaid claim liability).

- (vii) ABC has a closed line of business selling Individual Disability Insurance. Policies that are issue age rated and not subject to rate increases. The sum of claims and changes in reserves has exceeded premiums for each of the last 3 years. The only liabilities you have found for this line of business are unearned premiums, unpaid claim liabilities, claim adjustment expense liability, policy reserves, and claim reserves.
- (b) (4 points) Assess whether any of the prescribed opinion statements have been violated for each of the items noted above. Justify your answer.

ANSWER:

ABC's CFO has certified the accuracy and completeness of all the policyholder and claim information provided to you for your analysis.

- (c) (1 point) Identify additional steps required pursuant to ASOP 41.

ANSWER:

10. Spring 2023 VR #4

Skwire 43 – Analysis of Financial & Operational Performance

(4 points)

(a) (2 points) In the table below:

- (i) List the formula(s) for each component of the DuPont Formula.
- (ii) Describe what each component measures.

Component	Formula(s)	Measures
Net Profit Margin		
Total Asset Turnover		
Total Leverage Ratio		
Return on Equity		
Return on Assets		

(b) (1 point) You are an actuary at Company X, a publicly traded company. Company X's Finance department provides you the following information for 20X1.

Health benefit ratio	82.0%
Administrative expense ratio	17.4%
Investment Income, as a percent of revenue	4.6%
Non-operating expense, as a percent of revenue	2.2%
Total Asset Turnover	2.28
Total Leverage Ratio	1.75
Corporate tax rate	21%

Calculate Company X's shareholder equity as a percent of revenue. Show your work.

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

(c) (1 point)

- (i) Identify a component of the DuPont Formula that would differ significantly between a staff model plan and a fee-for-service plan, all else being equal. Justify your response.

ANSWER:

- (ii) Recommend an adjustment that could be made to a different component of the DuPont Formula to counteract the effect described in (i) and achieve the same Return on Equity. Justify your response.

ANSWER:

11. Fall 2022 FV #8

GH201-400-25 – Health Insurance Accounting Basics
ASOP #21 – Responding to Financial Audits

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

(17 points) You are an actuary for a Pharmacy Benefit Manager called Quick Scripts (QS). The clients of QS are mid-sized employers. You frequently work with the accountants at QS, including the Chief Accounting Officer (CAO).

- (a) (1 point) Describe the difference between the “accounting view” and the “actuarial view” of claims.

ANSWER:

The CAO reaches out to ask you why the year-over-year claims trend in the period Jul-Dec 2021 was so much higher than the period Jan-Jun 2021. The CAO would have expected trend in the first half of the year to be approximately the same as the second half of the year. The CAO has shared the following summary table to support their assertion.

	January – June	July – December
2020 Shipped Claims (Pharmacy Cost)	\$71.9M	\$71.8M
2021 Shipped Claims (Pharmacy Cost)	\$81.1M	\$84.0M
Year over Year Claims Trend	13%	17%

QS does not maintain any claims reserves for this book of business. Membership was unchanged across this book throughout the period Jan 2020 – Dec 2021.

The Excel spreadsheet contains the data and information the CAO used.

- (b) (4 points) Calculate the year-over-year Jan-Dec 2021 claims trend using:

- a. Ship date

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

- b. Fill date

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

Show your work.

- (c) (1 point) Explain why ship date is preferred when calculating claims trend in the “accounting view”.

ANSWER:

- (d) (2 points) Explain factors that could cause the “actuarial view” of claims trend to differ from the “accounting view”.

ANSWER:

The CAO would like to understand whether the higher claims trend for Jul-Dec 2021 could have been predicted more closely with data through Jun 2021 if the team had focused on the “actuarial view”.

- (e) (4 points)

- a. (3 points) Calculate the claims trend based on data through June 2021 using the “actuarial view”. Show your work.

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

- b. (1 point) Assess whether the calculated trend in part (i) would have better predicted the Jan-Dec 2021 trend. Justify your response.

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

- (f) (2 points) Create the accounting entry for Drug J3381 for the month of Nov 2021. Show your work.

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

You have received a request from the local sales manager to evaluate the profitability of their client, PQR.

(g) (2 points) Calculate the profit margin for PQR in 2021 using:

a. Ship date.

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

b. Fill date.

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

Show your work.

You review ASOP 21 to determine which elements are within scope of a request for information related to a potential financial examination.

(h) (1 point) Describe the circumstances an actuary should be prepared to discuss with an examiner due to changing conditions.

ANSWER:

12. Spring 2023 VR #9

PDR Discussion Paper

GH201-400-25 – Health Insurance Accounting Basics

(6 points) You are the Appointed Actuary at Diversity Insurance Company.

You have been provided excerpts of Diversity's 20X2 financial planning pro-forma analysis:

Figures in \$ millions	Commercial	Medicaid	Medicare
Revenue	200.0	15.0	40.0
Claims	184.0	13.0	32.0
Administrative Expenses	22.0	1.7	7.0

- (a) (2 points) Describe the considerations in determining the need for a premium deficiency reserve for a health insurer.

ANSWER:

Diversity's commercial block of business data excerpt includes a block of guaranteed renewable long-term care business.

- (b) (1 point) Justify whether you have sufficient information to calculate a premium deficiency reserve as of December 31, 20X1.

ANSWER:

- (c) (3 points) Specific to the requirements of Diversity as regulated by a state agency that is a member of the National Association of Insurance Commissioners (NAIC):

- (i) Describe the publicly available statutory financial reports that Diversity is required to submit to the state regulatory agency based on NAIC rules.

ANSWER:

- (ii) Describe the confidential statutory financial reports that Diversity is required to submit to the state regulatory agency based on NAIC rules.

ANSWER:

13. Fall 2023 VR #6

Skwire 43 – Analysis of Financial & Operational Performance
GH201-400-25 – Health Insurance Accounting Basics

(12 points)

- (a) (2 points) Contrast GAAP financial statements and statutory financial statements

ANSWER:

- (b) (1 point) List primary users of each type of financial statement.

ANSWER:

You are given the following financial statement information for three companies:

Income Statement (\$M)	Company A	Company B	Company C
Premium Revenue	\$400	\$240	\$15
Operating Expenses	\$375	\$224	\$13
Non-Operating Expenses	\$2.5	\$2.5	\$0.8

Balance Sheet (\$M)	Company A	Company B	Company C
Total Current Assets	\$150	\$80	\$35
Total Fixed Assets	\$50	\$20	\$15
Total Current Liabilities	\$50	\$50	\$5
Long-term Debt	\$25	\$2	\$1

Assume an effective tax rate of 20%.

- (c) (2 points) Calculate the following financial metrics for each company. Show your work.

- (i) Return on Equity
- (ii) Total Leverage Ratio
- (iii) Return on Assets
- (iv) Net Profit Margin
- (v) Total Asset Turnover

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

All three companies assume the following for next year:

- An increase of 8% in operating expenses
- An increase of 3% in non-operating expenses
- No change in liabilities

- (d) (2 points) Calculate the increase in revenue required for each company to maintain the same return on equity as the current year. Show your work.

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

- (e) (1 point) Explain why the required revenue increase varies by company.

ANSWER:

Company C is considering adding an ASO component to its business.

- (f) (2 points) Describe the differences in accounting for fully-insured and ASO contracts.

ANSWER:

Company C adds \$5 million in ASO revenue with a 6% net profit margin to the projections developed in part (d). It plans to issue \$4.5 million in new equity to finance the expansion.

- (g) (1 point) Calculate the following projected financial metrics for Company C. Show your work.

- (i) Return on Equity
- (ii) Total Leverage Ratio
- (iii) Return on Assets
- (iv) Net Profit Margin
- (v) Total Asset Turnover

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

- (h) *(1 point)* Explain how the financial metrics in part (g) would change if Company C financed the expansion with debt instead of equity.

ANSWER:

14. Spring 2024 VR #2

Skwire 43 – Analysis of Financial & Operational Performance

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

(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.

(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:

15. Spring 2024 VR #3

Skwire 43 – Analysis of Financial & Operational Performance

(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:

16. Spring 2024 VR #7

GH201-400-25 – Health Insurance Accounting Basics
ASOP #21 – Responding to Financial Audits

(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:

17. Spring 2024 VR #10

GH201-400-25 – Health Insurance Accounting Basics

(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:

18. Fall 2024 VR #2

Skwire 43 – Analysis of Financial & Operational Performance

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

(8 points) You are given the following assumptions about ABC Insurance Company:

- All earnings are distributed via dividends to the stockholders (a change in earnings will not result in a change to net worth).
- Purchases or sales of fixed assets are directly funded by or serve to reduce net worth.
- The income tax rate is 23%.
- The current stock price is \$50.

In the Excel spreadsheet, you are provided with the income statement for 20X1 and balance sheet as of 12/31/20X1.

- (a) (2 points) Calculate the new stock price if the required rate of return for an equity investor increased from 10% to 12% using the Gordon Constant Growth Model. Show your work.

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

The CFO has presented a plan to outsource some of ABC's administrative functions. This would allow ABC to sell 50% of its fixed assets at book value and would increase administrative expenses by 3%.

- (b) (2 points) Calculate the change in return on equity if this plan is implemented. Show your work.

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

The CFO has presented an alternative plan where ABC invests in a claim management system. This would increase fixed assets by \$75,000,000 and would decrease health benefit expenses by 3%. For this alternative plan:

- (c) (2 points) Calculate the change in:

- (i) Return on assets
- (ii) Return on equity

Show your work.

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

You have been asked to prepare competitive analysis on two competitors of ABC.

- Competitor X is predominantly a fee-for-service health plan but capitates all pharmacy services to an outside organization.
- Competitor Y capitates 25% of its membership to an organization whose only financial relationship is capitation from Competitor Y.

You have access to the detailed financial statements for Competitors X and Y and the capitated organizations.

(d) (2 points) Describe the adjustments you will need to make to perform an accurate financial comparison of ABC to:

(i) Competitor X

ANSWER:

(ii) Competitor Y

ANSWER:

19. Fall 2024 VR #3

GH201-400-25 – Health Insurance Accounting Basics

Skwire 43 – Analysis of Financial & Operational Performance

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

(7 points) Company XYZ is a publicly-traded health insurance company.

- (a) (1 point) Explain how each party uses different types of XYZ's financial statements by completing the table below.

Party	Type(s) of financial statement(s) typically reviewed	How party uses XYZ's financial statements
Management		
Shareholders/Investors		
Creditors		
NAIC-member Regulators		

In the Excel spreadsheet, you are provided excerpts from XYZ's financial statements.

- (b) (2 points) Calculate the following metrics for XYZ in CY 20X1 and CY 20X2.

- (i) Net Profit Margin
- (ii) Return on Assets
- (iii) Return on Equity

Show your work.

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

- (c) (1 point) Describe the primary driver(s) of the change, from CY 20X1 to CY 20X2, in each of the metrics calculated in part (b).

ANSWER:

XYZ is considering two expansion initiatives in 20X4, one for its fully-insured business and one for its ASO business.

In the Excel spreadsheet, you are provided details of the expansion initiatives and XYZ's projected changes from its 20X2 position.

- (d) (2 points) Calculate the impact of each expansion initiative on XYZ's Net Profit Margin and Return on Assets in 20X4. Show your work.

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

- (e) (1 point) Explain why XYZ should seek to maximize earnings growth, using the Gordon Constant Growth Model as a framework.

ANSWER:

20. Spring 2021 FV-A #7a,c

ASOP #41 – Act. Communications

Read. Think. Write.

(5 points)

- (a) (2 points) Explain how eight considerations from ASOP 41 apply to an actuary's work signing actuarial opinions for annual statements.

ANSWER:

You are an actuarial consultant. You will be signing actuarial opinions for the annual statutory statements of two health insurer clients, Company Alpha and Company Bravo. You have been provided with draft annual statements and supporting information including the following.

Company Alpha

- The laws and regulations of the state of domicile regarding health liabilities differ from those of most other states.
- The liabilities were set by one method for group business and by a different method for individual business.
- The total unpaid claim liability is above your range of reasonable estimates, and additionally the company has added a 25% conservative margin.
- The company may have entered a new line of business this year, but you are not certain.

Company Bravo

- The company is a new client. You were not involved with the prior year's calculations, and have no knowledge how they were performed.
- Some actuarial assumptions were set by the company's management.
- The total unpaid claim liability is below your range of reasonable estimates, and no conservative margin is added. By your calculations there is a 20% chance that the liability is too high, and an 80% chance it is too low.
- The company will comment in the annual statement about their reserve for experience-rated refunds. They suggest that you don't need to opine on it.

- (c) (3 points) Recommend how to address issues you face as the signing actuary, referring to the scenarios above and relevant items from the list in (b), for:

- (i) Company Alpha
- (ii) Company Bravo

ANSWER:

Course GH 201-U

Curated Past Exam Questions

Learning Objective 3: Regulation

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1. Fall 2020 FV-C #1a-b

Skwire 15 – Principles of Health Insurance Regulation
Skwire 19 – The ACA

(4 points)

- (a) (1 point) Identify four potential problems that could exist in an unregulated insurance market.

ANSWER:

- (b) (3 points)

- (i) (1 point) List the four goals of insurance regulation.

ANSWER:

- (ii) (2 points) Identify and describe two relevant components of the Affordable Care Act (ACA) that help to achieve each of these goals.

ANSWER:

2. Spring 2021 FV-C #1

Skwire 4 – Health Policy and Group Insurance

(3 points)

- (a) (1 point) List “the triple aim” of health policy.

ANSWER:

- (b) (2 points) Compare and contrast how health care is financed between US and two of the following four countries:

- i. Canada
- ii. Germany
- iii. England
- iv. Netherlands

ANSWER:

3. Spring 2021 FV-C #3

Skwire 15 – Principles of Health Insurance Regulation
Skwire 41 – Risk-Based Capital Formulas

(3 points)

- (a) (1 point) List and describe three types of measures US regulators use to assess insurer solvency.

ANSWER:

Risk Based Capital by coverage type is as follows:

Coverage	% of earned premium
Comprehensive	15.0%
Dental & Vision	7.6%
Medicare	25.1%
Other	13.0%

Your state has a 200% of Risk Based Capital threshold for corrective actions.

You are given the following company information:

- Company only sells Medicare and Dental & Vision coverages
- Earned premium for Medicare = \$15M
- Earned premium for Dental & Vision = \$3M
- Asset = \$15M
- Shareholder's Equity = \$5M
- Total Adjusted Capital = \$7M

- (b) (2 points)

- (i) (1 point) Assess the company's solvency position. Show your work.
- (ii) (1 point) Recommend any possible actions for the company due to the solvency position in part i). Justify your answer.

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

4. Fall 2021 FV-C #3

Skwire 16 – State Regulation (US)

Skwire 17 – Federal Regulation (US)

(10 points) Your best friend from college, Steve, has come to you and is interested in getting into the Health Insurance business. He has asked you to provide him some information:

(a) (3 points)

(i) (1 point) List and define the steps that must be taken by a company to start selling health insurance.

ANSWER:

(ii) (2 points) List and define the items reviewed by the Insurance Commissioner to assure financial soundness of insurers.

ANSWER:

(b) (1 point) List the standard contract provisions of a Health insurance policy.

ANSWER:

Steve has decided that selling health insurance is too difficult, and instead opened up a consulting firm. You have agreed to help him out. Your first client is an employer, Grind My Gears. The CEO is determined to offer a benefit package to employees that minimizes the amount of taxes payable by Grind My Gears on the benefit package.

Grind My Gears Employee Population Data:	
Only Employee Benefits (no spouse / child benefits)	
Employer size:	10
Employee average salary:	\$100,000
Corporate tax rate:	35%
Individual tax rate:	25%
Possible Benefit Offerings:	
Benefit	Annual Cost to Employer
Cash	\$20,000
Retirement	\$10,000
Health Insurance with Actuarial Value of 95%	\$12,000
Gym Membership	\$1,000
Dental Insurance	\$1,000
Vision Insurance	\$1,000
Pharmacy Insurance	\$2,500
Vacation Time	\$5,000
Life Insurance (Benefit = Salary)	\$5,000
Disability (STD + LTD)	\$5,000
Non-Qualified Long Term Care Insurance	\$5,000

(c) (3 points)

- (i) (2.5 points) Create a benefits package where Grind My Gears pays no taxes, while maximizing the amount of money spent on benefits.

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

- (ii) (0.5 points) Calculate the amount of tax saved by choosing the benefits package in part (i) above. Assume an unlimited benefits budget. Show your work.

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

The CEO has decided she wants to consider a different scenario that shelters her employees from paying taxes.

Given this new scenario:

(d) (3 points)

- (i) (2.5 points) Create a benefits package, where Grind My Gears' employees pay no taxes, while maximizing the amount of money spent on benefits.

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

- (ii) (0.5 points) Calculate the amount of tax saved by choosing the benefits package in part (i) above. Assume an unlimited benefits budget. Show your work.

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

5. Fall 2022 FV #7

Skwire 16 – State Regulation (US)

Skwire 4 – Health Policy and Group Insurance

(9 points)

- (a) (2 points) Define and describe a Health Maintenance Organization (HMO) and a Preferred Provider Organization (PPO).

ANSWER:

- (b) (1 point) Write down in the following chart the advantages of an HMO and PPO from each perspective:

Perspective	HMO Advantages	PPO Advantages
Member		
Provider		
Health Plan		

ANSWER:

(c) (4 points) The “triple aim” is commonly used to describe the modern paradigm of health policy by the Centers of Medicare and Medicaid Services.

(i) (1 point) List each element of the “triple aim.”

ANSWER:

(ii) (3 points) Describe the characteristics of each element of the “triple aim.”

ANSWER:

(d) (2 points) Contrast how HMOs and PPOs each meet the goals of the “triple aim.”

ANSWER:

6. Fall 2022 FV #11

Skwire 15 – Principles of Health Insurance Regulation

(8 points)

- (a) (1 point) List the goals of insurance regulation.

ANSWER:

- (b) (1 point) Describe the situations where simple regulation is preferable versus situations where complex regulation is preferable.

ANSWER:

- (c) (3 points) Outline the five categories of regulatory enforcement, including:

- (i) Definitions of each category

ANSWER:

- (ii) An example for each category showing how it is applied

ANSWER:

- (d) (1 point) Identify and define each of the types of Consumer Protection Regulations.

ANSWER:

A new island has formed just off the Atlantic coast of the United States and it has been added as the 51st state, Newer York. You chose to move to the island, where you are now the state's first Actuary. You are tasked with ensuring proper health insurance regulation.

The state legislature is determined to write some Consumer Protections into law. The following list of possible regulations were provided to you:

- Standardized summary of benefits for consumers for all medical insurers
- Mandate illustrations of the value of the whole life policy under different scenarios
- Strict loss ratio regulation on small group major medical insurance premiums
- Create the state's own definition of mandated benefits for ACA plans
- Explicit mention of exclusions in all sales materials
- Removal of any use of prior experience to write major medical insurance, regardless of group size
- Elimination of credit data as an allowable underwriting method for life insurers
- Require all life insurance application forms to contain tables showing future guaranteed costs

(e) (2 points) Identify which protections described in (d) apply to each of the potential regulations above. Justify your response.

ANSWER:

7. Spring 2023 VR #5a-b

Skwire 17 – Federal Regulation (US)

Skwire 19 – The ACA

(3 points) You are an actuary for ABC insurance company in charge of pricing and filing the premium rates for ABC's small group non-grandfathered plans.

- (a) (2 points) List and describe the rating characteristics allowed for these plans under the Affordable Care Act (ACA).

ANSWER:

After completing your first draft of pricing, your manager asks you how the COVID pandemic affected your pricing.

- (b) (1 point) Explain how the Coronavirus Aid, Relief, and Economic Security (CARES) Act directly affected health insurers.

ANSWER:

8. Spring 2023 VR #8

Skwire 41 – Risk-Based Capital Formulas

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

(9 points) You are hired as a risk expert by an insurance company.

In the Excel spreadsheet, the financials for the company are provided.

- (a) (2 points) Assess whether the company should be filing the Blue Blank or the Orange Blank. Show your work. Justify your answer.

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

- (b) (5 points) Calculate the Authorized Control Level (ACL) for the company using the Orange Blank. Show your work.

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

The CFO of the company would like to lower the ACL.

- (c) (2 points) Propose two options for lowering the ACL, including a numeric example for each that illustrates its potential impact.

ANSWER:

9. Fall 2023 VR #7

Potential Abuses With US Rx Patents

(8 points)

- (a) (2 points) Explain the strategies a patent-holder may employ to extend the lifespan of a patent.

ANSWER:

- (b) (3 points)

- (i) Describe legislation that focuses on intellectual property reforms for the pharmaceutical industry.
- (ii) Explain what strategies from (a) this legislation is addressing.

ANSWER:

You are the large group commercial pharmacy actuary for a health insurer. Generic Dispensing Rates (GDR) are as follows:

- 20X1 actual: 85%
- 20X2 actual: 86%
- 20X3 projected: 90%

Several high-volume prescription drugs successfully extended the lifespan of their patents. You now expect the 20X3 actual GDR to be in line with historic results.

- (c) (3 points) Explain the actuarial implications of this variance for your company, the covered employers, and their employees.

ANSWER:

10. Fall 2023 VR #8a

Skwire 16 – State Regulation (US)

(5 points) Your company is expanding into a new state, and your boss has been tasked with developing a competitive strategy to produce profitable growth. She writes an email to you:

Actuarial Analyst, I've been thinking about our task to grow profitably and here are some ideas I've come up with (remember at the last meeting with corporate they said we should focus on a Preferred Provider Organization (PPO) arrangement to limit disruption. So a Health Maintenance Organization (HMO) is not an option anymore):

1. *For companies that don't mind disruption, there should be an option for an Exclusive Provider Organization (EPO) as well. We would be the only one in the market who does this. It could be a big win!*
2. *For the broader PPO, let's be selective about who our In-Network providers are and only look for efficient & effective providers*
3. *Our benefit differentials shouldn't be TOO large, maybe 20% at most, between in and out of network benefits.*
4. *To keep costs down, let's exclude all chiropractic care. None of the competitors offer this benefit.*
5. *For high impact claims, like transplants, we should ONLY let members use our closest hospital partner. It might mean people need to travel a few hours to get there, but it is worth it because we know they do a great job and will limit issues post operation. The current market leader in membership does this with transplants and rare cancer diagnoses. We should definitely follow suit.*
6. *There is no time to build a Utilization Review (UR) team so let's talk to corporate and we can find a 3rd party partner that already operates in the market to do our UR.*
7. *I know we have an in with Hospital A in the state capital (the CFO there used to work for us), and they have an extensive provider network. Maybe we can work that connection to get a Most Favored Nations clause on our discounts with them.*
8. *For Rx, we have a few options to be competitive. We can retain 100% of the rebates, which will help us to have higher levels of profit!*

I don't KNOW the rules and regulations in the new state so please review these ideas with legal when you get a chance!

(a) (5 points) From the email above:

(i) Identify the type of PPO Regulation each recommendation potentially violates.

ANSWER:

(ii) Assess the likelihood of each recommendation violating state law into: likely, unlikely, or not enough information. Justify your answer.

ANSWER:

11. Spring 2024 VR #9

Skwire 17 – Federal Regulation (US)

(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:

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.

12. Spring 2021 SPC #6

GH201-402-25 – RBC Calculation Examples

(6 points) Your company sells a critical illness insurance policy with these options:

- \$60,000 benefit for an eligible-diagnosed critical illness during the 20-year term period; or
- Return of premium at the end of the 20-year period, if no benefit has been paid.

You are given the following information:

- $(H_1)^2 = 3.2(H_2)^2$
- Current RBC ratio is 325%
- Cash RBC Factor is 0.003
- Bonds RBC Factor is 0.01, aligning with subclass NAIC 2
- Equities RBC Factor is 0.20, aligning with common stock

(a) (4 points) Calculate the RBC ratio if the company changes its asset portfolio from 100% cash to

(i) 85% cash/15% equities

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

(ii) 85% cash/15% bonds

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

(b) (2 points) Assess whether either of the asset portfolio changes in part (a) require regulatory action and if so, propose an alternative asset allocation that requires no regulatory action. Assume no changes to the types of assets in each portfolio. Show your work.

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

13. Spring 2022 SPC #2

Skwire 41 – Risk-Based Capital Formulas

(8 points)

- (a) (3 points) Describe business risk and its components as it relates to the Health Risk-Based Capital (RBC) formula.

ANSWER:

- (b) (1 point)

- (i) Define underwriting risk as it relates to the Health RBC formula.

ANSWER:

- (ii) Describe how underwriting risk is calculated.

ANSWER:

- (iii) State exceptions for why underwriting risk factors may differ across health insurance companies.

ANSWER:

- (c) (2 points)

- (i) Define the purpose of the Managed Care Risk Adjustment Factor.

ANSWER:

- (ii) Describe the categories used in the Managed Care Risk Adjustment Factor.

ANSWER:

- (iii) Describe how the Managed Care Risk Adjustment Factor is calculated.

ANSWER:

You are given the following:

Risk Category	Relative Risk (indexed to $H_2 = 100$)
H_1	40
H_2	100
H_3	25
H_4	30

- There is no Insurance Affiliates and Miscellaneous Other Amounts
- (d) (2 points) Calculate the required increase in risk to achieve an \$800 marginal impact of RBC after covariance to underwriting risk. Show your work.

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

14. Fall 2022 SPC #6

Skwire 41 – Risk-Based Capital Formulas

(6 points)

- (a) (1 point) Describe regulatory actions based on Total Adjusted Capital to Authorized Control Level (TAC-to-ACL) ratios.

ANSWER:

You are given the following:

Risk Category	H ₀	H ₁	H ₂	H ₃	H ₄	TAC
Company 1	10	60	200	16	30	75
Company 2	5	40	175	12	22	85
Company 3	15	32	100	6	10	250
Company 4	8	21	75	6	8	50

- (b) (2 points)

- (i) Calculate the TAC-to-ACL ratio for each company. Show your work.

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

- (ii) Identify for each company what, if any, regulatory action needs to be implemented based on the TAC-to-ACL ratio.

ANSWER:

The state in which you are currently employed has not adopted the Risk-Based Capital (RBC) Model Act. Previously, you were employed in a state that had adopted the RBC Model Act.

- (c) *(1 point)* Recommend to your manager why your company should follow the RBC Model Act. Justify your response.

ANSWER:

- (d) *(2 points)* Describe differences in insurance risk factors between the Life and Health RBC formulas.

ANSWER:

15. Fall 2024 VR #5

Rx Patent Regulation in the US
Potential Abuses With US Rx Patents

(11 points) You have been hired by the pharmaceutical manufacturer Brand X to assist them with the pricing of their soon-to-be blockbuster drug, Panacea.

- (a) (1 point) Describe the main elements required for a successful patent grant.

ANSWER:

- (b) (2 points) Compare and contrast patent exclusivity and regulatory exclusivity.

ANSWER:

Panacea is approved by the FDA for use starting in 2025. A patent for Panacea was granted in 2020.

You are given the following assumptions:

- The price will remain \$20,000 per year.
- 100,000 patients will be eligible for the treatment:
 - 20% will elect to take the drug.
 - They will continue to take the drug annually.
 - No change in population or utilization is expected.
- No patent continuations are expected.
- The interest rate is 0%.

- (c) (1 point) Calculate Brand X's estimated revenue for Panacea over its exclusivity window. Show your work.

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

Two competitors plan on selling a generic version of Panacea after the exclusivity window ends. The competitors' plans are summarized below:

Competitor	Readiness to sell	Discount off Panacea's original price
Shady Pharmaceutical	Upon expiration of exclusivity window	15%
FollowAlong	5 years after expiration of exclusivity window	50%

You are given the following:

- No additional generic entrants
 - All drugs achieve equal market share upon entry
 - Brand X matches the lowest competitor's pricing upon entry
- (d) (2 points) Calculate Brand X's estimated revenue from the end of exclusivity through 2060. Show your work.

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

There is a chance a secondary patent will be approved for Panacea in 2030 for a new indication.

If the patent is approved:

- Shady Pharmaceutical and FollowAlong will not be allowed to sell generic Panacea and have no plans to pursue future entry
 - 50,000 more patients will be eligible for the treatment, of which 20% will elect to take the drug
 - Brand X will be able to increase the price of Panacea by 10% starting in 2030 and every year thereafter thru the end of the exclusivity period
- (e) (3 points) Calculate the total revenue for Panacea over its exclusivity window if the secondary patent is approved. Show your work.

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

- (f) (2 points) Identify and describe potential and existing legislative efforts that could reduce Brand X's estimated revenue.

ANSWER:

16. Fall 2024 VR #6

Skwire 41 – Risk-Based Capital Formulas

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

(8 points) A stochastic Ruin Theory Model was used during the development of the Health RBC formula.

(a) (1 point)

(i) State the purpose of the Ruin Theory Model.

ANSWER:

(ii) Describe the key factors that impacted the risk for a given scenario within the Ruin Theory Model.

ANSWER:

During your company's review of the Authorized Control Level (ACL) calculation, you discover two material errors.

In the Excel spreadsheet, you are given the company's financial information.

(b) (7 points) Calculate the change in the ACL capital requirement. Show your work.

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

Course GH 201-U

Curated Past Exam Questions

Learning Objective 4: Government Programs

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1. Spring 2023 DP #1c-d

Skwire 19 – The ACA

(5 points) You are an actuary for PQR Insurance, which offers individual ACA and Medicare Advantage (MA) products.

To make up for a lack of Cost Share Reduction (CSR) payments, every state in which PQR offers ACA plans has instructed carriers to increase premiums on silver plans sold in the individual market.

(c) (2 points) Explain how the following impact PQR's silver loading factor:

(i) The state has not implemented Medicaid expansion

ANSWER:

(ii) The state has implemented a Basic Health Plan

ANSWER:

(iii) The state has funded additional subsidies targeted at low-income individuals

ANSWER:

(d) (3 points) Describe how the introduction of the ACA affected:

(i) Mental health parity

ANSWER:

(ii) Enforcement of portability and conversion laws

ANSWER:

(iii) Government funding for MA plans

ANSWER:

2. Spring 2023 DP #4b-e

GH201-403-25 – Medicare Part D

(7 points)

You are an actuary working on Medicare Part D. You are helping an intern understand the legislative history of Medicare Part D, using historical claims data.

You are given:

- Claims experience for a Part D member:

Incurred Date	Drug Type	Script Count	Retail Cost
January 2	Generic	1	\$120
January 16	Brand	1	\$550
February 2	Generic	1	\$120
February 16	Brand	1	\$550
March 2	Generic	1	\$120
March 16	Brand	1	\$550
April 2	Generic	1	\$120
April 16	Brand	1	\$550
May 2	Generic	1	\$120
May 16	Brand	1	\$550
June 2	Generic	1	\$120
June 16	Brand	1	\$550
July 2	Generic	1	\$120
July 16	Brand	1	\$550
August 2	Generic	1	\$120
August 16	Brand	1	\$550
September 2	Generic	1	\$120
September 16	Brand	1	\$550
October 2	Generic	1	\$120
October 16	Brand	1	\$550
November 2	Generic	1	\$120
November 16	Brand	1	\$550
December 2	Generic	1	\$120
December 16	Brand	1	\$550

- The Part D Standard Benefit Design parameters for 2007 and 2020:

	2007	2020
Annual Deductible	\$265	\$435
Initial Coverage Limit	\$2,400	\$4,020
Donut Hole Brand Discount		
Manufacturer cost share		70%
Plan cost share		5%
Member cost share	100%	25%
Donut Hole Generic Discount (Plan coins)		75%
TrOOP	\$3,850	\$6,350
Estimated Covered Rx Costs	\$5,451	\$9,719
Catastrophic benefit (max 5% or copay below)		
Generic or Preferred multi-source	\$2.15	\$3.60
Other Drugs	\$5.35	\$8.95

- For costs in the catastrophic phase, the Medicare reinsurance portion is attributed to plan cost share.

(b) (2 points) Calculate the cost share, as a percentage of paid claims, using the 2007 benefit design for the:

- (i) Member
- (ii) Health plan

Show your work.

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

(c) (3 points) Calculate the cost share, as a percentage of paid claims, using the 2020 benefit design for the:

- (i) Member
- (ii) Health plan
- (iii) Manufacturer

Show your work.

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

(d) *(1 point)* Describe the impact of “closing the donut hole” on the:

(i) Member

ANSWER:

(ii) Health plan

ANSWER:

(iii) Manufacturer

ANSWER:

Assume for 2020 CMS limits the member’s out of pocket cost to \$2,000 and makes no other changes to the benefit parameters.

(e) *(1 point)* Describe the impact to the:

(i) Member

ANSWER:

(ii) Health plan

ANSWER:

(iii) Manufacturer

ANSWER:

3. Fall 2023 DP #2

MA Expanded Supp Benefits
GH201-404-25 – MA, ESRD eligibility
Med. Adv. - Experience Data
ASOP #23 – Data Quality

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

(7 points) You are an actuary at STU Health Insurance. STU’s management wants to expand the Medicare Advantage (MA) business given the continued expansion of benefits and an aging population.

- (a) (1 point) Explain how the Centers for Medicare and Medicaid Services’ (CMS) redefinition of “primarily health related” expanded the offerings in the MA market.

ANSWER:

- (b) (2 points)

- (i) List effective End Stage Renal Disease (ESRD) care management program practices.

ANSWER:

- (ii) Describe how each practice will reduce medical costs while improving the quality and effectiveness of care.

ANSWER:

STU is designing an experience data review process to prepare for next year's MA bid. A senior leader has outlined her plan for performing this review:

- The review will be performed annually, coincident with the year-end financial reporting process
- A detailed analysis of the underlying claims data will not be undertaken, except for claims with a zero paid amount
- Vendor data will be audited once every 3 years to assure proper administration of benefits and cost sharing
- Claims experience will be evaluated against aggregate external benchmarks
- Bid pricing will be considered as a separate exercise

(c) (2 points)

(i) Critique the plan.

ANSWER:

(ii) Propose two recommendations for improvement. Justify your response.

ANSWER:

STU's information technology team compiles and populates all fee for service and vendor data for the MA bid pricing models. You are aware of the following vendor data limitations:

- Aggregate benefit category data does not correspond with the Bid Pricing Tool
- Data reflects integrated Medicare and Medicaid benefits
- Data reflects material lags

(d) (2 points) Describe data quality considerations and disclosures needed when completing the MA bids.

ANSWER:

4. Fall 2023 DP #10

Skwire 19 – The ACA

Skwire 41 – Risk-Based Capital Formulas

(5 points) You are the pricing actuary at a small regional insurer providing medical stop loss to large self-funded employer groups.

(a) (4 points) Compare and contrast pricing considerations between a medical stop loss product and a small group fully insured ACA product in the following areas:

(i) Risk selection and acceptance

ANSWER:

(ii) Covered services and plan designs

ANSWER:

(iii) Rating variables and structure

ANSWER:

(iv) Compliance, regulatory, and operational expenses

ANSWER:

Management would like to grow the company's revenue and profitability quickly to become an acquisition target by a larger national carrier next year. The CEO proposes to grow by entering the fully insured small group market.

(b) (1 point) Recommend whether or not to proceed with the proposal. Justify your response.

ANSWER:

5. Spring 2024 DP #1

GH201-403-25 – Medicare Part D

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

(6 points) You are an actuary pricing Medicare Part D.

In the Excel spreadsheet, you are provided with benefit design and allowed claims for Member A.

(a) (3 points) Calculate the member cost share and the amount applied to the out of pocket accumulator for Member A given the claims occur in:

(i) 2023

(ii) 2025

Show your work.

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

A less expensive generic drug is expected to become available in June 2025 for a patent-expired brand drug.

In the Excel spreadsheet, you are given projected drug claims for Member B.

(b) (2 points) Calculate the following for 2025 based on the projected claims for Member B:

(i) Member cost share

(ii) Plan liability

(iii) Manufacturer liability

(iv) Government reinsurance

Show your work.

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

The company producing the generic equivalent drug launches the drug earlier than projected in 2025.

(c) *(1 point)* Evaluate the impact to:

- (i) Member cost share
- (ii) Manufacturer liability
- (iii) Government reinsurance

Justify your response.

ANSWER:

6. Fall 2022 FV #9

GH201-403-25 – Medicare Part D

GH201-400-25 – Health Insurance Accounting Basics

(7 points) You are an actuary for ABC insurance company, in charge of pricing ABC's Medicare Part D plans.

- (a) (2 points) Explain the options available for employers to provide federal government subsidized drug coverage to their retirees.

ANSWER:

You are pricing ABC's defined standard prescription drug plan (PDP) for 2023. You are given the following:

Utilization Trend	0%
Drug Cost Trend (2 year factor, not annual)	10%
2023 National Average Bid	\$35
2023 Base Beneficiary Premium	\$33
2023 Expected Risk Score	1.0
2023 Defined Standard Annual Deductible	\$450
2023 Initial Coverage Limit	\$5000
2023 True Out of Pocket Cost (TrOOP) threshold	\$10,000
2023 Administrative Expenses (% of revenue)	15%
2023 Margin (% of revenue)	5% of revenue
ABC has 10 members in 2023	
All members are expected to be enrolled for the full year in 2023	
No rebates expected in 2023	
ABC's 2021 claims experience data is 100% credible for pricing in 2023	

The Excel spreadsheet contains the 2021 claims experience to be used in pricing.

- (b) (4 points) Calculate the 2023 PMPM premium for ABC's defined standard PDP. Show your work.

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

After the end of 2023, your finance department tells you that the actual paid claims for ABC's defined standard PDP for 2023 were \$80 PMPM.

- (c) (1 point) Calculate ABC's CMS risk sharing settlement for 2023. Show your work.

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

7. Fall 2020 FV-C #5

Skwire 19 – The ACA

GH201-405-25 – Dynamics of the ACA

(11 points) You are an actuary at Company ABC which exclusively sells individual health plans on the Affordable Care Act (ACA) Exchange marketplace.

(a) (2 points) For each of the following terms in the ACA:

- Actuarial Value
- Minimum Value
- Essential Health Benefits
- Non-Standard Plan Designs

(i) (1 point) Define the term

ANSWER:

(ii) (1 point) Explain the term's application to Company ABC

ANSWER:

The following information is provided for your Company ABC's individual health product portfolio, including its Cost Sharing Reduction (CSR) plans:

- All plans sold are on-Exchange
- Expected profit margin is 2.5% for all metal levels
- Assume 0% corporate income tax

Metal Levels	% of Federal Poverty Level	Actuarial Value	Expected Enrollment
Bronze	n/a	60%	15%
Silver	n/a	70%	10%
Silver - CSR	201-250%	73%	20%
Silver - CSR	151-200%	87%	25%
Silver - CSR	up to 150%	94%	25%
Gold	n/a	80%	5%

Metal Levels	Premium Rate PMPM
Bronze	\$ 200
Silver	\$ 300
Gold	\$ 360

A legal recommendation is issued by the Department of Justice, and it is determined that Cost Sharing Reduction subsidies have been discontinued.

Your state regulator notifies the company to allow for re-filing of the premium rates. Your supervisor suggests loading premium rates to account for lack of subsidy payments.

(b) (4 points) Calculate premium loadings necessary under each of the options below. Show your work.

(i) (2 points) Option 1: Load Silver plans only

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

(ii) (2 points) Option 2: Load all metal levels

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

(c) (2 points)

- (i) (1 point) Identify alternative options Company ABC can use aside from premium loading

ANSWER:

- (ii) (1 point) Describe the pros and cons of each of the options in i).

ANSWER:

Company ABC chose Option 1 from part (b) above, and your proposed premium rates were filed and approved. A year later, actual membership enrollment data was reported as the following:

Metal Levels	% of Federal Poverty Level	Actual Enrollment
Bronze	n/a	18%
Silver	n/a	7%
Silver - CSR	201-250%	19%
Silver - CSR	151-200%	23%
Silver - CSR	up to 150%	26%
Gold	n/a	7%

- (d) (3 points) Calculate the financial impact of the actual enrollment to Company ABC's profitability. Show your work.

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

8. Fall 2020 FV-C #7

Med. Adv. - Experience Data

(5 points) You are assisting the certifying actuary in data preparation in support of your company's Medicare Advantage bid submissions.

- (a) (3 points) Explain potential areas of concern related to data quality that are internal to your company's claims adjudication process.

ANSWER:

- (b) (2 points) Explain potential areas of concern related to data quality that are external to your company's claims adjudication process.

ANSWER:

9. Spring 2021 FV-C #5

GH201-406-25 – Medicaid and Risk-Based MCOs

(8 points) You are the Medicaid Actuary for a Managed Care Organization (MCO) operating in Snowy State.

Snowy State recently received approval for a §1115 waiver that allows their Medicaid program to remove Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) eligibility for 19-20 year-olds. This will require rate cells to be structured differently than in the past.

- (a) (1 point) Describe the EPSDT benefit and its purpose.

ANSWER:

- (b) (1 point) Explain public policy reasons why this waiver approval necessitates a change in rate cells.

ANSWER:

The current and projected enrollment in the impacted rate cells is distributed as follows:

Age range	Statewide member months	Your MCO share of member months
16-18	6,000	30%
19-20	2,000	35%
21-25	4,000	25%
Total	12,000	

Projected statewide medical costs per member per month (PMPM) are distributed by cohort as follows:

Age range	Medical (excluding EPSDT)	EPSDT portion
16-20	\$ 181.42	\$ 2.50
21-25	250.45	-

Snowy State's actuary is pricing to a 90% medical loss ratio (MLR).

- Medical costs PMPM excluding EPSDT for 16 to 18 year olds average \$172.35.
- EPSDT costs are uniform for 16 to 20 year olds.

- (c) (2 points) Calculate the projected 19-25 year old statewide medical cost without EPSDT. Show your work.

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

- (d) (2 points) Calculate the total statewide composite PMPM, including EPSDT and non-benefit costs.

(i) (1 point) Before the waiver approval

(ii) (1 point) After the waiver approval

Show your work.

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

- (e) (2 points) Calculate your MCO's statewide composite PMPM, including EPSDT and non-benefit costs.

(i) (1 point) Before the waiver approval

(ii) (1 point) After the waiver approval

Show your work.

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

10. Spring 2021 FV-C #6a,c-d

Skwire 19 – The ACA

GH201-405-25 – Dynamics of the ACA

(6 points) You are writing a white paper on the individual insurance market in 2014.

(a) (2 points) Describe four ways that the Affordable Care Act (ACA) impacted Individual Rates.

ANSWER:

An individual was looking for coverage on the Exchange in 2014. The following information is provided:

- Individual's age: 44
- 2013 Federal Poverty Level (FPL): \$11,490
- 2014 Federal Poverty Level: \$11,670
- Individual's 2013 Income: \$31,597
- Individual's Projected 2014 Income: \$35,010
- No Coverage was offered through their employer

The following plans were available to this member on the Exchange:

Metal Tier	Monthly Premium Rate
Bronze	\$250.11
Bronze	\$277.14
Silver	\$295.22
Silver	\$324.88
Silver	\$341.11
Gold	\$350.11
Gold	\$372.11
Platinum	\$404.10

Maximum premium contribution by Federal Poverty Level (FPL) was defined as below:

FPL Level	Maximum % of Income
100 – 133%	2.00%
133%	3.00%
150%	4.00%
200%	6.30%
250%	8.05%
300 – 400%	9.50%

- (c) (2 points) Calculate the premium rates that this individual was required to pay for the lowest cost option at each metallic level. Show your work.

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

- (d) (2 points) Describe two other types of premium and cost sharing assistance available in all post-ACA markets and the requirements to qualify for each program under ACA in 2014.

ANSWER:

11. Fall 2021 FV-C #1

Skwire 9 – Gov't Health Plans (US)

(5 points)

- (a) (2 point) Explain how the Federal government finances benefits provided by the “Parts” of the Medicare program.

ANSWER:

- (b) (2 points) Explain three fundamental long-range financing challenges facing the Medicare program as described in the 2020 Medicare Trustees Report.

ANSWER:

- (c) (1 points) Identify approaches to improving Medicare solvency, aside from higher taxes and member premiums.

ANSWER:

12. Spring 2024 VR #11

GH201-405-25 – Dynamics of the ACA

(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.

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.

(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:

13. Fall 2021 FV-C #7a-b

GH201-406-25 – Medicaid and Risk-Based MCOs
Skwire 9 – Gov't Health Plans (US)

(4 points) With respect to the Medicaid program:

- (a) (2 points) Describe responsibilities federal and state governments have in financing the program.

ANSWER:

- (b) (2 points) Explain how components of the Affordable Care Act have affected financing of the program.

ANSWER:

14. Spring 2022 FV #10

GH201-405-25 – Dynamics of the ACA

(8 points) The state in which you live has only two insurance companies, Lion and Tiger. The only way for people to purchase insurance in your state is through their Affordable Care Act individual exchange.

The following data tables are made public by the Department of Insurance:

Number of People in Household	Federal Poverty Level (FPL)
1	\$12,760
2	\$17,240
3	\$21,720
4	\$26,200
Household Income as Percent of FPL	Maximum Premium as % of Household Income
Up to 133%	2.07%
133% up to 150%	3.10%
150% up to 200%	4.14%
200% up to 250%	6.52%
250% up to 300%	8.33%
300% up to 400%	9.83%
Age	Mandated Age Factor
25	0.67
30	0.73
35	0.83
40	1.00
45	1.17
50	1.33

Experience Year	Company	Exchange Plan	Allowed Medical Costs	Allowed Rx Costs	Average Number of Members	Plan Actuarial Value (AV)	Average Age
2018	Lion	Bronze	\$6,988,392	\$2,329,464	2,424	0.62	40
2019	Lion	Bronze	\$37,116,319	\$12,913,026	11,976	0.62	40
2018	Lion	Silver	\$88,387,200	\$29,462,400	26,400	0.72	40
2019	Lion	Silver	\$98,816,890	\$34,379,085	27,456	0.72	40
2018	Lion	Gold	\$27,374,922	\$9,124,974	7,452	0.79	40
2019	Lion	Gold	\$26,482,078	\$9,213,300	6,706	0.79	40
2018	Tiger	Bronze	\$113,549	\$26,635	36	0.59	35
2019	Tiger	Bronze	\$162,754	\$39,846	48	0.59	35
2018	Tiger	Silver	\$134,719,200	\$31,600,800	36,000	0.7	35
2019	Tiger	Silver	\$150,616,066	\$36,874,342	37,440	0.7	35
2018	Tiger	Gold	\$490,977	\$115,167	112	0.82	35
2019	Tiger	Gold	\$584,350	\$143,063	124	0.82	35

- Medical trend for both companies is 7% annually from 2018 to 2022
- Pharmacy Trend for both companies is 13% annually from 2018 to 2022
- AVs for 2022 for each plan are equal to 2019.
- Both companies price with an expected 80% loss ratio on all plan levels.

You are also given the following information:

- Joe is a single 50-year-old man with an income of \$35,000.
- Carole is a 30-year-old woman with a husband and one child, and their household income is also \$35,000.
- Carole is the only member of her household applying for coverage and a premium tax credit.
- Note, the state expects insurers to use only the most recent complete year of data to develop Individual ACA rates.

(a) (5 points)

- (i) (3.5 points) Calculate the Advance Premium Tax Credit (APTC) for each of Joe and Carole. Show your work.

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

- (ii) (1.5 points) Calculate the net monthly premiums for Joe and for Carole under each plan offered on the exchange. Show your work.

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

Instead of the rates above, both carriers decide to implement a "silver loading" strategy. Each carrier raises its age 25 silver premium by the same dollar amount PMPM and keeps its age factors the same.

- (b) (3 points) Assess the directional impact of the silver loading on net monthly premium for each plan by filling out the chart below with “increase”, “decrease”, or “unchanged”.

Directional Change in Net Monthly Premium	Lion Bronze	Lion Silver	Lion Gold	Tiger Bronze	Tiger Silver	Tiger Gold
Carole						
Joe						

ANSWER: *(provide answer in table above)*