GH VRC Model Solutions Spring 2024

1. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.
- (1g) Apply applicable standards of practice related to reserving.

Sources: GHVR-103-16

Individual Health Insurance, Chapter 6

Group Health Insurance, Chapter 39

Commentary on Question:

This question aimed to test candidates on Incurred But Not Reported reserving, including applying two specific methods. Generally, candidates were able to score partial marks throughout, however, in order to get full marks while being mindful of time, there are ways of organizing the provided data to facilitate calculation.

Solution:

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

Commentary on Question:

Majority of candidates were able to name four ways to set up Incurred But Not Reported (IBNR) reserves and ranking them, however, candidates whom identified reserving techniques suitable for IBNR and also specifically highlighted data requirements were able to get full marks. Model solution incorporates acceptable methods, however, other methods were also acceptable given that they were described, including the data needed, and ranked with justification. Candidates were required to include subtraction of paid claims to date in order to receive full marks.

- (i)
- Set the IBNR estimate using the expected loss ratio.
 - Under this approach, the IBNR = Expected Loss Ratio * Revenue Paid Claims
 - Data required: Need expected loss ratio through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the budgeted claims.
 - Under this approach, the IBNR = Budgeted claims * enrollment paid claims
 - May need to adjust for population differences from the budget.
 - Data required: Need budgeted claims through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the traditional completion factor approach with small group hospital paid claims data.
 - Under this approach, completion factors are developed based on the hospital lag triangle and an incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims -Paid Claims
 - Data required: Hospital paid data with incurred and paid dates to construct a lag triangle. However, with only 6 months of data it may be difficult to develop appropriate completion factors. Paid claims to date are already provided.
- Set the IBNR estimate using the traditional completion factor approach with proxy completion factors from the large group business.
 - Under this approach, completion factors would not be specific to small group hospital claims; rather based on patterns for hospital claims from another block of business different source of data could be used.
 - The incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims - Paid Claims
 - Claim patterns may not be appropriate given differences in seasonality (benefit richness differences between the segments) or delays caused by implementation of claims system.

- Data required: Hospital paid data with incurred and paid dates to construct a lag triangle from the large group business are needed. Paid claims to date are already provided.
- Set the IBNR estimate using pre-authorizations (or admissions).
 - IBNR = Number of Admissions x Assumed Cost per Admit Paid Claims
 - Not all pre-authorizations become claims and some claims (e.g. OON) are not subject to pre-authorizations
 - Data required: Need average cost per admission. The other data needed includes number of admits per month, and paid claims by month, which are already provided.

(ii)

- 1. Set the IBNR using Authorization Data all the data needed has been provided, so it would be the quickest methodology to use
- Set the IBNR using the Expected Loss Ratio all the data to use this method has been provided except for the expected loss ratio. The expected loss ratio is something that the company should have internally and reflects emerging experience in terms of the revenue sold (presumably reflects risk of business is sold)
- 3. Use large group completion factors. This makes sense if claim patterns are similar for both products and if the system was set up on time for the new block (no delays); if slower set up, may need to add larger higher margin since large group block would be operating at normal speeds
- 4. Use budget claims. This data is available but it does not reflect any of the emerging data so least useful approach.
- (b)
- (i) Critique the intern's IBNR reserve estimate.
- (ii) Recommend the hospital IBNR reserve that you would record at 6/30/20X2. Justify your answer and show your work.

Commentary on Question:

Majority of candidates were able to identify that the intern's estimate incorrectly used average member months instead of number of admits, that paid claims incorrectly included physician claims, and that the source of the cost per admit assumption was unclear. In order to get full marks, candidates were required to identify that the current estimate is overstated (as a result of any of the identified errors above, or by a reasonableness check), derive an appropriate average hospital claim cost per admit, and include an appropriate explicit load to take into account that the paid claims data used to derive cost per admit may not yet be complete. Candidates who used the same cost per admit as the intern but explicitly questioned where it came from were awarded partial credit.

(i)

- The INTERN is drastically overstating the IBNR estimate, with an IBNR estimate of over \$29M when compared to revenue and/or claims paid.
- Average hospital claim cost per admit can be calculated by reviewing hospital paid claims data and pre-authorized admission, with the earlier months (more complete) of January and February averaging about \$32,500
- When calculating IBNR based on admits, the intern should have multiplied by the number of pre-authorized admits, not average member months
- Paid claims being subtracted should only be hospital paid claims; it should not include physician paid claims
- The INTERN should consider including explicit conservatism in their estimate. Apply an additional percentage load to the IBNR to account for the additional uncertainty due to normal claims volatility as well as the fact that the calculation of average hospital claims per admit data may not yet be complete. An additional load between 5% and 20% could be reasonable.
- (ii)

IBNR = [Cost per Admit] x [# admits] – [Total Paid Hospital Claims]

Although Jan and Feb are not 100% complete, the cost per admission is around \$32,500, so using \$33,000 would be a reasonable assumed cost per admit.

(A cost per admit between \$32,500 and \$40,000 would be reasonable)

IBNR = [33,000] x [29] - [\$913,104] IBNR = \$957,000 - \$913,104 IBNR = \$43,896

Due to potential claims volatility of the new business, an explicit load of 10%, or \$4,390

(Additional load between 5% and 20% could be reasonable, depending on the candidate's assumed cost per admit. For example, if they are assuming a cost per admit of \$40,000 including 20% explicit conservatism would be too conservative).

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

Commentary on Question:

Candidates generally were able to do well in this question, however, there are certain ways to organize the data to facilitate the calculations faster. This revolves around the idea of being able to drag formulae as opposed to having to change formulae manually. Candidates were also asked to address the enrollment decline. Candidates were able to use either a PMPM approach prior to deriving completion ratios or a weighted average approach to calculating the average completion ratios. While the PMPM approach doesn't impact the final result (due to each successive incurral month's completion ratio derivation from cumulative claims being based on the same headcount), candidates were required to at least address the enrollment in some way.

Leveraging the provided claims triangle and enrollment, PMPM claims triangle is calculated.

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

Commentary on Question:

Candidates were generally awarded points if they were able to justify their answer appropriately. In order to get full marks, candidates generally had to present multiple reasons for their recommendation.

Many responses are acceptable, which may include some of the below:

The 6-month average because the claims are completing more quickly in recent months. 9-month average estimates are higher because there is less ability to react to recent changes. 3-month may be too reactive.

The 6-month average because it strikes a good balance between a stable and credible answer while still incorporating some of the speed up in claims for recent months.

The 3-month average has the advantage of using more current data that reflets current trends in payment patterns unlike longer periods which would smooth those out (bury the current trends).

The 6-month or 9-month average because I don't want to give too much credit to the recent speed up, it may be a false sign.

The 9-month average smooths things which is consistent with a desire to recognize change slowly and not over-react to changes.

The 9-month average is typically smoother, but may bury recognition of more current trends in payment patterns.

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

- (2a) Prepare financial statement entries in accordance with generally accepted accounting principles.
- (2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.
- (2c) Project financial outcomes and recommend a strategy.

Sources:

Group Insurance, Skwire, 8th Edition, 2021, Ch. 43: Analysis of Financial and Operational Performance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

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

Commentary on Question:

This question was not answered well in general.

- For part (i), most candidates got 1 point for stating the GCGM formula, but failed to describe it as a simplified discounted future cash flow model that assumes that dividends grow in perpetuity at a constant rate.
- For part (ii), what the question intended to test is why P/E drops faster for high G (the growth rate of dividends) company when k (the required rate of return) increases in comparison to a company with a lower G, and candidates that demonstrated this generally received credit. While the question was not straightforward, simply explaining why increase in interest rate would decrease P/E ratio was insufficient to receive credit.

i.Describe the Gordon Constant Growth Model (GCGM). ii.Describe why the GCGM assumes stock prices of companies with high growth rates will be expected to drop more in a context of rising interest rates."

- The Gordon Constant Growth Model is a simplified discount future cash model that assumes dividends grow in perpetuity at a constant rate.

- The P/E ratio of a stock is equal to 1/(k-G) where k is the required rate of return for equity investor and G is the growth rate in dividends

- The P/E ratio is therefore higher for companies with higher expected growth rates, but that advantage diminishes when interest rates grow higher.

- For example, if we consider a 15% discount rate, enterprise A with 5% growth has a P/E ratio of 10 while enterprise B with a 10% growth rate has a P/E of 20.

- If the required rate of return were to rise to 25% with the same expectations for both companies, enterprise A's P/E ratio would reduce to 5 (two times lower) while enterprise B's would reduce to 6.67 (three times lower).

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

Commentary on Question:

This question was not answered well in general. Many candidates pointed out that stock prices sometimes reflect short-term phenomena, but very few candidates mentioned the other points which were mentioned on page 778 in Skwire Chapter 43.

Describe why stock prices are imperfect metrics for financial analysis of health plans

• Health plans that are not publicly traded will not have stock prices

• Stock prices sometimes reflect short-term phenomena

• Investment analysts may not understand operational realities of the insurance plan

• May be impossible to clearly communicate detailed or trade secret aspects of strategies to investment analysts

- (c) 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

Commentary on Question:

This question was answered very well. Candidates that lost points often made small mistakes like using the Total Current Assets rather than the Total Assets in their calculations.

The model solution for this part is in the Excel spreadsheet.

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

Commentary on Question:

The question asks to calculate the **most commonly used** two annual **profit margin** ratios by financial analysts. These were identified in Skwire Chapter 43 on page 764.

- Many candidates recognized they are Net Profit Margin and Operating Profit Margin, but very few calculated Operating Profit Margin correctly.
- Some candidates calculated other ratios, such as expense ratio, loss ratio, etc.

The model solution for this part is in the Excel spreadsheet.

- (e) 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.

Critique the accuracy of the intern's statements. Justify your answer.

Commentary on Question:

The question asks to critique the intern's statements and then justify. Many candidates who correctly restates the intern's statements failed to explicitly state if the intern's statements were true or false.

Critique the accuracy of the intern's statements. Justify your answer. Statement on insured business is FALSE.

The profit margins for insured businesses are in a sense **overstated**, since they imply a level of cash flow available to owners that excludes the impact of generally more conservative statutory reserve requirements. (this is enough to get full credit for why) People might write other things like the following which also get credit

In other words, a non-GAAP accounting presentation more reflective of health insurers' free cash flows would increase expenses by the increase in required reserves in the measurement period.

While capital investments necessary for growth are also not included, such investment is captured indirectly through the inclusion of depreciation and amortization in the expenses.

Statement on same-size analysis is FALSE

"Same-size" income statement express all relevant income statement items as a percentage of revenue and not on a per capita basis. In this way, profit margins can be divided into component parts, all of which are expressed independently of the size of the enterprise.

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

Sources:

Group Insurance, Skwire, 8th Edition, 2021

Ch. 43: Analysis of Financial and Operational Performance, p. 776-777

Commentary on Question:

This was a recall question. Surprisingly, candidates performed relatively poorly on the question. In part (a)(i), candidates generally got some credit but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance. In part (a)(ii), candidates frequently listed some items but few candidates provided the majority of the list. In part (b)(i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. In part (b)(ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

Solution:

(a)

- (i) State reasons why Company X would want to compare its financial ratios to its competitors.
- (ii) List characteristics that, when similar, improve comparisons of financial ratios between Company X and competitors.

Commentary on Question:

Candidates generally got some credit on part (i) but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance.

In part (ii), candidates frequently listed some items but few candidates provided the majority of the list.

(i) Comparisons allow health plans to identify whether it operates at best practices. Comparisons also allow health plans to set best practice goals for future performance.

(ii) Similar:

- a. Products or lines of business
- b. Business models (e.g. staff model vs. ffs)
- c. Operational philosophies
- d. Geographic focus
- e. Capital cost conditions
- f. Size
- (b)
- (i) Identify sources of data you could use to prepare your comparison.
- (ii) Describe factors you should consider when evaluating the data sources identified in part (b)(i).

Commentary on Question:

In part (i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. Some candidates broadly listed something such as "financial statements" which is not really identifying a data source. In part (ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

- (i) Data sources can include:
 - a. SEC filings since Megacorp is a public company
 - b. NAIC blanks
 - c. Commercial sources (may yield more precise cost information or precise segmentation)
- (ii) Factors to consider include:
 - a. RegionalCare's income statement may include intersegment charges rather than actual costs
 - b. Publicly available data may not have sufficient detail in cost segmentation by product
 - c. Cost definitions may vary from carrier to carrier
 - d. Commercial survey data may be de-identified or provided only in groupings such as quartiles.

5. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

Learning Outcomes:

- (5a) Describe eligibility requirements for social programs in Canada and the benefits provided
- (5b) Describe how private group insurance plans work within the framework of social programs in Canada

Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020 – Chapter 19: Employment Insurance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

- (i) List the criteria that a STD plan needs to meet in order to qualify for the Employment Insurance (EI) Premium Reduction Program (PRP).
- (ii) Evaluate whether or not the proposed STD plan qualifies for the EI PRP. Justify your answer.

Commentary on Question:

- For Part (i), not all items listed were required for full credit. Candidates generally missed the requirement on the eligibility period for the STD plan must be no longer than three months of continuous employment, the STD plan must be the first payer, and the STD plan reinstatement period must be less than three months.
- For Part (ii), the question asked for candidates to evaluate the plan. Although there was not enough information to determine whether the STD plan meets all criteria for PRP, candidates needed to provide an evaluation with a rationale for full credit.
- In addition to the solution for part (ii) as illustrated below, candidates can either:
 - 1. Assumed the STD plan meets the criteria not listed so the STD is eligible for PRP, or
 - 2. Mentioned there is not enough information to make a determination.

(i)

- Disability benefits that are at least equal to the EI sickness benefits (i.e., 55% of insurable earnings)
- Payment of benefits starting on or before the 8th day of disability
- In case of weekly indemnity plans, payment of benefits for at least 15 weeks of each disability occurrence (or 26 weeks based on more recent EI developments)
- Eligibility to claim benefits within three months of continuous employment
- 24-hour coverage
- Designation of the plan as the first payer (preventing plan benefits from being integrated and/or coordinated with EI benefits)
- In case of weekly indemnity plans, reinstatement of full disability coverage after a disability within one month of return to work for future disabilities not related to the initial disability cause, and within three months of return to work for a recurrence of the initial disability cause
- At least 5/12 of the premium reduction must be returned to the employees, either directly (e.g., a cash rebate) or indirectly (e.g., increasing benefits)
- (ii)
 - It met the first three criterion above (i.e. 75% of weekly salary, 3 days elimination period and 26-week benefit period)
 - To qualify for the EI PRP, it needs to further qualify for the fourth and afterward criterion
- (b) Calculate the additional cost to ABC to provide the proposed STD plan. State any assumptions and show your work.

Commentary on Question:

Overall, this section was done fairly well. Candidates needed to show their work for full credit. Most candidates performed the tabular calculation of EI and STD premium correctly but missed that 5/12 of the savings must be shared with the employees and therefore their actual savings is reduced to 7/12.

Solution:

- The model solution for this part is in the Excel spreadsheet.
- (c)
- (i) Calculate the minimum amount of EI savings that need to be returned to employees. State any assumptions and show your work.
- (ii) Describe considerations and available options for returning the EI savings to employees.

Commentary on Question:

For Part (ii), candidate must list the two options and note the cash rebate option will have tax consequences.

(i)

Employee portion of the EI premium savings is 5/12 of the EI premium reduction, or

5/12 * \$62,287.68 = \$25,953.20

The model solution for this part is also in the Excel spreadsheet.

(ii)

- Savings must be returned, directly or indirectly, to the employees
- A written mutual agreement on how the savings will be returned to the employees
- Options include:
 - A cash rebate equal to 5/12 of the savings divided amongst the employees, which is treated as employment income subject to source deduction (i.e., EI, Canada Pension Plan/Quebec Pension Plan)
 - Providing new or increased benefits, including upgrading existing benefits, or providing more holidays or time off work
- (d) Calculate the total cash rebate on a net basis for all employees. State any assumptions and show your work.

Commentary on Question:

Candidates who have used incorrect EI premium reduction per employee as a result of a mistake in previous section but answered this question using the correct methodology and calculation received full credit.

The model solution for this part is in the Excel spreadsheet.

4. The candidate will understand and evaluate post-retirement and post-employment benefits in Canada.

Learning Outcomes:

- (4c) Determine employer liabilities, service cost and expense for post-retirement and post-employment benefits for financial reporting purposes under IFRS and understand differences compared to US GAAP.
- (4d) Describe funding alternatives for post-retirement and post-employment benefits.
- (4e) Describe current issues faced by governments, employers and employees related to post-retirement and post-employment benefits

Sources:

GHVR-668-16: The New Reality of Retiree Benefits

GHVR-650-F23: Supplement Calculation Note for IAS 19

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020 - Ch. 24: Post-retirement and Post-employment Benefits

Commentary on Question:

Overall, candidates did fairly well on this question. For part (c) and part (d), candidates needed to show their work for full credit.

Solution:

(a) Describe the competing priorities in offering retiree benefits to employees.

Commentary on Question:

Not all of the following competing priorities needed to be listed. However, candidates needed to provide a brief description of each to receive full mark.

- Growing needs With increasing lifespans and public to private healthcare cost-shifting, retirees need employer-provided health benefits more than ever
- Escalating costs Even in recent years, health insurance costs are increasing far faster than inflation
- Few good funding options There are few tax-effective pre-funding mechanisms for health benefits
- Increasing Transparency Future liabilities are a problem today. Under international financial reporting standards, the accounting cost of these future liabilities is evaluated every year or even every quarter
- Competitive pressures Retiree benefits can be attractive for older employees, but the return on investment must be weighed against the cost of providing these benefits

(b) Describe plan design components that can help reduce current and future postretirement benefit plan costs.

Commentary on Question:

Not all of the following design components needed to be listed for full marks. However, candidates needed to provide a brief description of the design component to receive full mark.

- Plan eligibility employers are extending service requirements to qualify for retiree benefits
- Retiree contributions although administratively challenging, adding retiree contributions often serves as a solid balancing point. For many retirees, the access to comprehensive group coverage is worth paying a portion of the cost
- DB vs DC arrangements eliminate the impact of inflation and still offer some level of financial assistance to retirees by providing a fixed annual maximum reimbursement; move to a Health Spending Account model
- Catastrophic versus budgetable expenses another approach is to focus the plan sponsor's funds on the elements of greater value in a group purchasing arrangement and away from those elements where a group purchase has less effect. For example, true insurance (life) is less expensive on a group basis than a routine dental check-up
- Indexed versus non-indexed design Non-indexed design involves capping benefits costs at their levels when the member retires. This design will eliminate inflationary pressures on the retiree group but could introduce difficulties in administering the reimbursement restriction.
- Introduce cost sharing in plan design Increasing user fees through higher deductibles and coinsurance; implementing cost ceilings like lifetime or annual maximums
- Providing coverage through a retiree exchange this model is not yet available in Canada but may be an option in the future
- (c) Calculate the following metrics under IAS 19 for an employee age 45 with 15 years of service as of December 31, 20X1:
 - (i) Defined Benefit Obligation (DBO) as of December 31, 20X1
 - (ii) Current service cost for 20X2
 - (iii) Interest expense for 20X2

State any assumptions and show your work.

Commentary on Question:

Many candidates did not recognize the timing of decrement was at the mid-year. Candidates also had challenges with the timing of claims costs (i.e., application of trend rates).

Full marks were given to candidates who used straight-line average to calculate mid-year decrement (as opposed to multiplicative average). Full marks were also given to candidates who included Interest Cost in the calculation of Service Cost, however these candidates must not include Service Cost in the calculation of Interest Cost.

The model solution for this part is in the Excel spreadsheet.

(d) Construct a reconciliation of the DBO under IAS 19 for 20X2. State any assumptions and show your work.

Commentary on Question:

Many candidates understood how to calculate the DBO at the end of the period but failed to properly show their work. Note that the question asked to construct a reconciliation, so a walk or a table was needed for full credit in this question. In the reconciliation, candidates needed to allocate (gains)/losses from different changes (demographic, financial and experience) appropriately for full credit.

The model solution for this part is in the Excel spreadsheet.

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHFV-648-15: Canadian Life and Health Insurance Industry Agreement to Protect Canadians' Drug Coverage

GHFV-628-17: The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016

Commentary on Question:

The question was testing the candidates understanding of drug pooling in Canada and specifically in Quebec. The candidate was to understand on drug pooling works and how the Canadian Drug Insurance Pooling Corporation (CDIPC) and the Quebec Drug insurance Pooling Corporation (QDIPC) work in tandem along with EP3 pooling. Overall, candidates did not perform very well on this question. Many candidates understood that there were three levels but failed to correctly identify the differences between the three, especially when comparing the QDIPC and CDIPC. Many candidates did setup an Excel but had difficulties correctly calculating all the answers.

Solution:

(a) Describe the three different forms of pooling in group insurance.

Commentary on Question:

Many candidates knew that three different types of pooling existed. The EP3, QDIPC, and the CDIPC. Candidates however they had some difficulties describing the three.

In group insurance, there are traditionally three different forms of pooling:

- **Pooling within the group**: which is achieved by charging the same premium rates to all participants who have the same major characteristics (employment status, single or family coverage).
- **Pooling within an insurer's portfolio**, such as Extended Healthcare Policy Protection Plan (EP3): this is done mostly for smaller groups for which the premium rates are based at least partially on the combined experience of several groups.
- **Pooling among different insurers**: traditionally done through reinsurance arrangements or industry pooling, such as QDIPC and CDIPC.

- (b) Describe the rationale for the creation of the following industry pooling programs:
 - (i) QDIPC
 - (ii) CDIPC

Commentary on Question:

Many candidates had difficulties describing the rationale, specifically that drugs should be affordable for Quebec residents. Also, the financial implication was not well understood by most candidates.

(i) Quebec Drug Insurance Pooling Corporation (QDIPC)

- This pooling mechanism aims at satisfying the government's objectives as well as respecting, as much as possible, the free market conditions that prevail in the insurance industry.
- Prescription drug insurance should be affordable to all residents of Quebec.
- The members of a group should not be penalized by any large claim arising from one person.

(ii) Canadian Drug Insurance Pooling Corporation (CDIPC)

- Catastrophic drug costs are a growing problem growth in drug costs are undermining the sustainability of group drug plans, particularly for small and medium enterprises, and has far exceeded the overall level of inflation for decades.
- The implications of recurrent, very high cost drug claims for the ongoing financial sustainability of supplementary drug plans, particularly for small and medium sized enterprises, are significant.
- Even though the majority of insurers use internal pooling mechanisms, current approach to pooling was designed to manage unknown one-off claims and is poorly suited to manage known, recurrent catastrophic claims.
- Current pooling approach tends to lock sponsors in with their current carrier, which limit their ability to switch carrier when they tender its business and then allowing them more ability to shop around for a new provider at reasonable prices, even if they experience a recurring high cost drug claim.
- Insulating eligible groups from the full financial impact of rare, but recurring, high cost drug claims, particularly beneficial to small and medium-sized businesses, who don't typically have the financial resources to absorb a significant increase in premiums.

- (c) Summarize QDIPC and CDIPC with respect to:
 - (i) Participation of insurers
 - (ii) Covered plans
 - (iii) Pooling thresholds
 - (iv) Sharing of pooled claims among participating insurers
 - (v) Pricing of groups within a participating insurer

Commentary on Question:

Candidates had difficulties identifying the following differences:

- If participation was mandatory or not
- If all plans are covered or only insured and self-insured plans
- Listing the 3 different pools
- Identifying the thresholds

Candidates did not need to list the exact number for each QDIPC strata to get the full credits. Candidates have not been penalized if their answer were based on the 2016 QDIPC protection levels, i.e. from the source material and as illustrated in the solution below, or the ones applicable for the year 2023, as provided in the question. Same logic were applied for the initial and ongoing threshold for CDIPC, i.e. candidates have not been penalized if they use the one from the source material or the ones applicable for the year 2023, as provided in the question.

- (i) Participation of insurers
 - QDIPC Participation is mandatory
 - CDIPC Open to participation from any company in Canada that is a member, or is eligible to be member, of the CLHIA
- (ii) Covered plans
 - QDIPC All insured and self-insured groups
 - CDIPC Covers only "fully insured plans", excluding ASO, refund accounting and ASO with stop loss

- (iii) Pooling thresholds
 - QDIPC
 - Per certificate
 - The pooling thresholds vary by group size where the number of certificates is calculated considering participants in all provinces, but only claims incurred for Quebec residents are subject to pooling.
 - CDIPC
 - Per certificate (family)
 - To quality, the certificate must exceed \$65,000 (Initial threshold) for at least two consecutive years
 - In year 2 and in each subsequent year where the drug certificate exceeds \$32,500 (ongoing threshold), the amount over 32,500 will be pooled.
- (iv) Sharing of pooled claims among participating insurers
 - QDIPC
 - A formula using cumulative strata is used. With this formula, claims below \$18,000 (in 2016) are pooled only among groups with fewer than 50 certificates. On the other hand, claims between \$18,000 and \$32,500 are pooled among the first strata (fewer than 50 and 50 to 124 certificates) while claims above \$115,000 are pooled among all strata in 2016, except the last one (3,000 certificates or more).
 - CDIPC
 - Three industry pools are proposed based on differences in provincial drug programs.
 - Pool 1 Alberta + Ontario + Maritimes + Territories
 - Pool 2 Resident of Quebec
 - Pool 3 BC + Manitoba + Saskatchewan
 - The total pooled drugs claims will be shared by all participating insurers based on their market share of total paid drug claims for all insured business in applicable provinces.

- (v) Pricing of groups within a participating insurer
 - QDIPC
 - Insurers must charge the same QDIPC published annual pooling factors to all its groups based on group size
 - CDIPC
 - Carriers can have multiple EP3 solutions for different market segments if they choose.
 - Participating insures must place all large drug claims in an EP3 pool.
 - Individual participating insurers can set premiums based on the experience of the entire EP3 pool, or based on any non-client level experience data.
 - All other aspects of the EP3 can be customized by each participating insurer including:
 - o Pricing
 - the pooling threshold (must be <= ongoing only)
 - whether the pooling is done at the individual or certificate level
 - requiring co-payments or deductibles (subject to a cap of \$1,100 for deductibles)
 - o formulary design.
- (d) Calculate the claim amounts for 20X3 assumed by:
 - (i) Industry pooling mechanisms
 - (ii) XYZ
 - (iii) ABC

State any assumptions and show your work.

Commentary on Question:

Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.

The model solution for this part is in the Excel spreadsheet.

(e) Calculate the claim amounts in (d) assuming that this group's employees were located in Quebec. State any assumptions and show your work.

Commentary on Question:

Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.

The model solution for this part is in the Excel spreadsheet.

(f) Propose a change to the CDIPC pooling program that will help to further preserve the viability and affordability of employers' drug programs. Justify your answer.

Commentary on Question:

Many candidates provided an answer and for the most part got marks as they identified solutions that made sense. Other answers were accepted if justified.

- Extend coverage to self-insured groups and refund accounting groups.
- For self-insured groups and refund accounting groups, not pooling large recurrent drug claims under CDIPC could make their drug coverage not affordable in the long-term and some of them could potentially change or abolish their drugs plan. As an example, it took some years before the QDIPC decides to extend the pooling program to all self-insured groups in the Quebec market, so preserving the access to an affordable drugs coverage.

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

Learning Outcomes:

(3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHVR-705-20: Assuris for Group Insurance in Canada

Commentary on Question:

This question was testing the candidates understanding of Assuris for Group Insurance in Canada, including the structure, funding and how the guarantees are applied. Overall, candidate could not describe the full structure and funding of Assuris. However, most candidate did extremely well in describing the benefit guarantee provided by Assuris. Some candidates were able to correctly calculate the guarantee amount while others failed to notice that the actual applicable guarantee should be not exceed the original benefit.

Solution:

(a)

- (i) Describe the purpose and structure of Assuris.
- (ii) Describe the funding of Assuris.

Commentary on Question:

- This part of the question has been well answered by some candidates, while others did not provide enough descriptions.
- On part (i), successful candidate can describe both the structure and purpose of Assuris with at least five of the points as illustrated below.
- On part (ii), successful candidate demonstrates understanding of Assuris funding with at least three of the points as illustrated below.

(i)

- Assuris is a Non-Profit organization under Canadian federal regulation
- Its goal is to minimizes the loss of benefits should a life insurer become insolvent.
- Every life insurance company authorized to sell insurance policies in Canada must be a member.
- Assuris guarantees apply to life insurance, critical illness, health expense, disability income, LTC, annuities, and segregated funds.
- Assuris works closely with OFSI to perform financial analysis of member companies and monitor at risk companies.
- Assuris reviews regulatory filings (annual regulatory filling, financial statements, AA's report, DCAT).

- As companies progress through regulatory concern stages, Assuris takes a more active role in review of business plans and auditor reports and developing preliminary restructuring plan.
- Assuris develops a detailed restructuring plan for a "troubled member", estimate its coverage exposure, and formulate a detailed contingency plan for managing liquidation and funding coverage commitments.
- (ii)
 - Assuris receives funding through member companies via a risk assessment based on required capital.
 - Assuris maintains a liquidity fund of at least \$100 million to provide immediate cash to meet obligations before assessing members
 - If an event occurs beyond the existing liquidity fund, the structure allows additional member assessments.
 - It is industry funded.
- (b) Describe the benefit guarantee provided by Assuris for the following benefits:
 - (i) Group Life
 - (ii) Group Disability
 - (iii) Group Supplemental Health Expense
 - (iv) Group Critical Illness

Commentary on Question:

This part of the question has been well answered by many candidates. Successful candidates are those that have been able to state the correct Assuris guaranteed benefits. Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts, as illustrated in the solution below.

(i) Group Life

- Old benefit = Greater of \$200,000 and 85% of the death benefit
- New benefit = Greater of \$1,000,000 and 90% of the death benefit

(ii) Group Disability

- Old benefit = Greater of \$2,000 per month and 85% of monthly income benefit
- New benefit = Greater of \$5,000 per month and 90% of monthly income benefit

(iii) Group Supplemental Health Expense

- Old benefit = Greater of \$60,000 and 85% of coverage benefit
- New benefit = Greater of \$250,000 and 90% of the coverage benefit

(iv) Group Critical Illness

- Old benefit = Greater of \$60,000 and 85% of coverage benefit
- New benefit = Greater of \$250,000 and 90% of the death benefit
- (c) Calculate the Assuris guaranteed amount for each member. State any assumptions and show your work.

Commentary on Question:

This part of the question has been well answered by some candidates. Successful candidates are those that have been able to correctly calculate the Assuris guaranteed amount for each member. Some candidates failed to notice that the applicable guarantee should be less than the original benefit. For member 2, while the guarantee is the max of \$2,000 and 85% of monthly income, the original benefit was \$1,800. Therefore, the guarantee amount is \$1,800. Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts.

The model solution to this part is provided in the Excel spreadsheet.

(d) Calculate the additional amount each member will receive above the Assuris guaranteed amount calculated in (c). State any assumptions and show your work.

Commentary on Question:

This part of the question has been well answered by some candidates. Successful candidates are those that have been able to correctly calculate the additional amount each member will receive above the Assuris guaranteed amount calculated in (c). Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts.

• The model solution to this part is provided in the Excel spreadsheet.

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with IFRS & IAS.

Learning Outcomes:

- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.
- (2e) Compare key differences and similarities in measures by accounting basis.
- (2g) Explain fair value accounting principles and describe International Accounting Standards (IAS).

Sources:

GHVR-693-23: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

- Chapter 1: Overview and General Requirements (All sections) (pp. 5-14)
- Chapter 2: Available Capital (sections 2.1-2.2) (pp. 15-40)
- Chapter 6: Insurance Risk: (sections 6.1-6.8, excluding 6.7) (pp. 125-143)

GHVR-698-21: Comparison of IFRS 17 to Current CIA Standards of Practice, Nov 2020

Commentary on Question:

The question was asking candidates understanding of the LICAT and its components. It also tested candidates' knowledge on IFRS17, more specifically the Risk Adjustment. Most candidate did not perform well on this question. Most candidate successfully answer part (a). Some candidates have successfully calculated the morbidity risk and expense risk, while others demonstrated some understanding but were not able to accurately provide full answers.

Only a few candidates demonstrated understanding of the difference between IFRS4 and IFRS17 on part (c) and few candidates could provide a correct answer for part (d).

Solution:

(a)

- (i) List and describe the risk components that are considered when calculating the morbidity risk.
- (ii) Explain how the risk components in (i) apply to your block of business.

Commentary on Question:

Successful candidates provided descriptions for all four risks. Successful candidates demonstrated their understanding about risks associated with the closed block of disability benefit where only the level risk was applicable in this case.

- (i)
 - Level Risk misestimation of the level of Best Estimate Assumptions.
 - Trend Risk misestimation of the future trend of Best Estimate Assumptions.
 - Volatility Risk due to random fluctuations. The volatility risk component is calculated as a one-time shock to first-year incidence rates for all active lives that are exposed to morbidity risk.
 - Catastrophic Risk due to a one-time, large-scale event. The catastrophe risk component is calculated as a one-time shock to first year incidence rates for all active lives that are exposed to morbidity risk.
- (ii)
 - Level Risk For disabled lives, the shock for level risk is a permanent decrease in Best Estimate Assumptions for the morbidity termination rate at each age.
 - Trend Risk In this case, an assumption for morbidity improvement is not used, therefore the risk charge for trend risk is zero.
 - Volatility Risk In this case, there is no volatility risk since there are no active lives
 - Catastrophic Risk In this case, there is no catastrophic risk since there are no active lives.
- (b) Calculate the value of total components for the following risks in LICAT as of December 31, 20X1:
 - (i) Morbidity risk
 - (ii) Expense risk

Commentary on Question:

Some candidates were able to correctly calculate the risks while others demonstrated some understanding but failed to provide full answer. A few candidates failed to notice the benefit are monthly and mistakenly applied annualized calculation. Partial points were given for these candidates.

The model solution to this part is provided in the Excel spreadsheet.

- (c)
- (i) Describe the requirements for selecting Provisions for Adverse Deviation (PfADs) under IFRS 4.
- (ii) Describe the requirements to determine the risk adjustment for nonfinancial risk under IFRS 17.
- (iii) Describe the considerations for using PfADs to determine the risk adjustment for non-financial risk.

Commentary on Question:

On part (i), successful candidate demonstrated their understanding of Pfads from the following four perspectives: objective, scope, method and diversification benefit.

On part (ii), successful candidate demonstrated their understanding of RA from the following four perspectives: objective, scope, method and diversification benefit.

On part (iii), successful candidate demonstrated their understanding of the consideration for using Pfads to RA. Keywords are highlighted. If a candidate listed the questions, as illustrated below, but did not provide discussion, full marks were provided.

- (i)
- Measurement objective: Amount required to provide for the impact of uncertainty.
- Scope: Pfads covers Financial and non-financial risks.
- Method: Assumptions that are more conservative than best estimate (often MfADs). Margin approach is often used.
- Diversification benefit: Reflected due to requirement that assumptions/liabilities be appropriate in aggregate. In practice, often given no explicit consideration or considered only within a line of business.

(ii)

- **Measurement objective:** Compensation required by entity to bear uncertainty.
- **Scope:** Non-financial risk only, no asset related MfADs, such as asset default, investment expenses or reinvestment risk (C3).
- **Method:** various at entity discretion. Cost of capital, percentile or margin approach can be used.
- **Diversification benefit:** Reflected, based on diversification that the entity considers when setting compensation requirements. Diversification between financial risks and non-financial risks ignored. Entity's view of diversification may be different than diversification reflected in PfADs.

(iii)

- Is the current level of PfAD **consistent** with the compensation the entity requires for bearing uncertainty? If using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment would be needed if the entity-specific view of the compensation required to bear uncertainty is different from that of typical Canadian entities.
- Are the **diversification benefits** included in current PfADs consistent with those that would be reflected in IFRS 17? If using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment might be needed to achieve the objectives of IFRS 17.
- How would the **confidence** inherent in the current PfADs be determined? IFRS 17 requires disclosure of the confidence level of the risk adjustment for non-financial risk.
- IFRS 17 requires **reinsurance** contracts held to be measured as separate contracts. How would the PfAD appropriate to the net liability be split between the direct and ceded contracts? Under current CIA requirements for life, the PfADs for non-economic assumptions are set at a level appropriate for the liability net of reinsurance, and there is no requirement to split them between the direct contract and the reinsurance ceded contract.
- Are any **adjustments needed for pass-through** features? In IFRS 17, to the extent that the compensation an entity requires takes account of the existence of the pass-through features. Therefore, if using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment would be required if the entity ignores (some or all) pass-through features in determining the compensation it requires for bearing uncertainty.
- (d) Explain how the selected risk adjustment for non-financial risk will impact your LICAT ratio.

Commentary on Question:

None of the candidate was able to demonstrate that risk adjustment will not impact the final LICAT ratio. Partial marks were provided if they wrote something related to the points listed below.

- The Risk Adjustment has no impact on the LICAT ratio.
 - Available Capital + Surplus Allowance + Eligible Deposits Base Solvency Buffer

- The amount of the Surplus Allowance used in the calculation of the Total and Core Ratios is equal to the risk adjustment. Although the risk adjustment increases liabilities and therefore decreases available capital, the surplus allowance (risk adjustment) is added back so there is no impact on the numerator.
- The Base Solvency Buffer is calculated using best estimate assumptions (no risk adjustment) so there is no impact on the denominator.

- 3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
- 5. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (5a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (5b) Describe how private group insurance plans work within the framework of social programs in Canada.

Sources:

GHFV-713-22: How will the potential work-from-home-anywhere boom post-pandemic impact benefit plans?

GHFV-672-16: CHLIA Guideline G17 – Coordination of Benefits for Out-of-Country/Out-of-Province/Territory Medical Expenses

GHFV-694-19: Guide to Canada Benefits Legislation, 2018, sections 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6

Commentary on Question:

This question tested the understanding of candidates on government programs providing health and disability benefits in Canada. Candidates generally did not perform very well on this question and had difficulties to understand the difference between eligibility requirements for social programs and coordination of benefits payment between different parties.

Solution:

(a) Describe concerns with respect to Company ABC's group benefits for these two employees.

Commentary on Question:

Candidates generally did well on this part of the question. Candidates were able to recognize the overall issues, however they had difficulties describing the applications of the issues to company ABC in order to receive full credits. Other reasonable explanations were awarded credits.

- Plan sponsors with employees who move to another province may face taxation and payroll deduction implications. The group benefits plan includes life insurance which is a taxable benefit in all provinces, and medical/dental which is taxable in the province of Quebec.
- Employers must think about the provincial health-care requirements. Some benefits plans require employees to be part of their province's health-care plan, but when someone moves to a new province, there's a three-month window before they can access the new province's system. Checking of benefit provisions to see if Company ABC plan requires employees to be part of the province's health-care plan. If not, then either modify the contract or review out-of-province coverage.
- Employers with staff moving into or out of Quebec face additional complications, as the province requires employers' prescription drug plans to at least match the RAMQ drug plan. Depending on the provisions of the prescription drug coverage, Company ABC may incur additional costs in order to be compliant with RAMQ.
- (b) Compare and contrast eligibility requirements for government health insurance plans (GHIPs) in BC, Quebec and Ontario.

Commentary on Question:

The vast majority of candidates had difficulties on this part of the question. Candidates received partial credits for assuming waiting period and physical presence period requirements as the similarities, but the majority of candidates did not recognize the differences in these requirements for eligibility in GHIP. A few candidates mentioned the differences in drug programs.

Similarities:

- You are a Canadian citizen or have immigration status.
- You make your home (or reside) in the respective province.
- Must register or apply to the respective provincial plan to be eligible.

Contrasts:

<u>BC</u>

- New residents, regardless of whether they come from elsewhere in Canada or from outside Canada, become eligible on the first day of the third month following the date they establish permanent residency in B.C.
- You are physically present in B.C. at least 6 months in a calendar year.

Quebec

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Quebec. All other new residents are entitled to coverage after a waiting period of up to three months.
- You are physically present in Quebec for at least 182 days in a given calendar year.

<u>Ontario</u>

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Ontario. All other new residents are entitled to coverage after a waiting period of three full calendar months following the date of permanent residence in Ontario.
- You are in Ontario for at least 153 days in any 12-month period; and you are not outside Ontario for more than 212 days in a 12-month period.
- (c) Describe how the costs of the services in the table above would be coordinated between:
 - Each employee
 - The Company ABC group benefits plan
 - Other private coverage
 - GHIPs

State any assumptions made.

Commentary on Question:

Candidates had difficulties on this question. Most candidates did not take the employee's eligibility into consideration and did not understand the cost coordination between various parties under different provincial health plans. However, candidates did well in describing how the costs of these services would be coordinated between various parties for the travel coverage. Overall, candidates did not perform well on this part of the question.

Claim 1: Employee 1 physician claim in February 20X1

Eligibility

- The employee only becomes eligible for RAMQ on April 1, 20X1 (i.e. first day of the third month following the arrival date).
- Therefore, the employee is not yet eligible for RAMQ and coordination between GHIPs in BC and Quebec must occur.

Who pays?

• The patient. Quebec does not participate in the inter-provincial reciprocal billing agreement for physician services, so will bill the patient directly. The patient applies to MSP for reimbursement, which may not cover the full cost of the claim.

How does Company ABC's group plan fit in?

• If MSP payment does not cover physician fees, remainder can be submitted to through Company ABC's out-of-province coverage.

Claim 2: Employee 1 emergency surgery

Eligibility

• Same as above (as we are not yet at April 1, 20X1).

Who pays?

- Unlike physician services, Quebec does participate in the interprovincial reciprocal billing agreement for hospital stays, so will bill RAMQ directly. RAMQ will then seek payment from MSP.
- The patient pays nothing.

How does Company ABC's group plan fit in?

• If plan covers additional costs not covered by province (for example, semi-private room upcharge), then this can be submitted to the plan.

Claim 3: Out of country claim for Employee 2

Eligibility:

• Similar to Employee 1, this employee is not yet eligible for the Ontario plan.

Private plans:

- This employee first contacted the individual insurer, and so they need to assume responsibility as "First Carrier".
- The above assumes that the individual coverage is adequate for this particular claim. If not, then the individual plan can negotiate with the Company ABC group plan over First Carrier responsibility.

The First Carrier (i.e. the individual insurer) will:

- Handle the case management. This includes, but is not limited to taking the initiative to involve an assistance group or service provider, choosing a preferred provider organization, monitoring medical care and/or repatriation.
- Notify the Other Carriers (in this case, the Company ABC group benefits carrier).

The individual insurer must pay the claim with an amount that is equal to the coverage determined by the terms and conditions of its contract.

It then allocates liability amongst itself and the Other Carriers and, as applicable, recover amounts owing from Other Carriers and GHIP – including providing all associated paperwork.

In this case:

- 1. The GHIP plan from BC covers \$75.00 per day.
- 2. The exact provisions of the Company ABC and individual plans are not known, but if both plans covered the full claim, half the claim (net of reimbursement from BC) would be recoverable.