GH 201-C Model Solutions
November 2025

1. Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts.

Learning Outcomes:

(1b) Explain the limitations and biases of the traditional valuation methods.

(1c) Calculate appropriate claim reserves given data.

(1e) Evaluate data resources and appropriateness for calculating reserves.

Sources:

GH201-100-25: Health Reserves

Commentary on Question:

This question primarily assesses candidates' knowledge of claim reserve estimation methods, their understanding of the limitations of traditional approaches, and their familiarity with alternative techniques.

Solution:

(a)

(i) Describe the characteristics of coverages where the use of the development method is appropriate.

Commentary on Question:

This question was answered very well in general. For full credit, candidates needed to describe at least 4 characteristics of coverages where the use of the development method is appropriate.

Characteristics of coverages for which the development method works well include:

- Ability to systematically record an incurred date and a payment date as each claim is adjudicated and paid. The difference between these dates across policies in a valuation cell defines the lag pattern.

1. Continued

- Fairly consistent lag patterns in the progression of claims from their incurred date to a date on which they are ultimately paid in full. Methods exist to smooth and adjust patterns for some disruptions, but the inherent payment pattern cannot be too erratic.
- Incurred periods should have a relatively short duration relative to the ultimate run-out. Monthly periods typically are used for medical claims. Quarterly periods are often used for disability and may even work for large blocks of term life coverage. Annual periods are usually limited to some property/casualty coverages in which run-out may last for years. Longer incurral periods also create complications due to the impact of inflationary or operational changes. with the smoothing of statistical fluctuations described in more detail below.
- A sufficient volume of business must be included in a given valuation cell to obtain reasonable stable results. This amount varies by the nature of the benefits and the frequency of claim. Combining blocks of business to achieve credibility therefore requires that they exhibit similar patterns in reporting and processing.
- The technique also requires either earned premiums or an exposed contract count to assist in the calculations. These values help with certain volume adjustments and with the smoothing of statistical fluctuation.

(b) Calculate the IBNR as of the valuation date. State any assumptions and show your work.

Commentary on Question:
This question was well answered in general. To receive full credit, candidates needed to demonstrate a comprehensive understanding of age-to-age development factors method. Since the question specifically asked for "an averaging technique that excludes the highest and lowest values using the smoothed age-to-age factors from the data provided," answers that used age-to-ultimate development factors did not receive credit.

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

(c) Calculate the IBNR as of the valuation date using the:

(i) Loss ratio method

(ii) PMPM projection method

State any assumptions and show your work.

1. Continued

Commentary on Question:
This question was well answered in general. For full credit, candidates needed to recalculate the total IBNR as of the valuation date. It's also crucial to carefully follow the question instructions and provide answers accordingly. In particular, the question asked for the loss ratio from "the past two complete years" for the loss ratio method, and the same time frame for the PMPM method. Answers that used different time frame did not receive credit.

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

(d) Recommend which method should be used. Justify your answer.

Commentary on Question:
Overall, this question was not answered very well. For full credit, candidates needed to compare all three methods, justify their choices, and show thorough understanding of the limitations of traditional methods and the application of alternative methods.

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

2. Learning Objectives:

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

Learning Outcomes:

(2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.

(2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).

(2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

Sources:

CIA Educational Note - Financial Condition Testing, Jan 2023, pp. 1-45

CIA Educational Note – IFRS 17 Coverage Units for Life and Health Insurance Contracts, Dec 2022, excluding sections 3.1.2, 3.1.3, 3.2, 3.4

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(i) List the considerations supporting the integration of FCT and ORSA.

(ii) Describe the challenges of the integration of FCT and ORSA.

Commentary on Question:

Candidates generally provided high level answers but lack detailed understanding of how to compare the two methods. Additionally, most candidates were able to explain the efficiencies, but were challenged by the other points.

(i)

- ORSA-defined internal target capital ratios, which is a key component in the development of the AA's opinion. Should the internal target capital ratios be assumed to evolve over the duration of the projection, for example due to significant growth and expansion in the insurer, it would be appropriate to assume internal target capital ratios that differ from the ones provided in the ORSA. The actuary would provide justification for internal target capital ratios that are different from the ones provided in the ORSA.
- The ORSA's usefulness in assessing the going concern or solvency nature of adverse scenarios, and in supporting the development of adverse scenarios.

2. Continued

- Efficiencies such as:
  - Consistent timing.
  - General reporting needs such as collection of data, analysis, management discussions, production of reports, internal and external party reviews of reports.
  - Overlapping requirements such as comprehensive stress scenario testing.
- A comprehensive view of both regulatory and own capital requirements that can better inform decision-making and management action.

(ii)

- Oversight of FCT lies with the AA whereas the ORSA accountability lies with senior management with oversight provided by the board of directors.
- FCT follows a prescribed regulatory basis while the ORSA reflects own models and assumptions. The differences in bases of calculation may make efficient integration of models and processes difficult.
- Areas of the organization responsible for FCT may differ from those coordinating the ORSA, increasing the cost of coordination and change management.

(b) List and describe the types of adverse scenarios that should be developed for FCT.

Commentary on Question:
While candidates demonstrate some level of understanding of the solvency scenarios and going concern scenarios, more details were needed. Most candidates missed the integrated scenarios. Note, not all details shown below were required to obtain full credits for this question.

- **Solvency scenarios**
  - A solvency scenario is a plausible adverse scenario if it is credible and has a non-trivial probability of occurring. The actuary may use percentile rankings of outcomes to determine whether a solvency scenario is both plausible and adverse.
  - In a solvency scenario, an insurer would be expected to consider the occurrence of event(s) that test its ability to maintain a positive equity position.

2. Continued

- A solvency scenario is a plausible adverse scenario, with the percentile ranking of the scenario recommended to be at least at the 95th percentile over the scenario horizon. Although this guideline suggests this minimum, it is strongly recommended that analysis be performed at even higher percentile rankings and it would not be unreasonable to conduct scenario testing at the 99th percentile or beyond. If the actuary is unable to ascertain the percentile ranking of the scenario, the actuary would be comfortable that the scenario is of sufficient adversity to appropriately test the relationship of the insurer's statement value of assets to its liabilities. The actuary would disclose in the FCT report the reasons for selecting the scenario, including considerations regarding its frequency, severity and period of adversity.
- The threshold for solvency scenarios is a higher statement value of assets than liabilities.
- A solvency scenario could align with the level of shocks used in the ORSA.
- It is recommended that at least two solvency scenarios be tested.

- **Going concern scenarios**
  - A going concern scenario is an adverse scenario that is more likely to occur and/or less severe than a solvency scenario, and could include risks not considered in solvency scenarios.
  - A going concern scenario is intended to test an insurer's ability, through its developing capital position, ripple effects, and corrective management actions, to maintain operations and fulfill its obligations while meeting or exceeding the regulatory minimum capital ratio(s). The scenario would maintain sufficient capital resources, as defined in OSFI's Guideline A-4 – *Regulatory Capital and Internal Capital Targets* or in AMF's *Capital Adequacy Requirements for Life and Health Insurance (CARLI)* or Minimum Capital Test (MCT) guidelines, to meet or exceed the regulatory minimum capital ratios.

2. Continued

- A going concern scenario is a plausible adverse scenario, with the percentile ranking of the scenario recommended to be at least at the 90th percentile over the scenario horizon. If the actuary is unable to ascertain the percentile ranking of the scenario, the actuary would be comfortable that the scenario is of sufficient adversity to appropriately test the insurer's ability to meet or exceed the regulatory minimum capital ratio(s). The actuary would disclose in the FCT report the reasons for selecting the scenario, including considerations regarding its frequency, severity and period of adversity. A going concern scenario may examine the same risks as a solvency scenario or consider a distinct set of risks. If a going concern scenario is examining the same risks as a solvency scenario, it may be developed by reducing the percentile ranking of the stressed assumptions over the same horizon, or by testing a more gradual deterioration in the stressed assumptions.
- It is important to note that the threshold for going concern scenarios is defined by the regulatory minimum capital ratio(s), whereas the threshold for solvency scenarios is a higher statement value of assets than liabilities. In some cases, a solvency scenario can meet both satisfactory financial condition thresholds of going concern and solvency scenarios. The actuary would still be interested in analyzing additional going concern scenarios, for different risk types or projection horizons, to further understand other potential risks that may impact the insurer's ability to maintain operations and meet its obligations while meeting or exceeding the regulatory minimum capital ratio(s).
- It is recommended that at least one going concern scenario be tested.

- **Integrated scenarios**
  - The actuary would construct integrated scenarios by combining two or more risks factors whose combination gives rise to an adverse scenario.
  - An integrated scenario is a type of adverse scenario resulting from the combination of two or more adverse risk factors. The integrated scenarios could be a combination of risk factors with low percentile ranking and/or risk factors with higher percentile ranking. The adverse risk factors to be combined may be based on correlated or uncorrelated risk factors but the resulting integrated scenario would remain plausible and would consider associated ripple effects.

2. Continued

- The percentile ranking of an integrated adverse scenario may be assessed based on an integrated stochastic model, if available. If an integrated stochastic model is not available, judgment regarding the correlation between risk-factors could be used to assess the overall percentile ranking of the integrated scenario based on stochastic models for individual risk-factors. Similar to individual risk factor scenarios, the overall percentile ranking of an integrated scenario may be benchmarked against historical experience.
- It is recommended that at least one integrated scenario be tested.

(c) Develop the CSM amortization schedule for the following benefits:

(i) CI

(ii) DI

Commentary on Question:
Candidates generally did well on this part. Common mistakes include not applying the decrement at all or properly, incorrectly calculating PV of benefits or incorrectly calculating current / current + future service.

See the answer in Excel

(d) Critique this statement.

Commentary on Question:
Most candidates were challenged by this question. It is important for candidates to draw the comparison to an annuity benefit. For full credits, candidates needed to mention that an approach using annualized benefit payments leads to a slower amortization than using the present value of future payments.

- While the PV of benefits approach is appropriate for the LIC view of DI as noted above, it might be more difficult to justify its use under an LRC view given the similarity of the LRC DI benefit stream to an annuity. The aforementioned IFRIC conclusion ruled out PV of benefits as a valid coverage unit basis for payout annuities in the context of the specific fact pattern discussed in the June 2022 IASB staff paper.
- Selection of the PV of benefits approach for DI under the LRC view may be seen as contradicting the principles articulated in the IFRIC decision, and therefore may require justification as to why the IFRIC decision on annuities would not be directly applicable to DI.

2. Continued

- The pattern of revenue recognition (CSM amortization) may differ significantly between different approaches; an approach based on the annualized disability or LTC payment will lead to a slower amortization pattern than an approach based on the present value of future payments.

(e) Recommend an approach to the CFO for developing CU for a group of contracts that combine more than one type of coverage. Justify your answer.

Commentary on Question:
It was important for candidates to make a recommendation and provide reasons to support the recommendation. Additionally, it was important for candidates to point out the overarching objective would always be to establish a coverage unit basis that produces a reasonable proxy for the aggregate quantity of service provided by the contracts in the group, in accordance with the requirements of IFRS 17.

- Different potential approaches for developing coverage units in the context of a group of contracts with multiple coverages include the following:
  - Simple sum of the various contractual coverages
  - Normalization of the coverages prior to combining them
  - Determining a coverage unit reflecting the characteristics of all benefits
- Any choice would be acceptable provided that it reasonably represents the quantity of insurance contract services. For example, approach 3 might be used if approach 1 puts too much weight on one coverage relative to the others or if approach 2 cannot be used due to lack of a suitable base for normalization. The remainder of this section discusses potential considerations with respect to the various approaches.

3. Learning Objectives:

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.

(3c) Understand the impact of the taxation of both insurance companies and the products they provide.

Sources:

GH201-621-25: Canadian Life and Health Insurance Association: Guideline G3, Group Life and Health Insurance

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-661-25: Employee Life and Health Trusts & Health and Welfare Trusts

GH201-709-25: Brooks V. Canada Safeway Ltd., pp. 1219-1227 (up to section II)

GH201-710-25: Termination of Benefits Coverage at Age 65 Declared Unconstitutional

GH201-714-25: How Employers are Integrating DEI into their Benefits Plans

Commentary on Question:

Overall, candidates performed well on this question, particularly in parts (b) and (c), which required describing or listing items.

Solution:

(a) Calculate the health and dental cost difference between the two plans for the 20X3 calendar year. State any assumptions and show your work.

Commentary on Question:

Most candidates demonstrated a strong understanding of the study material and were able to calculate costs and the corresponding taxes. However, many candidates did not identify the different tax treatments between ASO fees and ASO claims.

See the solution in Excel

3. Continued

(b) Describe the Canadian Life and Health Insurance Association (CLHIA) guidelines related to an insured employee who is still disabled on the date of termination of the existing contract.

Commentary on Question:
Candidates generally did well on this part.

- A claim for Disability Income Benefit should be considered by the insurer of the Terminating Contract as if the contract had remained in force so long as notice of claim is submitted to it within the greater of 180 days or such longer continuous period as may be provided in the Terminating Contract or under applicable law, following the commencement of disability.
- The claim for Life Waiver of Premium should be considered for acceptance by the insurer of the Terminating Contract as if the contract had remained in force so long as a notice of claim is submitted to it within the greater of 180 days or such longer continuous period as may be provided in the Terminating Contract or under applicable law, following the commencement of disability.
- Regardless of the cause of death, if the Plan Member dies during the Life Waiver of Premium waiting period or during the period in which a claim for Life Waiver of Premium could have been, but was not made, the insurer of the Terminating Contract should adjudicate the Life Waiver of Premium claim as if:
    - the Life Waiver of Premium waiting period has been satisfied, and
    - a claim for the Life Waiver of Premium has been made.

Therefore, if the other conditions of the Life Waiver of Premium provision have been satisfied, the insurer of the Terminating Contract is liable for the life insurance claim.

- With respect to the Disability Income Benefit, the insurer of the Replacing Contract may collect premiums until such time as the insurer of the Terminating Contract has made its claim decision. With respect to a Group Insurance contract which includes a Life Waiver of Premium provision as referenced above, the insurer of the Replacing Contract should collect premiums until such time as the insurer of the Terminating Contract has made its claim decision.
- The life insurance benefit should be provided by the insurer of the Replacing Contract on a premium paying basis under the following circumstances:
    - where the Terminating Contract is a contract of Group Insurance which does not include a Life Waiver of Premium provision, in respect of the Plan Member or any person insured under the contract; or

3. Continued

  - where such Plan Member does not qualify for continuation of insurance under the Life Waiver of Premium provision in the Terminating Contract because of age, failure to meet the definition of disability or failure to submit a claim within the period required above.
- No Plan Member who is receiving benefits under the Terminating Contract may receive duplicate benefits under the Replacing Contract.

(c) List the requirements of an ELHT.

Commentary on Question:
Candidates generally did well on this part. Not all points are required to obtain full credits.

- The trust must be resident in Canada
- The trust must be organized for the purpose of providing the limited forms of benefits and assistance – group sickness or accident insurance, a group term life insurance policy or a private health services plan
- The trust has a legal right to enforce payment of contributions to the trust
- Employer agents or representatives constitute only a minority of the trustees of the trust
- ELHT's have an anti-avoidance concept of a key employee
- Defined as a high-income employee of one which holds significant shareholdings
- Benefits cannot accrue more favorably to key employees
- At least one class of beneficiaries must contain more than 25% of all employees, and at least 75% of this class must not be a key employee.

(d) Calculate the closing balance of the ELHT as of December 31, 20X3. State any assumptions and show your work.

Commentary on Question:
The performance varied among candidates. Most were able to identify the components contributing to the closing balance. However, many did not correctly capture the year-over-year tax carryover.

See the solution in Excel

3. Continued

(e) Recommend design considerations for the association plan to address the trustees' concerns. Justify your answer.

Commentary on Question:
The performance varied among candidates. Some demonstrated strong understanding and were able to reference relevant case law to address the trustee's concerns, while others did not. Most candidates were able to list design changes related to DEI initiatives. Not all points are required to obtain full credit.

- The Supreme Court ruled that excluding pregnancy-related illnesses constitutes discrimination based on sex, as only women experience pregnancy. Plan sponsors must ensure that STD plans explicitly cover illnesses or complications arising from pregnancy and postpartum recovery, treating them equivalently to other medical conditions.
- Avoid applying waiting periods, exclusions, or reduced benefit periods for claims related to pregnancy. These provisions could disproportionately affect women and violate anti-discrimination principles.
- The Human Rights Tribunal of Ontario (HRTO) has declared the termination of benefits coverage at age 65 unconstitutional, emphasizing the need for employers to ensure their benefit plans comply with human rights legislation and promote inclusivity. To align with this decision, plan sponsors should consider the following specific adjustments:
- Ensure that health, dental, and life insurance benefits continue for employees working past 65, eliminating age-based termination clauses. Collaborate with unions to modify agreements that previously allowed benefits cessation at 65, ensuring compliance with the HRTO ruling.
- Introduce Gender Affirmation Benefits: Provide coverage for procedures and treatments related to gender transition, such as facial feminization surgery, tracheal shaving, laser hair removal, vocal therapy, and other services not typically covered by provincial health plans. This support affirms the identities of transgender employees and demonstrates the organization's commitment to inclusivity
- Offer Fertility and Family-Building Support: Expand benefits to include fertility treatments, adoption assistance, and surrogacy support. This approach acknowledges diverse paths to parenthood and supports employees in their family-building journeys.
- Provide Mental Health Resources Tailored to Diverse Needs: Ensure mental health programs are culturally sensitive and accessible to all employees. This includes offering services that respect various cultural backgrounds and providing support for issues disproportionately affecting underrepresented groups.

3. **Continued**

- Implement Flexible Benefits Plans: Design benefits packages that allow employees to choose options best suited to their individual needs, promoting fairness and accommodating the diverse circumstances of the workforce

4. Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts.

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

Learning Outcomes:

(1f) Describe, calculate, and evaluate non-IBNR types of reserves and explain when each is required.

(2a) Interpret insurer financial statements from the viewpoint of various stakeholders.

(2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration contracts.

Sources:

CIA Educational Note - Valuation of Group Life and Health Policy Liabilities, Jun 2010, sections 5, 8-10 and Appendices B, C, & D

Comparison of IFRS 17 to Current CIA Standards of Practice, Jun 2022 (excluding sections 3.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5 & 8.1.1)

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

Commentary on Question:

Candidates should have a clear understanding of the different types of financial arrangements as they pertain to risk sharing (between plan sponsor and insurance company), funding (who is ultimately responsible for the financial outcome) and the rating (how to set the contribution rates or premium rate for the benefit).

Solution:

(a)

(i) Describe the commonly available financial arrangements.

(ii) Assess the applicability of each financial arrangement to each type of coverage.

Commentary on Question:

While most candidates were able to refer to the available financial arrangements, many candidates did not understand their application and how to match them with the listed benefits for the given size of the plan sponsor. Not all details shown below were required for full credits.

4. Continued

(i)

Fully Insured Arrangement:

- Under a fully insured arrangement, the insurer assumes all the risk for paying claims. The employer pays a fixed premium to the insurer, who then covers all eligible claims.

Administrative Services Only (ASO) Arrangement:

- In an ASO arrangement, the employer self-funds the claims but outsources the administration of the plan to an insurer or third-party administrator. The employer pays for the actual claims incurred plus an administrative fee.

Prospectively Rated:

- Prospectively rated arrangements involve setting future premium rates for a group policyholder based on a weighted average of the insurer's manual rates and the group's experience, with adjustments for claims volatility, and do not allow for refunds of past experience gains.

"Split funded" arrangements

- "Split funded" arrangements combine insured and ASO, often using mechanisms like minimum premium arrangements and stop loss coverage to manage claims risk, with premiums charged for the insurer's assumed risks.
- Stop-loss insurance is a type of reinsurance that protects the employer from catastrophic claims. It can be combined with an ASO arrangement to limit the employer's financial exposure by setting a cap on the amount the employer will pay for claims.

Refund accounting arrangement – no Hold-Harmless Agreement

- Risk is shared between plan sponsor and the insurance company where the plan sponsor is responsible for deficits (and entitled to surplus refunds) when policy is active. Upon termination, while surplus will be refunded to the plan sponsor, the insurance company absorbs the deficit.

Refund accounting arrangement – with Hold-Harmless Agreements

- Risk is shared between plan sponsor and the insurance company where the plan sponsor is responsible for deficits (and entitled to surplus refunds) when policy is active. Upon termination, the plan sponsors agreed to hold the insurance company harmless (hence hold-harmless) and be responsible to repay any deficit held by the insurance company.

4. Continued

(ii)

Fully Insured Arrangement:

- Medical and Dental Coverage: Given the relatively small size of XYZ (approximately 100 employees), a fully insured arrangement might be beneficial for medical and dental coverage. This would provide predictable costs and reduce the administrative burden on XYZ, as the insurer handles all claims processing and risk management.
- LTD and Term Life Coverage: Similarly, for Long-Term Disability (LTD) and Term Life insurance, a fully insured arrangement can offer financial stability and peace of mind, ensuring that employees are adequately covered without exposing XYZ to significant financial risk.

Administrative Services Only (ASO) Arrangement:

- Medical and Dental Coverage: If XYZ has a stable cash flow and is willing to assume some risk, an ASO arrangement for medical and dental coverage could be cost-effective. This arrangement allows XYZ to benefit from potential savings if actual claims are lower than expected, while still leveraging the insurer's expertise in claims administration.
- LTD and Term Life Coverage: For LTD and Term Life insurance, an ASO arrangement is less common due to the potentially high and unpredictable nature of these claims. It is generally advisable for XYZ to opt for a fully insured arrangement for these coverages to mitigate financial risk.

Stop-Loss Insurance:

- Medical and Dental Coverage: If XYZ chooses an ASO arrangement for medical and dental coverage, it is prudent to purchase stop-loss insurance to protect against unexpectedly high claims. This ensures that XYZ's financial liability is capped, providing a safety net while still allowing for potential cost savings.
- LTD and Term Life Coverage: For LTD and Term Life insurance, stop-loss insurance is typically not applicable. A fully insured arrangement remains the recommended option to ensure comprehensive coverage and financial protection for XYZ and its employees.

Prospectively Rated:

- Medical and Dental Coverage: Prospectively rated arrangements could be suitable due to the group's size and potential for predictable claims, allowing for adjustments to manage volatility. It can offer smoother premium costs over time, beneficial for budgeting.
- LTD and Term Life Coverage: Prospectively rated arrangements would be applicable if credibility of the group is zero.

4. Continued

"Split funded" arrangements

- Medical and Dental Coverage: This approach can help manage routine claims costs while providing protection against high-cost, unpredictable medical claims, offering financial stability and cost control.
- LTD and Term Life Coverage: Not recommended, as these benefits involve infrequent but high cost claims.

In summary, for Company XYZ, a fully insured arrangement is recommended for LTD and Term Life coverage to ensure financial stability and adequate protection. For medical and dental coverage, an ASO arrangement with stop-loss insurance could be considered if XYZ is willing to assume some risk and has the financial capacity to manage potential claims variability.

(b) Calculate the following for the year 20X1:

(i) Claims Fluctuation Reserve (CFR)

(ii) Experience Rating Refund (ERR) liabilities

State any assumptions and show your work.

Commentary on Question:
Most candidates showed a clear understanding of how to calculate CFR, but many candidates did not understand the definition of ERR, and how to apply the concept.

See the answer in Excel

(c) Describe the accounting treatment of CFR and ERR under IFRS 17.

Commentary on Question:
Most candidates did not recognize that the CFR and ERR could be either distinct or non-distinct.

- CFR may be distinct or non-distinct.
- If distinct, would be separated from the insurance contract, measured under IFRS 9, and the liability would be included with other investment contract liabilities in the financial statements.
- If non-distinct, IFRS 17 applies and the liability would be included with insurance contract liabilities. Exclude from insurance revenue and insurance service expense.

4. Continued

(d) Calculate key ratios included in the DuPont Formula for each business unit. State any assumptions and show your work.

Commentary on Question:
Most candidates received partial credit for this question, but only a few candidates demonstrated a strong understanding on how to utilize the income statement correctly.

See the answer in Excel

(e) Explain how each of these ratios should be interpreted.

Commentary on Question:
Candidates generally did not perform well on this question. Providing the definition (i.e., a verbale explanation on how to calculate each ratio) was not sufficient for full credits.

- Total asset turnover: the lower the ratio, the more capital-intensive the business or the more modest the per member revenues. Changes in this ratio tend either to take a long time to implement, or require a major acquisition or divestiture.
- Profit Margin: two most common margin ratios are operating profit and net margin. BU1 has low net profit margin, one should obtain the split of operating profit and non-operating profit to understand the performance of operation.
- Total Leverage ratio: the total leverage ratio helps to understand how much of the company's operations are funded by debt. A higher ratio indicates that the company is using more debt to finance its assets, which can improve returns but also increase risk

5. Learning Objectives:

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

Learning Outcomes:

(4a) Describe eligibility requirements for social programs in Canada and the benefits provided.

(4b) Describe how private group insurance plans work within the framework of social programs in Canada.

Sources:

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6

GH201-715-25: Ontario's New Drug Plan Will Require a Swap of Brand-Name Biologic Medications for Cheaper Versions

Biosimilars in Canada: Building Momentum in the Wake of Recent Switching Policies, Nov 2021

Commentary on Question:

Candidates generally did well on parts a) and b), but had difficulty with the calculation parts in d), e) and f).

Solution:

(a) Describe the biologic landscape in Canada from 2010 to 2020 as it relates to:

(i) Trends in biologic drugs

(ii) Availability and uptake of biosimilars in Canada

Commentary on Question:

Most candidates were able to get full credit on this part of the question. Candidates needed to recognize that biologic drugs have increased substantially over the last decade and no comparison to XYZ's plan was needed to get full credits.

(i)

- Biologic medicine sales in Canada tripled over the last 10 years, rising from $3.3B in 2011 to $10.0B in 2020. This represents a 10-year compound annual growth rate of 13.2%, with a 14.6% increase in the last year alone.

5. Continued

- Although Company XYZ's biologic drugs have more than doubled, we are observing even more significant increases in biologic spend across Canada.
- Sales of biologic medicines accounted for 1/3 of pharmaceutical spending in Canada in 2020. Canada spends more on biologics per capita than most industrialized countries, at an average of $262 per person in 2020, representing the fourth-highest per capita sales among the OECD countries.
- Company XYZ's biologic cost makes up 28% of Company XYZ drug cost, which is in the same ballpark but slightly under what we are seeing compared to Canada's pharmaceutical spending

(ii)

- Despite the increase in the number of biosimilars, both Canada and the US continue to lag behind the European market in terms of the number of approvals and availability. There has been an uptake in Canada over the last two years as several biologic drugs now face biosimilar competition.
- This is consistent with what we are seeing under Company XYZ's claims experience as it was noted that the increase in biosimilars has only been seen in recent years.
- Biosimilars are not interchangeable with the reference biologic. Switching is not mandatory; Health Canada recommends that a decision to switch a patient from a reference biologic drug to a biosimilar be made by the treating physician in consultation with the patient and take into account any policies of the relevant jurisdiction.
- Company XYZ's current plan design does not have mandatory switchover. This should be considered to align with Health Canada's recommendation.

(b) Recommend two plan design changes relevant to XYZ based on the initiatives by public and private payers to manage biologic drug costs. Justify your answer.

Commentary on Question:
Most candidates were able to get full credit on this part of the question. Candidates needed to recognize that biosimilar drugs are being implemented but there is still room for improvement. Description of the provincial program changes were not required to obtain full credit.

5. Continued

- Ontario
  - In December 2022, the Ontario Ministry of Health announced a biosimilars initiative under its public drug program. Under the new policy, there will be a nine-month transition period that is set to start March 31, 2023. That will allow patients time to have discussions with their care providers about what the changes mean, as well as options. Certain patients will be exempt from mandatory switching, such as those who are pregnant and people with certain types of cancer.
  - Company XYZ has employees in Ontario and may want to consider switching its plan to be aligned with the public program. The plan design is currently combined with Alberta, so Company XYZ may want to separate the plan into two designs to align with each provincial biosimilar initiative.

- Alberta
  - In January 2021, Alberta introduced a policy mandating that patients using medications like Enbrel, Remicade, Lantus, Neupogen, and others for a range of conditions must transition to biosimilars. By May 2021, this non-medical switching policy further expanded to include medications such as Humira, Lovenox, and Humalog, ensuring broader adherence to biosimilar options. These changes aim to reduce drug costs while maintaining therapeutic outcomes.
  - Company XYZ has employees in Alberta and may want to consider switching its plan to be aligned with the public program. As previously noted, the plan design is currently combined with Ontario, so Company XYZ may want to separate the plan into two designs to align with each provincial biosimilar initiative.

- British Columbia
  - Starting in 2019, British Columbia became the first province to implement a mandatory switch to biosimilars for patients covered under the PharmaCare program, targeting medications like Enbrel, Remicade, and Lantus for specific indications. Subsequent phases expanded the policy to include Rituxan in 2020 and Humira in 2021, requiring patients to switch to biosimilar versions by specified deadlines. Additionally, the BC Cancer Agency implemented an Oncology Biosimilars Utilization Policy, limiting new treatments with bevacizumab, trastuzumab, and rituximab to biosimilars.

5. Continued

- Company XYZ plan for BC is integrated with the public plan, where the public plan would be first payer. If the plan design does not align with PharmaCare's initiative, then this could result in greater cost for Company XYZ since the plan is self-insured and anything not covered by the provincial plan falls on Company XYZ.

- Private payers
  - Green Shield Canada (GSC) initiated a pilot program in 2018 that targeted patients taking Remicade and Enbrel for three rheumatic conditions and reduced reimbursement to the biosimilar price. Under the program, the patient could switch to the biosimilar or remain on the biologic and pay the cost difference. Since then, GSC has opened its biosimilar transition program to any sponsor who wishes to take part. Sun Life introduced its Reference Drug Program (RDP) for certain therapeutic categories of drugs to promote the use of biosimilar drugs. Pacific Blue Cross (PBC) aligned with BC PharmaCare's Biosimilars Initiative to transition patients on high-cost originator drugs to their biosimilars.
  - If Company XYZ uses any of these carriers, it should consider whether there would be a benefit of adopting the insurer's standard practices.

(c) Compare and contrast the provincial drug programs in British Columbia, Alberta, and Ontario by completing the table in the Excel spreadsheet.

Commentary on Question:
Overall, candidates had difficulties with this part of the question as they were not able to complete the table. Many candidates also did not properly identify which public plan is first and second payor. As Alberta's provincial drug program was not covered in the source material, we adjusted our grading to award full credit to candidates who were able to correctly complete the table for British Columbia and Ontario.

See the answer in Excel

(d) Calculate the following for the most recent year:

(i) Amount paid by the provincial drug plans

(ii) Amount paid by XYZ's plan

State any assumptions and show your work.

5. Continued

Commentary on Question:
Candidates had difficulties with this part of the question as they were generally not able to properly calculate the amounts reimbursed by the public and private plans. Some candidates used the private plan's parameters when calculating the public plan's reimbursement, and most candidates did not apply the proper BC deductible, although the information was given.

See the answer in Excel

(e) Calculate the cost reduction to XYZ's plan using the submitted claims from the most recent year. State any assumptions and show your work.

Commentary on Question:
Candidates did not perform well on this part of the question. Candidate had to identify the four biologic drugs and apply a 40% factor to convert the price to a biosimilar. No candidate was able to properly calculate the cost reduction.

See the answer in Excel

(f) Assess the finance department's conclusion. Justify your answer.

Commentary on Question:
Candidates did not perform well on this part of the question. Some candidates were able to identify the logic to be applied, that is the net change between the new plan design plus the biosimilar initiative compared to current plan, but were unable to calculate it.

See the answer in Excel

6. Learning Objectives:

5. The candidate will understand how to describe the flow of funds in the health care system and the role of providers in the system.

Learning Outcomes:

(5b) Describe the role physicians play and their influence on the flow of funds

(5c) Describe the market power of hospitals and how provider systems compete for patients, physicians, and contracts

Sources:

GH201-102-25: Flow of Funds in Healthcare System and the Role of Providers

GH201-103-25: *Health Economics and Financing*, Getzen, Thomas and Kobernick, Michael, 6th Edition, 2022: Sections 5.4-5.6, 6.2-6.3, 7.4-7.5, 8.4-8.5, 13.2-13.3

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Compare and contrast the motivations of a large group practice and a large hospital system in extending an offer to Dr. A to join their organization.

Commentary on Question:

The majority of the candidates received partial credits by demonstrating understanding of how group practice growth benefits from one or two of the three items (economies of sales, risk sharing, market power), but few candidates went into detail about why hospitals compete for physicians.

Physicians who join together in group practices have higher earnings than solo practitioners for three primary reasons:

- **Economies of scale**
  - Group practices can more efficiently utilize shared input like office space and lab equipment.
  - Group practices can more effectivity substitute ancillary labor to free up physician's time for billable patient work, e.g., hiring more billing clerks and technicians.
- **Added market power brings in more revenue**
- **Groups can better share risks**

By extending an offer to Dr. A to join their organization, a large group practice would look to increase their advantages in each of these areas.

6. Continued

Except for emergency room and outpatient clinic visits, hospitals compete for patients primarily on decisions made by physicians as patients follow the advice of their doctors. This has led to an increase in the number of doctors joining hospitals as salaried employees and has resulted in over half of all large medical groups being owned by hospital systems. The offer to Dr. A from the large hospital is a continuation of this trend.

(b) Evaluate potential advantages and disadvantages of each offer for Dr. A.

Commentary on Question:
Most candidates earned partial credit by illustrating the benefits for Dr. A in joining a group practice or hospital, such as higher or more stable income and improvements to work–life balance. Some candidates recognized the trade-offs related to personal autonomy but did not provide further detail.

Either offer will likely increase Dr. A's earnings but will require him to cede personal autonomy and align with group/hospital policies.

The advantages and disadvantages of joining a large group practice for Dr. A are:

- Advantages
  - Physicians in group practices enjoy higher earnings than solo practitioners because of economies of scale, market power, and risk sharing
  - Physicians in group practices can enjoy a higher quality of life because of the ability to share the burden of being on-call and to shift low value work (e.g., billing) to adjuncts
- Disadvantages
  - Dr. A loses personal autonomy in management and policy decisions made by the group
  - Dr. A will take on additional time/cost associated with overall group management
  - Dr. A takes on reputational risk of overall practice

The advantages and disadvantages of joining a large hospital system are

- Advantages
  - Generally, hospitals compete for physicians through multiple means. In some cases, they offer straight salaries with signing bonuses. In others, they provide income guarantees, resources availability, or referral volume. A hospital's overall reputation in an area can drive additional patient volume to a physician as a halo effect.

6. Continued

    - While specific advantages to Dr. A depend on the nature of the hospital's offer, they would presumably result in higher earnings for Dr. A and similar quality of life benefits to the group practice offer.
    - Dr. A's patients may gain access to additional care pathways and technologies through Dr. A's association with the hospital.
- Disadvantages
    - Dr. A loses personal autonomy in management and policy decisions made by the hospital.

(c) Assess the ways in which Dr. A joining with a large hospital system could impact the cost and quality of care in the metro region.

Commentary on Question:
Candidates generally did not perform well on this part, and few received full credit. Most responses addressed only one or two isolated points related to cost or quality of care, often without connecting them to the broader system-level effects described in the question.

There are four ways Dr. A joining a large hospital system could impact the cost and quality of care in the metro region:

- **Efficiency increases**
  Dr. A will be able to provide more care to his patients and have additional capacity to provide care to additional patients because of the availability of additional resources (e.g., space, equipment) and ability to leverage extenders (e.g., billing clerks, physician assistants, lab technicians). This will lower the overall cost of care in the region and increase quality.

- **Potential "medical arms race"**
  Hospital competition for physicians can lead to a sort of "medical arms race," in which nearby hospitals each try to be the first with the newest technology and respond strategically. It is possible that this can lead to inefficiencies and escalating costs because of overinvestment and underutilization of newer equipment. To the extent that Dr. A joins the hospital because of this dynamic or Dr. A's joining increases this dynamic, costs would rise.

- **Mix shift**
  To the extent that Dr. A's patients utilize higher cost care pathways or higher cost technologies because of his association with the hospital, overall system costs would rise along with overall quality levels.

6. Continued

- **Change in patient and provider costs**
  Hospital charge master and negotiated prices, which drive prices paid by insurers and individuals, are complex and slow to reflect changes in underlying unit costs associated with Dr. A's decision. Similarly, fees paid by Medicaid are set by regulators and would not change because of Dr. A's move. Thus, any reduction in system unit costs and efficiencies because of Dr. A's move would be retained by the hospital and not passed on to patients and providers.