GH FVCC Model Solutions
Spring 2021

1. Learning Objectives:

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

Learning Outcomes:

(5b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

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

Commentary on Question:

Candidates did generally well on this question.

Solution:

(a) Describe the main components of out-of-country claims management.

Commentary on Question:

Candidates did very well on this portion

- Emergency Assistance
  - Determine claim eligibility
  - Initiate/handle case management
  - Notify other carriers
  - Coordinate any payments
  - Recover amounts owing from other carriers
- Claim payment
  - First insurer contacted will generally be first carrier
    - Even if carrier provides Excess Coverage Provision
  - Initiate medical elements / repatriation
  - Pay the claim under the contract as if no other coverage exists
  - Process recovery from GHIP
    - If retiree already reimbursed bv GHIP, the payment will be net

(b) Recommend questions you can ask the retiree to ensure you evaluate the coordination of benefits appropriately.

1. Continued

Commentary on Question:
Candidates who did best asked several relevant questions around other coverages that could apply. Few candidates asked about public coverage.

1) Is the claimant covered by another group as primary beneficiary?
    - Is the retiree an active worker or retired under these plans?
        - First payer is active full time, then part time, finally retiree
    - If same status, how long have they worked at each?
        - Longer duration is first payer
    - What are the medical plan terms? Do they have COB provisions?
    - Does the program have lifetime benefit maximum?
        - If so, how much credits are left?
    - What is their contact information to share claim documents?
2) Is the claimant a dependent on another group plan?
    - Did he or his spouse buy supplemental coverage or use a credit card providing benefits?
    - What are the medical plan terms? Do they have COB provisions?
    - Does the program have lifetime benefit maximum?
        - If so, how much credits are left?
    - What is the claim limitation language?
3) Is the claimant a Canadian resident covered by public GHIP?
    - Which province are they covered by?
    - Did they or will they apply for reimbursement?

(c) Calculate how much would be payable under Company XYZ's retiree plan benefit:

(i) Without the spouse's plan

(ii) With the spouse's plan

State any assumptions and justify your answer.

Commentary on Question:
About half of candidates got full credits on this part. Most of those who did not missed the exception that applies to retiree group plans with lifetime limit of $50,000 or less.

(i) XYZ is the only payer. Because the claim exceeds XYZ's lifetime maximum, XYZ pays $50,000.

(ii) Because of its lifetime maximum of $50,000, XYZ is secondary to any plan with a higher lifetime maximum. XYZ pays $0.

2. Learning Objectives:

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

Learning Outcomes:

(3a) Describe eligibility requirements for social programs in Canada and the benefits provided.

(3b) Describe how private group insurance plans work within the framework of social programs in Canada.

(3c) Compare social programs in Canada and the United States and discuss the value of the different systems.

Sources:

GHC-651-16: The high states of medications, insurers and governments

GHFV-694-19: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6)

GHFV-695-19: A Joint Statement from the pan-Canadian Pharmaceutical Alliance and the Canadian Generic Pharmaceutical Association

GHFV-697-19: Morneau Shepell New & Views, Volume 15, Issue 9, Sep 2018, section 1; Cannabis: Employer Considerations in a Changing Landscape

Commentary on Question:

The objective of this question was to test the candidates understanding of a number of different topics as they relate to public social programs and private health care. Candidates were asked to recall specific topics and describe them for full credit. The calculation was designed to demonstrate knowledge of the integration of costs between private insurance, TDP, and the out-of-pocket expenses of an individual. In general candidates got stronger as the questions progressed.

Solution:

(a) Calculate the following:

(i) Cost covered under ABC's extended healthcare plan

(ii) Costs covered by TDP

(iii) John's out-of-pocket cost

State any assumptions and show your work.

2. Continued

Commentary on Question:
Many candidates were able to calculate the amount covered by ABC, however most candidates did not include the per prescription deductible when calculating the out-of-pocket cost for John.

Step 1 – Calculation of the drug costs (annually as described below)

	Generic Drugs	Brand-Name Drugs	Patented Drugs	Total
Prescriptions / Month	3	2	1	6
Annual Prescriptions	36	24	12	72
Cost / Prescription	$50	$500	$8,850	
Annual Cost	$1,800	$12,000	$106,200	$120,000

ABC's drug plan reimbursement reaches the Annual maximum of $20,000 after 2 months in the first quarter. **An important note is that ABC's drug plan is also the 1st payor and 100% coinsured.**

Step 2 – Calculating John's out of pocket costs

John's costs are made up of 2 parts: A TDP deductible which is 4% of salary and a per prescription deductible.

John's TPD Deductible: 4% x $60,000 = $2,400 per year or $600 per quarter

John's prescription deductible is $2 per prescription. Each month John incurs 6 prescriptions, but in the first two months his employer plan (ABC) pays for those costs. Afterwards John must pay $12 per month for these costs.

The Table below summarizes the cost for each payor by quarter.

	Q1	Q2	Q3	Q4	Total
Drug Cost	$30,000	$30,000	$30,000	$30,000	$120,000
ABC	$20,000	$0	$0	$0	$20,000
John	$612	$636	$636	$636	$2,520
Trillium	$9,388	$29,364	$29,364	$29,364	$97,480

ABC: $20,000
John: $2,520
TDP: $97,480

2. Continued

(b) List the strategies outlined in the pan-Canadian Pharmaceutical Alliance Initiative.

Commentary on Question:
This part of the question was not well answered by most candidates. Candidates were required to group different strategic themes from the study note. Many candidates confused the pan-Canadian Pharmaceutical Alliance Initiative with the CIA's Public Position on a National Pharmacare Plan. Full credit was given to candidates that could provide any of the four items with a reasonable description from the list below.

Inclusion of most Canadians 5-year initiative that would apply for all Canadians who use prescription generic drugs, participating public drug plans, and employee drug plans.
Stabilize Supply Generic drugs covered in the initiative are manufactured by multiple generic companies, helping to ensure a stable supply.
Improve Costs As of April 1, 2018, the prices of nearly 70 of the most commonly prescribed drugs in Canada will be reduced by 25% - 40%. Applies to generic drugs only. Savings estimated to be $3 billion over the next 5 years, through a combination of price reductions and launch of new generic drugs.
Target Highly Utilized drugs Includes drugs used to treat high cholesterol, high blood pressure and depression.
Improve Canada's position in relation to international generic drug prices. Building on previous pCPA and CGPA efforts, Canada's generic drug prices decreased by an average of 48% between 2010 and 2015.
Unify Tendering Brings provinces, territories, and federal drug plans together to negotiate prices for publicly covered drugs. Tendering will not be pursued by the participating drug plans.

2. Continued

(c) Identify ways John's drug utilization and costs under the ABC plan can be managed.

Commentary on Question:
Candidates did generally well in identifying ways to manage John's drug and utilization costs. Candidates received full credit for providing any 4 of the list items below.

- Add a lifetime maximum, in addition to the annual maximum already in place.
- Reduce coinsurance level from 100%
- Introduce mandatory generic substitution.
- Case management
- Make sure John applies to Trillium
- Explore the pooling mechanism in place under ABC's policy
- Turn 65 next year – makes him fully eligible to ODB

(d) List ABC's considerations around adding medical cannabis coverage to their benefits plan.

Commentary on Question:
Almost all candidates got full credits on this portion.

- The cost of adding medical cannabis to a benefits plan.
- The appropriate policies and processes which will be required.
- The insurer offerings which match the organizational needs.
- How the organization will communicate decisions about medical cannabis to employees.

3. Learning Objectives:

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

Learning Outcomes:

(4a) Interpret insurer financial statements from the viewpoint of various stakeholders.

(4b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.

(4c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.

Sources:

GHFV-693-19: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

Commentary on Question:

In general, this question was not well answered, but most candidates were able to get partial credits.

Solution:

(a) Describe the risk components that are considered in the calculation of the CHL's capital requirements with respect to LICAT.

Commentary on Question:

Most candidates where able to get the majority of points on this portion. Some candidates only listed the risks without any description and then no points were given for simply listing the risks.

Credit Risk:

- Risk of loss arising from the potential default of parties having a financial obligation to the insurer – includes the risk of actual default as well the risk of an insurer incurring losses due to downgrades.
- The required capital is calculated by applying factors to the balance sheet values of the assets.
- The factors will be higher for assets that are considered to have higher risks.

Market Risk / Interest Rate Risk

- Risks arising from the insurer's exposure to market variables - exchange rates, interest rates, commodity prices, equity prices.
- The most important risk for CHL would be the risk of mismatch between interest sensitive asset and liability cash flows.
- The required capital is calculated as the maximum loss under four different prescribed scenarios, where the loss is a decrease in the insurer's net position (PV assets – PV liabilities) according to each scenario

3. Continued

Insurance Risk:

- Risk of loss arising from the obligation to pay out benefits and expenses on insurance policies in excess of expected amounts.
- CHL has Morbidity and Expense risks.
- Required capital considers misestimation of the level of the BE assumption (level risk), misestimation of the future trend of the BE assumption (trend risk), volatility risk due to random fluctuations and catastrophe risk due to a one-time large-scale event.
- The risks are evaluated as shocks to incidence and termination rates.

Operational Risk:

- Risk of loss resulting from inadequate or failed internal processes, people, and systems of from external events (includes legal but excludes strategic and reputational).
- Required capital is necessary for Business volume (factor applied to premiums), Large increase in business volume (factor applied to excess year over year premiums) and General required capital (factor applied to required capital for credit, market and insurance risk)

(b) Explain how the required capital for morbidity risk is determined for group LTD products.

Commentary on Question:
This part of the question was not well answered by candidates. Most candidates were able to list a few items, but very few candidates had the complete list.

- Morbidity risk required capital components are calculated for level, trend, volatility and catastrophe risks
- $RC_{morbidity} = (RC_{vol}\text{^}2+RC_{cat}\text{^}2)\text{^}(.5) + RC_{level} + RC_{trend}$
- Total required capital for morbidity risk is calculated separately by geographic region.
- Level risk for active lives applies to products with guaranteed coverage period exceeding 12 months. The shock factor is +25% permanent increase in best estimated incidence rates.
- Level risk for disabled lives is a permanent decrease in best estimated termination rate. The factor applied is -25%.
- Trend factor is a permanent 100% decrease in the best estimated morbidity improvement assumption. If a best estimate assumption for morbidity improvement is not used, the risk charge for trend risk is zero.
- Volatility risk component is calculated as a one-time shock to first year incidence rates for active lives only. The shock factor applied to group LTD is +25%.
- Catastrophe risk component is calculated as a one-time shock to first year incidence rates. (1+25%) x Best estimated incidence rate.

3. Continued

(c) Calculate:

(i) LICAT total ratio

(ii) LICAT core ratio

State any assumptions and show your work.

Commentary on Question:
Most candidates where able to identify the formulas for the total and core ratios. However, very few candidates were able to calculate them correctly.

- Surplus Allowance = Pfads (except credit spread and investment expenses) = 10 - 0.5 = 9.5
- Eligible Deposit = 0 (No reinsurance on balance sheet)
- Base Solvency Buffer = 12
- Available Capital = Common Share Capital = 5
- Total Ratio = (Available Capital + Surplus Allowance + Eligible Deposits) / Base Solvency Buffer = (5 + 9.5) / 12 = 120.8%
- Core Ratio = (Tier 1 Capital + 70% of Surplus Allowance + 70% of Eligible Deposits) / Base Solvency Buffer = (5 + 0.7 x 9.5) / 12 = 97.1%

(d) Assess the financial health of CHL based on the results obtained in (c). Justify your answer.

Commentary on Question:
This part of the question was well answered by candidates, but most candidates were able to justify their answer in part c).

- The Total Ratio focuses on policyholder and creditor protection.
  - CHL has a Total Ratio of 120.8%, which is well above the Supervisory Target Total Ratio of 100%, as established by OSFI, and well above the minimum Total Ratio 90%.
- The Core Ratio focuses on financial strength.
  - CHL has a Core Ratio of 97.1%, which is well above the Supervisory Target Core Ratio of 70%, as established by OSFI, and well above the minimum Core Ratio 55%.
- Clearly, CHL is in a strong financial position and OSFI do not have to intervene in order to improve the capital adequacy of CHL.

(e) Calculate the operating profit margin that should be included in CHL's renewal premiums to achieve its target Return on Equity. State any assumptions and show your work.

3. Continued

Commentary on Question:
This part of the question was the one where the candidates have the most difficulty to answer. No candidate was able to calculate the profit margin correctly.

- ROE = (After tax Operating profit + After Tax profit on Surplus) / Surplus
- Surplus can be estimated as 110% x 12 million
- After Tax Operating Profit = (12% - 2%) x 110% x 12 Million = 1.32 Million
- Pre-Tax Operating Profit = 1.32 / (1-20%) = 1.65 Million
- Profit Margin = Pre-Tax operating profit / Premium = 1.65 / 20 = 8.25%

4. Learning Objectives:

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

Learning Outcomes:

(3a) Describe eligibility requirements for social programs in Canada and the benefits provided.

(3b) Describe how private group insurance plans work within the framework of social programs in Canada.

Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016, Ch. 17: Provincial Hospital and Medical Insurance Plans

GHFV-694-19: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6)

GHFV-702-20: OHIP+ Pharmacy Redesign Update – FAQS For Patients

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the various funding mechanisms for the Ontario Health Insurance Plan (OHIP).

Commentary on Question:

Most candidates knew payroll tax and general revenues, but very few knew that individual health premiums and federal fund transfers also fund the cost.

- General revenues of the province
- Employer health tax (EHT) – Rates range from 0.98% of total annual Ontario payroll less than $200,000 to 1.95% of annual payroll in excess of $400,000
- Individual health premiums
- Provincial hospital and medical plans that meet the criteria of the Canada Health Act continue to be financed in part from the federal government through transfer payments.

(b) Calculate the funding OHIP would receive from Sally & Sam Inc. State any assumptions and show your work.

Commentary on Question:

Many candidates knew about the payroll tax, but forgot about individual premium payments paid through provincial tax filings. Some candidates confused the funding of OHIP with the funding of CPP.

4. Continued

Employer payment
= 1.95% x total payroll
= 1.95% x (230k + 350k + 20k x 500 EEs)
= 1.95% x 10,580,000
= 206,310

Note that the 500 employees all earn $20,000 so no individual health premium is paid. Also note that the total remuneration from the company is greater than $5 million so any exemption of EHT is eliminated.

Individuals payment
= Sally payment + Sam payment + Sam Spouse payment
= 900 + 900 + 0 (spouse is unemployed so no health premium)
=1,800

Total payment = Employer payment + Employee payment
= 206,310 + 1,800
= 208,110

(c) Calculate the average out of pocket cost per covered person in 2021 for the proposed prescription drug benefit plan. State any assumptions and show your work.

Commentary on Question:
Most candidates did not recognize that OHIP only covers drug costs for those over age 65 (regardless of private plan) or under 25 (without a private plan).

Those eligible for OHIP – Only Sally as she is post 65.

Sally Cost
= 2019 cost x (1-ODB coverage) x cost sharing level x (1 + Ontario tax rate) x (1 + trend rate)
= $100 x (1-85%) x 10% x (1+8%+2%) x (1+5%)
= $1.73

Those not eligible for OHIP – all else
Children aren't covered under OHIP + due to having private coverage

All else Costs
= 2019 cost x (1-ODB coverage) x cost sharing level x (1 + Ontario tax rates) x (1 + trend rate)
= ($900 + $1,000 + $20,000 + $50) x (1-0%) x 10% x (1+8%+2%) x (1+5%)
=$2,535.23

4. Continued

S&S Cost = $1.73 + $2,535.23 = $2,536.96

Average out of pocket per covered person
= Total Cost / # of covered persons
= $2,536.96 / 505
= $5.02 per person

(d) Recommend whether Sam's family would be better off having family coverage, couple coverage or single coverage. Justify your answer.

Commentary on Question:
Candidates needed to show the calculation for each coverage option to receive full credit.

OOP cost with family coverage
= Average per person cost x 4
= $5.02 x 4
= $20.08

OOP cost with couple coverage
= Average per capita cost x 2 + kids costs
= $5.02 x 2 + (1-85%) x ($20,000 + $50) (kids would be covered under OHIP+) x 1.05
= $3,167.92

OOP cost with single coverage
= Average per capita x 1 + spouse cost + kids cost
= $5.02 x 1 + $1,000 x 1.05 + (1-85%) x ($20,000 + $50) x 1.05
=4,212.90

Based on the OOP costs under each option, family coverage should be recommended to the family.

(e) Explain whether or not Sam's family would have to pay for Kevin's medication under the following independent scenarios:

(i) Sam's family recently reached their annual family plan maximum with their private health services plan.

(ii) Kevin's medication was removed from the prescription drug formulary of their private health services plan.

Justify your answer.

4. Continued

Commentary on Question:
Most candidates did well on this part, realizing that OHIP+ is not applicable if a private plan is in place.

(i) Yes, the family would have to pay for Kevin's medication. Children and youth 24 years of age and under who have a private plan will not be eligible for OHIP+ regardless of if the child has reached their annual maximum under the private plan and no further coverage is available.

(ii) Yes, the family would have to pay for Kevin's medication. Children and youth 24 years of age and under who have a private plan will not be eligible for OHIP+ regardless of if the private plan covers the particular drug for which coverage is sought.

5. Learning Objectives:

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

Learning Outcomes:

(4a) Interpret insurer financial statements from the viewpoint of various stakeholders.

(4b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.

(4c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.

(4h) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

Sources:

GHFV-620-13: Educational Note on Source of Earnings Calculations – Group Life and Health

GHFV-699-19: OSFI Guideline D-9 – Source of Earnings

Commentary on Question:

This question was pertaining to Source of Earnings. In general, candidates did not perform well on this question.

Solution:

(a) Describe how group insurance businesses are classified for a SOE analysis.

Commentary on Question:

The list of three basic types of group business was taken directly from Section 1.4 of the CIA SOE Study Note. No candidate correctly answered this part of the question, but most candidates were able to get partial credits.

Fully insured:

- Insurers bear the full risk
- May be prospectively experience-rated
- No allowance for recovery of past loss

ASO (Administrative Services Only):

- Fee-income type business
- Service providers bear no claim risk
- May have amounts on deposit, with or without interest credits
- May have some insured elements (e.g. high amount pooling)

5. Continued

Refund (Retrospectively Rates):

- Allows for recovery of past loss or refund past gains
- In a given time period, insurers may have full claim risk, or little to no claim risk

(b) List and describe the components of a SOE analysis to be included under the following categories:

(i) Management Actions

(ii) Basis Changes

Commentary on Question:
The lists of management actions and basis changes were taken directly from the Appendix of the OSFI SOE Study Note. To receive full credit, candidates needed to provide four items under each category. Many candidates provided one or two items and then received partial credit.

Management Actions:

- Changes in price of product
- Changes in fees or fee structure
- Changes in asset mix, whether in category of asset, quality of asset, duration, etc.
    - This would include the impact of investment management changes that are material and either change the previous investment policy or are outside of the existing investment policy.
    - This category would not include changes due to normal trading activity within an established investment policy, or changes in the asset mix due to the aging of the assets, new business, etc.
- New or revised reinsurance deals on in-force business
- Acquisition or sale of a block of business or company

Basis Changes:

- Changes in any best-estimate assumptions for in-force business.
    - This includes changes in mortality, morbidity, lapse, policyholder dividends, expenses, ultimate interest rates, equity returns, real estate returns, default rates, etc.
    - This also includes changes in PfADs where the MfADs are a function of the best-estimate actuarial liabilities.
- Changes due to refinements in valuation calculation systems
- Changes due to new actuarial or accounting standards

5. Continued

- Correction of errors.
  - This category is for any errors that are not material to the total, but could be regarded as material in a particular segment shown in the SOE analysis
- Changes in MfAD levels, including changes in the conditional tail expectation (CTE) level.
- Changes in non-formula bulk actuarial or other liabilities.
  - This category does not include actuarial liabilities that are consistently calculated using an aggregate level methodology, as opposed to a policy-by-policy level calculation.
- New economic scenario for Canadian Asset Liability Method

(c) Create the minimum disclosure of SOE analysis for 2019, as required by the Office of the Superintendent of Financial Institutions (OSFI). State any assumptions and show your work.

Commentary on Question:
The format of the SOE disclosure appears on p. 3 of the OSFI SOE Study Note. Most candidates provided the correct form of disclosure. Most candidates provided the correct form of disclosure, but very few calculated these items correctly.

First, calculate the expected 2019 results, based on the information found in the case study (actual 2019 results) and the additional information included in the problem. Note that premium growth from 2018 to 2019 was 6.1% (7,223 to 7,660).

	Actual 2019	**Budget 2019**
Premium	7,660	7,660[1]
Other Revenue	1,542	1,542[1]
Operating Revenue	9,202	9,202
Investment Income	351	546[3]
G/L on Investment	321	0[4]
Total Revenue	9,874	9,748
Benefit	5,193	6,279[2]
Commissions	1,149	1,149[2]
Expense	735	623[2]
Premium tax	153	153[2]
Interest Expense	50	45[3]
Amortization	298	287[3]
Total Expense	7,578	8,536
Income before tax	2,296	1,212

5. Continued

Footnotes (information from question):
1. Expected premium is $7,660,000 and other revenue income is $1,542,000 *(same as actual for 2019)*
2. Expected benefit expense, commissions, general and administrative expenses and premium taxes are proportional to premium growth
3. Expected net investment income, interest expense and amortization of other intangible assets are the same as 2018 actual
4. There is zero expected net realized gain or loss on investments

Expected profit on in-force business is **$1,212**, per above.

Second, calculate experience gain/loss for the following items:

- Interest = (Expected investment income + G/L on investment + interest expenses + amortization) – (actual investment income + G/L on investment + interest expenses + amortization) = (546+0+45+287) – (351+321+50+298) = $110

- Benefit = Expected benefit – actual benefit = 6,279 – 5,193 = $1,086

- Expense = (Expected commissions + expenses + premium tax) – (actual commissions + expenses + premium tax) = (1,149+623+153) – (1,149+735+153) = -$112, and,

- Total equal to sum of gain/loss components = $110 + $1,086 – $112 = **$1,084**

Finally, create SOE disclosure. Note that information provided in question indicated that new business, management actions, and changes in assumptions were all zero. Assume that other and earnings on surplus are also zero. (Numbers do not add due to rounding.)

Expected Profit on In-Force Business	$1,212
Impact of New Business	$0
Experience Gain or Loss	$1,084
Management Actions and Change in Assumptions	$0
Other	$0
Earnings on Operations (Pre tax)	$2,295
Earnings on Surplus	$0
Income before Income Tax	**$2,295**
Income taxes	-$1,251
Net Income	**$1,044**

5. Continued

(d) Explain the source of income differences. State any assumptions and show your work.

Commentary on Question:
The question asked to compare 2018 to 2019 results. Several candidates compared expected 2019 results to actual, which was not what the question asked. To receive full credit, the candidate should have identified the three major drivers of changes to net income (premium growth, benefit costs, expenses). Partial credit was given for calculating other minor items and quantifying their impact (commission, premium taxes, etc.), or by noticing that policy mix changes could drive changes in claims or expense ratios.

The primary drivers of the change in net income were:

- Increase in premium ($7,223 to $7,660, or 6.1% increase)
- Decrease in benefit costs ($5,921 to $5,193, or, as a percent of premium, 82.0% to 67.8%)
- Increase in expenses ($587 to $735, or, as a percent of premium, 8.1% to 9.6%)

The first two items increase net income, while the second decreases.

(e) Compare the pattern of earnings of LTD with other group short-term liability products.

Commentary on Question:
The discussion of short-term versus long-term products was taken directly from Section 2.2.3.1 of the CIA SOE Study Note. To receive full credit, candidates needed to provide the answer as illustrated below. Many candidates provided some of the items mentioned below and then received partial credit.

- First-year LTD case would have minimal paid claims relative to premium
  - LTD liabilities have substantial PfADs when they are initially established
  - PfADs may be released fairly quickly as the claim matures
- Short term products have liabilities that are significantly smaller than associate paid claims
  - PfAD changes have a minimal effect on earnings since they are relatively small

5. Continued

- A stable LTD block with substantial inforce will likely be profitable, but a rapidly growing block may not be profitable, due to strain on liabilities.

- The net expected profit on LTD includes:
  - Pricing profit loads
  - Marketing discount applied
  - New PfADs established on new claims
  - Release of PfADs on existing claims

(f) Explain how refund businesses impact the methodology of SOE analysis.

Commentary on Question:
The discussion of refund business was taken directly from Section 2.5 of the CIA SOE Study Note. To receive full credit, candidates needed to explain the surplus versus deficit treatment, as well as the additional sources of earnings.

The SOE methodology applied to the refund business in a deficit position without a hold harmless agreement is the same as the one applied to pooled business. Refund business in surplus position, or in deficit with a hold harmless agreement, may have most of the earnings offset by changes in experience rating refund liability. Earnings will be dependent on the actual refund mechanism design.

Some examples of other potential source of earnings for group in surplus:

- Gains/losses on pooled elements (e.g., high amount pooling)
- Gains/losses from the use of liability basis for refund calculation different from the valuation basis
- Gains/losses from charges for expenses in the policy refund calculation different from actual allocated expenses
- Gains/losses from interest credits on policy liabilities and deposit different from actual interest the company earns

6. Learning Objectives:

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

Learning Outcomes:

(5b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHFV-621-19: Canadian Life and Health Insurance Association: Guideline G3, Group Life and Health Insurance

GHFV-647-15: Protecting Canadians' Long Term Disability Benefits

GHFV-661-16: Employee Life and Health Trusts & Health and Welfare Trusts

Commentary on Question:

This question attempted to test candidates' knowledge of the taxation and regulatory policies of various insurances and trusts offered by insurance companies and plan sponsors in Canada. While a majority of candidates demonstrated sufficient knowledge to obtain a significant amount of available points, few candidates provided enough details and depth to their responses to obtain full credit for the entire question.

Solution:

(a) Critique the Board of Trustee's expectations.

Commentary on Question:

Most candidates were able to correctly identify that there should not be any impact to the member's net benefit as a result of the expected Cost of living adjustment (COLA) to the Canada Pension Plan (CPP). Fewer candidates, however, received full credit, which required a recognition that the Board of Trustee's expectation is not aligned with CHLIA, which specifies that a Disability Income Benefit should not be reduced due to a government sponsored program COLA adjustment that occurs after the Disability Income Benefit becomes payable.

The Board of Trustee's expectation is not aligned with CHLIA G3 Section 10.2. As such, there should not be any impact to the members' net benefit. According to G3 Section 10.2, where the Disability Income Benefit does not have a COLA, the Disability Income Benefit payable should not be reduced because of a government sponsored plan or support program COLA occurring after the date on which the Disability Income Benefit becomes payable. Since the expected COLA would take place after the benefit became payable, it would not impact the net benefit.

6. Continued

(b) Calculate the reserve for this claimant at December 31, 2020 using the newest reserve tables of Thunderball. State any assumptions and show your work.

Commentary on Question:
Most candidates did very well with this question, although many candidates made small mistakes such as utilizing the incorrect reserve factor from the Case Study tables or incorrectly adjusting the CPP offset by the COLA. Candidates still received a majority of the points available if their calculation was otherwise correct.

First, the preliminary monthly benefit can be calculated as the annual salary (divided by 12) multiplied by the specified percentage of pre-disability earnings:

$55,000 / 12 * 66.67% = $3,055.71 per month.

This amount checks out, as it is less than the benefit maximum of $3,500 per month. Next, the monthly CPP offset should be subtracted from the preliminary monthly benefit. It is important that the expected CPP COLA adjustment of 2% not be applied to the offset, as the insured benefit has no COLA.

$3,055.71 - $800 = $2,255.71 per month.

The new monthly benefit should be multiplied by a reserve factor that corresponds to the beneficiary's age and claim duration. As of 12/31/2020, the beneficiary is 43 years old with a claim duration of 5 years (60 months). Exhibit 1 of Thunderball in the Case Study indicates this factor is 94.24.

Reserve = Monthly Benefit x Reserve Factor = $2,255.71 x 94.24 = $212,578. (Or $212,605 if the monthly benefit gets rounded to $2,256.)

(c) Describe the results of the CLHIA's assessment.

Commentary on Question:
Most candidates were able to identify the four main solutions of CLHIA's assessment and give one detail of the reasoning or effectiveness of each. To receive maximum credit, some of the assessment's proposals had to have a more detailed explanation.

6. Continued

The CLHIA's assessment included four potential policy solutions to protect disabled employees:

1. Implement Enhanced Disclosure Requirements

   This may help Canadians with uninsured plans better understand that their LTD plans are not insured, as well help understand the implications that this has for their financial security. While it would raise awareness, it would not address the issue of protecting the benefits of those Canadians.

2. Increase the Priority Status of Disabled Employees During Bankruptcy

   This would increase the likelihood that disabled employees get access to available funds in a bankruptcy proceeding, but does not fully ensure that there are in fact funds available. Furthermore, changing established creditor ratings in bankruptcy would distort the credit and bond market in Canada and increase capital funding and borrowing costs for plan sponsors with ASO plans.

3. Require Plan Sponsors to Establish Reserves Under a Separate Fund

   This significantly improves the protection over the status quo if reserves established are under the same actuarial requirements as insured plans. To be effective, the funds would need to be protected from other creditors of the plan sponsor. To make this work, provinces would have to establish some form of substantive regulatory and supervisory framework.

4. Require that LTD Plans be Offered on an Insured Basis

   This proposal provides maximum protection for disabled employees, but would also require a robust regulatory and supervisory framework in place that provides protection to LTD claimants even in the scenario of insurer insolvency.

(d) Describe the key features of:

(i) HWT

(ii) ELHT

6. Continued

Commentary on Question:
Most candidates were able to identify and describe enough features of ELHT's and HWT's to get full credit; it was not required that every key feature be identified for full credit. Candidates focused mostly on the features of each type of trust as opposed to the regulatory background of each (e.g. legislative vs CRA administrative discretion).

(i) Key features of a Health & Welfare Trust (HWT) include:

- An HWT must be restricted to providing group sickness or accident insurance, private health services and group life insurance to employees.
- An HWT cannot be controlled by the funding plan sponsors and cannot make direct investments in the plan sponsor.
- There is no "key employee" test for an HWT.
- A HWT is subject to tax as a trust (e.g. at the highest marginal rate) on its investment income. Often HWTs do not pay tax because the trusts are able to deduct taxable benefits paid to beneficiaries, and such deductions exceed their income.

(ii) Key features of Employee Life and Health Trusts (ELHT) include:

- The trust must be resident in Canada.
- Like an HWT, the ELHT 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, and employer agents or representatives must constitute only a minority of the trustees.
- At least once class of beneficiaries of an ELHT must contain more than 25% of all employees and at least 75% of that class must not be a key employee. Key employees are high income employees or those that hold significant shareholdings.

(e) Compare and contrast the key distinctions between a HWT and an ELHT.

Commentary on Question:
Many candidates struggled to do a comprehensive comparison and especially contrasting of HWT's and ELHT's beyond just re-listing features from part (d). While partial credit was granted by comparing and contrasting features that were found in part (d), full credit required a more thorough compare and contrast of additional distinctions that were not listed in part (d).

6. Continued

While HWT's and ELHT's have many things in common and are utilized to achieve similar goals, there are several key distinctions:

1. Tax Efficiency and Other Tax Considerations

   While an HWT is only able to deduct taxable benefits it pays out, an ELHT is able to deduct all costs related to providing eligible benefits, including insurance premiums, claims and administrative costs. An HWT contribution can be deducted in the year in which there is a legal obligation to make payment to the extent that the contribution is reasonable in the circumstance. For ELHT's, though, where employer contributions are not deducted in the year, they can normally be deducted in a subsequent year where the trust uses those contributions to provide for benefits in that subsequent year. Finally, non-capital losses can be carried forward and back in an ELHT, while in an HWT only the "carry forward" rule applies (and only for three years).

2. Qualified Multi-Employers

   While multiple employers can participate in the same HWT, the "qualified multi-employer" rules allow an ELHT with at least 15 employers under a collective bargaining agreement to, provided certain technical conditions are met, be able to claim a full current year deduction for all contributions made.

3. Excess Funds

   An HWT can deliver any excess funds to a charity, while an ELHT upon wind-up may only pass to beneficiaries, another ELHT, or the Crown.

7. Learning Objectives:

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

Learning Outcomes:

(6b) Determine appropriate baseline assumptions for benefits and population.

(6c) 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.

(6d) Describe funding alternatives for post-retirement and post-employment benefits.

(6e) Describe current issues faced by governments, employers and employees related to post-retirement and post-employment benefits

Sources:

GHFV-632-13: IAS19

GHFV-649-15: Comparison of IAS 19, Rev. 2011 with FASB ASC 715: Summary of Provisions Affecting Accounting for Postretirement Benefits

GHFV-650-15: Supplement Calculation Note for IAS 19

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

GHFV-669-16: The End of Retiree Benefits?

Commentary on Question:

This question is trying to test candidates' knowledge on how to evaluate post-retirement benefits and the current issues faced by employers as it relates to post-retirement benefits. Candidates generally did well on non-calculation questions and struggled with calculation questions. For part (g) in particular, most candidates did not provide any justification which resulted in receiving only partial marks.

Solution:

(a) Describe how to determine the following actuarial assumptions under IAS 19:

(i) Discount rate

(ii) Medical trend rate

7. Continued

Commentary on Question:
Most candidates demonstrated some knowledge to the material and were able to score partial points to this question. For part (i) most candidates answered something similar to bullet points 1 and 2 but failed to include bullet points 3 and 4. For part (ii) most candidates answered enough information to score the full points.

(i)

- The discount rate on which the DBO is based should reference market yields at the valuation date on high quality corporate bonds.
- The discount rate reflects the estimated timing of the benefit payments.
- Usually this is done by calculating a single weighted average discount rate based on the spot rates that reflect the expected timing and amount of the future benefit payments.
- The single weighted average discount rate is determined as the rate that results in the same present value of the projected benefits using the spot rates.

(ii)

- Health care trend rate assumptions usually comprise of:
  - A short-term rate which reflects recent experience
  - Long-term or ultimate rates which reflect the long-term horizon
  - Transitional rates that bridge the two sets of rates
- Usually, a simple straight-line approach is used to transition from the short-term to the long-term rates.

(b) Evaluate if this estimation is correct. Show your work and justify your answer.

Commentary on Question:
Candidates generally scored partial marks for this question. Some common calculation mistakes including not using the correct year trend, not calculating the correct cash flow stream (i.e. not ending at age 95), and not realizing expected CF is throughout the year so the discounting should be mid-year instead of full year.

7. Continued

Year 0 claim cost

2019 retiree claim experience (total paid claims including pooling for under 65 and 65 and over)
less total pooled claims (for under 65 and 65 and over) divided by total number of covered employees * (1 + admin exp and taxes + pooling charge)
divided by total number of covered employees
times (1 + admin exp and taxes + pooling charge)
*= ($507,000 + $113,000 - $35,000 - $5,000) / (87 + 133 + 84 + 46) * (1 + 12% + 5.5%)*
= $1,947.14

Claim Cost by Year

Year		Trend	Claim Cost
0	2019		$1,947.14
1	2020	7.00%	$2,083.44
2	2021	6.75%	$2,224.07
3	2022	6.50%	$2,368.63
4	2023	6.25%	$2,516.67
5	2024	6.00%	$2,667.67

Expected CF — **Cash Flow (CF) = Current Year Claim Cost * Mortality**

		John			Jim			Dawn		
Year		Age	Mortality	Cash Flow	Age	Mortality	Cash Flow	Age	Mortality	Cash Flow	Total Expected CF
0	2019	93			92			90			
1	2020	94	0.9500	$1,979.27	93	0.9500	$1,979.27	91	0.9500	$1,979.27	$5,937.81
2	2021	95	0.9025	$2,007.22	94	0.9025	$2,007.22	92	0.9025	$2,007.22	$6,021.66
3	2022		0.8574		95	0.8574	$2,030.80	93	0.8574	$2,030.80	$4,061.60
4	2023		0.8145			0.8145		94	0.8145	$2,049.84	$2,049.84
5	2024		0.7738			0.7738		95	0.7738	$2,064.19	$2,064.19

PV of CF using Spot Rate — **PV of CF = Total Expected CF / (1 + Spot Rate) ^ Discount Timing**

Discount Timing	Spot Rate	Total Expected CF	PV of CF
0.5	1.5%	$5,937.81	$5,893.77
1.5	1.8%	$6,021.66	$5,862.66
2.5	2.0%	$4,061.60	$3,865.42
3.5	2.2%	$2,049.84	$1,899.51
4.5	2.5%	$2,064.19	$1,847.11
Total		**$20,135.10**	**$19,368.47**

PV of CF using Fixed Rate — **PV of CF = Total Expected CF / (1 + DR) ^ Discount Timing**

Discount Timing	DR	Total expected CF	PV of CF
0.5	2.1%	$5,937.81	$5,876.43
1.5	2.1%	$6,021.66	$5,836.84
2.5	2.1%	$4,061.60	$3,855.96
3.5	2.1%	$2,049.84	$1,906.03
4.5	2.1%	$2,064.19	$1,879.90
Total		**$20,135.10**	**$19,355.15**

Estimation is incorrect, needs to be lower since PV CF using 2.1% < PV CF using Spot Rate

(c) Calculate the modified duration for this group. State any assumptions and show your work.

Commentary on Question:
Most candidates performed well for this part of the question, where partial marks are given as long as candidates calculated modified duration correctly using the formula.

Modified Duration = Sum of t * PV of CF / Sum of PV of CF

Calculate Modified Duration

Year		Discount Timing	Total Expected CF	Spot Rate	PV of CF	t * PV of CF
0	2019					
1	2020	0.5	$5,937.81	1.5%	$5,893.77	$2,946.89
2	2021	1.5	$6,021.66	1.8%	$5,862.66	$8,793.99
3	2022	2.5	$4,061.60	2.0%	$3,865.42	$9,663.55
4	2023	3.5	$2,049.84	2.2%	$1,899.51	$6,648.29
5	2024	4.5	$2,064.19	2.5%	$1,847.11	$8,312.00
Total			**$20,135.10**		**$19,368.47**	**$36,364.72**

Modified Duration = 1.88

7. Continued

(d) Approximate the change in actuarial gain/loss for a change in discount rate. State any assumptions and show your work.

Commentary on Question:
Most candidates performed well on this part of the question, where partial marks are given as long as candidates answered using modified duration calculated in part (c), regardless of if part (c) is calculated correctly.

Either one of the two answer were accepted:

A decrease in interest rate will increase the liability (i.e. actuarial loss).

- To estimate the impact on the DBO due a change in the discount rate, modified duration can be used.
- The duration is 1.88. Therefore, a 1% decrease in the discount rate assumption would result in a 1.88% increase in liability (loss of $301).

An increase in interest rate will decrease the liability (i.e. actuarial gain).

- To estimate the impact on the DBO due a change in the discount rate, modified duration can be used.
- The duration is 1.88. Therefore, a 1% increase in the discount rate assumption would result in a 1.88% decrease in liability (gain of $301).

(e) Compare how (d) would be treated between IAS 19 and ASC 715.

Commentary on Question:
Some candidates were not able to recall the difference between IAS 19 and ASC 715. Full marks are given as long as candidate recognize that IAS has immediate recognition through OCI and ASC 715 has the 10% corridor for amortization.

- Under IAS, actuarial gains and losses are included in the remeasurement effects:
  - Immediate recognition through OCI with no recycling through P&L.

- Under ASC 715, Immediate or delayed recognition
  - at a minimum, amortize unrecognized net gain or loss falling outside corridor
    - Corridor defined as 10% of greater of PBO (or APBO) and MRV of plan assets over average remaining service period of active employees expected to receive benefits under the plan
    - if all or almost all plan participants are former employees, use their average remaining life expectancy
  - gain/loss not yet recognized in net periodic cost is included in AOCI.

7. Continued

(f) Explain how this decision could impact current and future retirees.

Commentary on Question:
Most candidates did well on this question with majority scoring partial points.

- Older employees may have made retirement planning decisions based on offering of retiree group coverage
- Could have a significant impact in cost for retirees
- For existing or soon to be retirees, difficult to make changes
- Any changes may spur some workers to delay retirement in order to maintain access to group coverage
- Some retirees may take legal action if employers make changes to their group coverage plans; reputational risk

(g) Propose solutions to help Another Day move away from retiree benefits. Justify your answer.

Commentary on Question:
All candidates scored partial points for this question, but only a small percentage scored full mark as most did not provide justification.

Proposed solutions:
- Move away from the payer role toward a facilitator role for new hires and younger, low-service employees.
- Offer group benefits plan for new retirees that are voluntarily fully retiree paid.
- Offer an insurer's conversion product to retiring employees.
- Changing design components such as plan eligibility, retiree contributions, DB and DC arrangements, indexed vs non-indexed, catastrophic vs budgetable, employee buyouts, insurance at a premium and other financial instruments.

Justification:
- Creating a cost-sharing environment can be a cost-effective way to gradually move away from employer paid retiree benefits, but still provide coverage to retirees.
- Changing design components is a way to reduce liability and containing cost gradually without completely eliminating retiree benefits.