

GH CORC Model Solutions

Spring 2019

1. Learning Objectives:

6. Evaluate the impact of regulation and taxation on companies and plan sponsors in Canada.

Learning Outcomes:

- (6b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHC-631-13: CLHIA Protection of Personal Information

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
 - (i) Define personal information.
 - (ii) Describe what personal information must be protected.

Commentary on Question:

The majority of candidates received full marks for this question. A complete response includes the following but was not required to receive full marks:

- (i) All information that can identify an individual. This could include name, age sex, SIN, etc. This includes information that can be matched with other information to determine a person's identity. An exception is an individual's business address and business phone number.
 - (ii) Any information that can identify an individual must be protected, whether that individual is a plan member, a plan member's dependent, etc.
- (b) Describe the principles governing the protection of personal information.

Commentary on Question:

The majority of candidates received partial to full marks for this question. Candidates were expected to list the items as well as to provide description for each. A complete answer included the following:

1. Continued

1. **Accountability** – An organization is responsible for personal information under its control and shall designate an individual or individuals who are accountable for the organization's compliance with the following principles.
2. **Identifying Purposes** – The purposes for which personal information is collected shall be identified by the organization at or before the time the information is collected.
3. **Consent** – The knowledge and consent of the individual are required for the collection, use, or disclosure of personal information, except where inappropriate.
4. **Limiting Collection** – The collection of personal information shall be limited to that which is necessary for the purposes identified by the organization. Information shall be collected by fair and lawful means.
5. **Limiting Use, Disclosure, and Retention** – Personal information shall not be used or disclosed for purposes other than those for which it was collected, except with the consent of the individual or as required by law. Personal information shall be retained only as long as necessary for the fulfillment of those purposes.
6. **Accuracy** – Personal information shall be as accurate, complete, and up-to-date as is necessary for the purposes for which it is to be used.
7. **Safeguards** – Personal information shall be protected by security safeguards appropriate to the sensitivity of the information.
8. **Openness** – An organization shall make readily available to individuals' specific information about its policies and practices relating to the management of personal information.
9. **Individual Access** – Upon request, an individual shall be informed of the existence, use, and disclosure of his or her personal information and shall be given access to that information. An individual shall be able to challenge the accuracy and completeness of the information and have it amended as appropriate.
10. **Challenging Compliance** – An individual shall be able to address a challenge concerning compliance with the above principles to the designated individual or individuals accountable for the organization's compliance.

- (c) Western Blue has outsourced the claims administration to a third-party administrator. The viewpoint from management is that this change will relieve Western Blue of any obligations with respect to protecting personal information.

Critique this viewpoint.

Commentary on Question:

The majority of candidates received half to full marks on this question. Most were able to identify that the management group was incorrect in believing that outsourcing the administration would relieve them of their obligations with respect to protecting personal information. Those that supported their response with some, or all, of the following would receive full marks:

1. Continued

- (i) The person(s) designated under the accountability principle is/are accountable for the organization's (insurance company's) compliance with the principles governing the protection of personal information under applicable codes and legislation.
 - (ii) The organization (the insurance company) is responsible for the protection of any personal information collected by it or in its custody.
 - (iii) This responsibility cannot be delegated, even when there is an outsourcing or confidentiality agreement in place. In this case where Western Blue is going to outsource the work by using a third party to pay claims, Western Blue continues to be responsible for the proper management of the information.
- (d) A plan sponsor has requested their employees' claims files for the purpose of an internal claims audit on its group benefits plan.

Evaluate whether or not Western Blue should approve this request. Justify your response.

Commentary on Question:

Responses varied for this question, with the lesser proportion of candidates receiving full marks. A complete response would approve the request of the plan sponsor and justify with some, or all, of the following:

- (i) Audits can be conducted by the plan sponsor, but all principles governing the protection of personal information must be complied with.
- (ii) In general, Personal information regarding plan members, including claims information, should not be disclosed routinely to the plan sponsor or to any other party.
- (iii) In certain circumstances, limited personal information can be disclosed (i.e. claims audit), but all principles governing the protection of personal information must be complied with (i.e. identification of purpose, limitation of disclosure, openness, consent).
- (iv) In most cases, a confidentiality agreement should be completed and monitored. The engagement of a third party to conduct such audits on a confidential basis is usually recommended.

2. Learning Objectives:

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

Learning Outcomes:

- (5e) Compare key differences and similarities in measures by accounting basis.
- (5g) Explain fair value accounting principles and describe International Accounting Standards (IAS)
- (5h) Construct basic financial statements and its actuarial entries for an L&H insurance company.
- (5i) Describe emerging developments impacting International Financial Reporting frameworks.

Sources:

IFRS 17 Implications of Proposed New Standards

In depth – A look at current financial reporting issues

Commentary on Question:

This question tests the candidates understanding of the components of IFRS 17 and how they flow into the income statement. The candidate is required to calculate differences between IFRS 4 and IFRS 17 to demonstrate how the approaches differ.

Solution:

- (a) Describe the characteristics of risk adjustment for non-financial risk under IFRS 17.

Commentary on Question:

For full marks the candidate needed to list and describe four characteristics of non-financial risk adjustment.

- Risks with low frequency and high severity will result in higher risk adjustment for non-financial risks than with risks with high frequency and low severity;
- For similar risks, contracts with a longer duration will result in higher risk adjustments for non-financial risks than contracts with short duration;
- Risk with a wider probability distribution will result in higher risk adjustments than for narrower distribution;
- The less known about a current estimate and its trend, the higher the risk adjustment for non-financial risks.

2. Continued

- (b) Calculate the liability at contract inception for the insurance contract under IFRS 4. State your assumptions and show your work.

Commentary on Question:

Marks were given to candidates that clearly identified what their formula for total liability was and then followed through in the calculation of its component parts.

$$\text{Total Liability} = \text{PV of Best Estimate Liability Cash Flows} + \text{PfAD}$$

$$\begin{aligned} \text{PV of BE Liab CF} &= (\text{PV Premiums}) + \text{PV Commissions} + \text{PV Exp} + \text{PV Claims} \\ &= (10,000) + 10\% * 10,000 + 6\% * 10,000 + 900 + 6,000 \\ &= (1,500) \end{aligned}$$

$$\begin{aligned} \text{PfAD} &= \text{Morbidity PfAD} + \text{interest PfAD} \\ &= 15\% * 6,000 + 7.5\% * 6,000 \\ &= 1,350 \end{aligned}$$

$$\text{Total Liability} = (1,500) + 1,350 = (150)$$

- (c) Calculate the contract service margin under IFRS 17. Assume risk adjustment is set at the same level of total PfADs under IFRS 4. State your assumptions and show your work.

Commentary on Question:

This part of the question examines the candidates' understanding of the differences between the liability calculations for IFRS 4 and IFRS 17. It was important that the candidates demonstrated knowledge that Total Liability at Inception under IFRS 17 was 0 by definition. Additionally, it was important that the candidates recognize that only non-financial risks were to be included in the calculation.

$$\text{Total Liability at inception} = 0 = \text{CSM} + \text{Risk Adjustments} + \text{PV of CF}$$

- Only Maintenance Expenses included;
- Exclude adjustments for financial risk of interest rate environment

$$\begin{aligned} \text{PV of CF} &= (\text{PV Premium}) + \text{PV Commission} + \text{PV Maint Exp} + \text{PV Claims} \\ &= (10,000) + 10\% * 10,000 + 6\% * 10,000 + 6,000 \\ &= (2,400) \end{aligned}$$

$$\text{Risk Adjustments} = 900$$

$$\text{CSM} = 1,500$$

2. Continued

- (d) Compare the liability and net income statement at contract inception under both IFRS 4 and IFRS 17. Show your work.

Commentary on Question:

Candidates should know that at inception there is no release of PfADs under IFRS 4. Also, candidates should know that there is no release of risk adjustment or CSM amortization at inception under IFRS 17. The question asks for the candidate to compare and contrast the liability & then net income statement (two different comparisons) and to show work. Full credit was provided if the candidate recognized that it was necessary to write out the separate components of the income statement even though most of these components are 0 at inception by definition.

Under IFRS 4 Total Liability is (\$150) as calculated in 2(b)

Under IFRS 17 Total Liability is \$0 by definition.

Under CGAAP – Net Income		Under IFRS17 – Net Income	
New Business Profit	\$150	Release of Risk Adjustment	0
Release: Ins Risk (PfAD)	0	CSM Amort	0
Release: Non-Ins Risk PfAD	0	Non-Attributable Exp.	(\$900)
Net Income before Tax	\$150	Net Income before Tax	(\$900)

- (e) Justify whether this product is eligible for the premium allocation approach.

Commentary on Question:

Question asks to justify so the candidates were required to demonstrate the requirements and then also declare why this product meets those requirements.

For the premium allocation approach to apply:

- each contract in the group has a coverage period of one year or less
- measurement of the liability for remaining coverage for the group under this approach is not materially different from using the general model or the variable fee approach.

This is a one-year group contract that is quite simple and short term. It is reasonable to assume that the liability will not be materially different and so this product is eligible for the premium allocation approach.

3. Learning Objectives:

6. Evaluate the impact of regulation and taxation on companies and plan sponsors in Canada.
7. The candidate will understand and evaluate Retiree Group and Life Benefits in Canada

Learning Outcomes:

- (6b) Describe the major applicable laws and regulations and evaluate their impact.
- (7b) Determine appropriate baseline assumptions for benefits and population.
- (7c) 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.
- (7d) Describe funding alternatives for post-retirement and post-employment benefits.

Sources:

GHC-671-16: CHLIA Guideline G4 – Coordination of Benefits

GHC-649-15: Towers Watson Comparison of IAS 19, rev. 2011 with FASB ASC 715, Summary of Provisions Affecting Accounting for Post-retirement Benefits

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
 - (i) Calculate the defined benefit obligation for the proposed post-retirement medical plan under IAS 19 and ASC 715. State any assumptions and show your work.
 - (ii) Compare and contrast how past service costs are recognized under IAS 19 and ASC 715.

Commentary on Question:

This question was testing the calculation of a defined benefit obligation under both IAS19 and ASC715. Candidates that performed well recognized the difference between the attribution period under IAS and ASC for the first group. As the question was not clear about the calculation of the cost for the employees only or if the plan was covering both employees and spouses, no points were deducted for a candidate calculating the DBO for the total number of employees and spouses instead of employees only.

3. Continued

(i)

<ul style="list-style-type: none"> • Group 1 (50&10):
<ul style="list-style-type: none"> - Will retire in 13 years (age 63) and will be eligible for two years of benefits at that point
<ul style="list-style-type: none"> - $CF(13.5) = 1,250 \times 1.04^{13} \times 70 = 145,694$ - 1 point for trend, 1 point for multiplying by count - No aging yet since at age 63
<ul style="list-style-type: none"> - $CF(14.5) = 1,250 \times 1.04^{14} \times 1.02 \times 70 = 154,552$ - 1 point for aging
<ul style="list-style-type: none"> - Discount rate at (13.5) = $\ln(13.5)/125 + 1.35\% = 3.43\%$ - Discount rate at (14.5) = 3.49%
<ul style="list-style-type: none"> - $PV(13.5) = 145,694 \times 1.0343^{-(13.5)} = 92,409$ - $PV(14.5) = 154,522 \times 1.0343^{-(14.5)} = 93,983$
<ul style="list-style-type: none"> - Total PV = EBO = 186,392
<ul style="list-style-type: none"> - DBO under IAS 19 - Attribution from age 45 to age 55 (since eligibility is 55&10, attribution period starts no earlier than 45) - $DBO = 186,392 \times (50-45)/(55-45) = 93,197$
<ul style="list-style-type: none"> - DBO under ASC 715 - Attribution from DOH to age 55&10 - $DBO = 186,392 \times 10/(55-(50-10)) = 124,261$
<ul style="list-style-type: none"> • Group 2 (60&15):
<ul style="list-style-type: none"> - Will retire in 3 years (age 63) and will be eligible for two years of benefits at that point
<ul style="list-style-type: none"> - $CF(3.5) = 1,250 \times 1.04^3 \times 50 = 70,304$ - 1 point for trend, 1 point for multiplying by count - No aging yet since at age 63
<ul style="list-style-type: none"> - $CF(4.5) = 1,250 \times 1.04^4 \times 1.02 \times 50 = 74,578$ - 1 point for aging
<ul style="list-style-type: none"> - Discount rate at (3.5) = $\ln(3.5)/125 + 1.35\% = 2.35\%$ - Discount rate at (4.5) = 2.55%
<ul style="list-style-type: none"> - $PV(3.5) = 70,304 \times 1.0235^{-(3.5)} = 64,815$ - $PV(4.5) = 74,578 \times 1.0255^{-(4.5)} = 66,589$
<ul style="list-style-type: none"> - Total PV = EBO = 131,404
<ul style="list-style-type: none"> - DBO under IAS 19 and ASC 715 = EBO since employees have reached 55&10 = 131,404
<ul style="list-style-type: none"> • Total DBO under IAS 19 = 224,601 • Total DBO under ASC 715 = 255,665

3. Continued

(ii)

<ul style="list-style-type: none"> • Past service cost results from introduction or changes (plan amendments) to benefits
<ul style="list-style-type: none"> • IAS 19: immediate recognition at earlier of (i) date plan amendment or curtailment occurs, or (ii) when related restructuring costs or termination benefits are recognized
<ul style="list-style-type: none"> • ASC 715:
<ul style="list-style-type: none"> - Benefit improvements: amortized over active participants' average remaining service periods (to full eligibility) or period benefitted, if shorter; if all or almost all participants are inactive, amortized over their average remaining life expectancy - Prior service cost not yet recognized in net periodic cost is included in AOCI
<ul style="list-style-type: none"> - Benefit reductions: first reduce any unrecognized prior service cost from benefit improvement, excess amortized on same basis as benefit improvement - Negative prior service cost not yet recognized in net period costs is included in AOCI

(b)

- (i) (1 point) Describe the Canadian Life and Health Insurance Association (CLHIA) guidelines governing the coordination of benefits when a member is eligible for an active and post-retirement group plan simultaneously.
- (ii) (4 points) James Doe is one of the employees considering returning on a contract basis after retirement. James expects to have the following health and dental costs in the year he returns to work:

Prescription drugs	\$1,000
Glasses	\$620
Chiropractor	\$815
Massage therapist	\$400
Dental recall exam	\$550
Dentures	\$765

Calculate the annual HSA allocation that provides the same value to James as being eligible for both the active and post-retirement plans. State any assumptions and show your work.

3. Continued

Commentary on Question:

Most candidates did well on this question. Some candidates did not associate the correct plan to the claims under part (ii) or did not recognize that dental was not covered under the retiree plan.

*The first payor is where the employee works full-time as an active employee
 The second is where the employee works part-time as an active employee
 The third is where an employee is covered under a retiree plan
 If there is an HSA, it is considered last, unless specified otherwise*

1. Eligible for both plans simultaneously
• Active plan pays first:
- Drugs = $1,000 \times 70\% = 700$, 300 remaining
- Vision = $\min(300, 620 \times 100\%) = 300$, 320 remaining
- Chiro = $\min(500, 815 \times 90\%) = 500$, 315 remaining
- Massage = $\min(500, 400 \times 90\%) = 360$, 40 remaining
- Recall = $550 \times 80\% = 440$, 110 remaining
- Dentures = $765 \times 50\% = 382.50$, 382.50 remaining
- Total paid by active plan = 2,682.50
• Retiree plan pays second:
- Drugs = $\min(300, 1,000 \times 70\%) = 300$
- Vision = $\min(320, \min(300, 620 \times 100\%)) = 300$
- Chiro = $\min(315, \min(500, 815 \times 90\%)) = 315$
- Massage = $\min(40, \min(500, 400 \times 90\%)) = 40$
- Recall = 0 (no coverage)
- Dentures = 0 (no coverage)
- Total paid by retiree plan through COB = 955
• Total amount covered = $2,682.50 + 955 = 3,637.50$
2. Eligible for retiree plan plus HSA
• Retiree plan pays first:
- Drugs = $1,000 \times 70\% = 700$, 300 remaining (already calculated above)
- Vision = $\min(300, 620 \times 100\%) = 300$, 320 remaining (already calculated above)
- Chiro = $\min(500, 815 \times 90\%) = 500$, 315 remaining (already calculated above)
- Massage : 360 (already calculated above)
- Recall = 0 (no coverage, already determined)
- Dentures = 0 (no coverage, already determined)
- Total paid by retiree plan = 1,860
• HSA allocation to match dual coverage = $3,637.50 - 1,860 = 1,777.50$

4. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - a. Group and individual medical, dental and pharmacy plans
 - b. Group and individual long-term disability plans
 - c. Group life short-term disability plans
 - d. Supplementary plans, like Medicare Supplement
 - e. Group and Individual Long Term Care Insurance

6. Evaluate the impact of regulation and taxation on companies and plan sponsors in Canada.

Learning Outcomes:

- (1a) Describe typical organizations offering these coverages.
- (1b) Describe each of the coverages listed above.
- (1c) Evaluate the potential financial, legal and moral risks associated with each coverage.

- (6b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHC-621-13 Guideline G3: Group Life and Group Health Insurance

GHC-633-17

Commentary on Question:

Candidates should consider two coverages: Waiver of premium under life insurance and the disability income benefit.

- a) *Candidates should be able to calculate a disabled life reserve (DLR):*
 - *Using the correct recovery & death decrement from the case study*
 - *Applying the probability of recovery & death for the duration of payment*
 - *Applying discount rate for each of the payment periods*
 - *Determine the amount of LTD payment for each period*

Solution:

- (a) Describe the protection for the disabled member's coverage when the contract with Thunderball Corporation terminates.

4. Continued

Commentary on Question:

Almost all candidates recognized that the disability income should continue to be paid by Thunderball after the contract termination. Few candidates recognized that the waiver of premium provision made Thunderball liable for the life insurance benefit. Few candidates mentioned that the disability must be reported to Thunder ball within 180 days.

Even after Company XYZ terminates the contract with Thunderball on January 1st, 2020, as long as the disability happens before January 1st, 2020 and is approved by Thunderball, the life insurance will remain with Thunderball and no further premium payment is required due to the waiver of premium provision. The disability income will also continued to be paid by Thunderball until the earlier of termination age based on the original contract, recovery or death of the member.

This applies provided that the disability is reported to the insurer not more than 180 days, or such longer period as may be provided in the contract, following the commencement of such disability.

- (b) Calculate the best estimate reserve that Thunderball holds as of January 1, 2020 for the disabled member's income replacement benefit. State any assumptions and show your work.

Commentary on Question:

Few candidates recognized that the disabled member had a 3-month elimination period so he would receive a maximum of 33 disability payments.

Full marks were provided to candidates who assumed the payments were at the beginning or at the end of the year.

4. Continued

b.)
 DOB: 1957-10-01
 DOD: 2019-10-01
 Date reaches age 65: 2022-10-01
 Age at Disability: 62
 Gender: M
 Annual Income \$80,000
 Monthly Payment \$4,666.67 =MIN(\$80,000/12 x 70% , \$6,000)

Discount Rate 4%

Death & Recovery (3-month elim) from Case Study	Probability from Case Study	Chance to remain on disability at beginning of year		Annual Disability Benefit paid in that year		Discount Rate (assumes mid-year for calculation purpose)	
1st Year	0.28	1.000	1.000	\$42,000	\$4,667.67 x 9	0.981	1/(1+4%)^0.5
2nd Year	0.15	0.720	1.00 x (1-0.28)	\$56,000	\$4,667.67 x 12	0.943	1/(1+4%)^1.5
3rd year	0.08	0.612	0.72 x (1-0.15)	\$56,000	\$4,667.67 x 12	0.907	1/(1+4%)^2.5

The solution below assumes decrement (death and recovery) happens uniformly during the year.

$$=(1-0.28/2) \times 1.000 \times \$42,000 \times 0.981 + (1-0.15/2) \times 0.720 \times \$56,000 \times 0.943 + (1-0.08/2) \times 0.612 \times \$56,000 \times 0.907$$

Disabled Life Reserve \$100,412

5. Learning Objectives:

4. The candidate will understand how to describe 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.
- (4c) Compare social programs in Canada and the United States and discuss the value of the different systems.

Sources:

Handbook of Canadian Pension and Benefit Plans, 16th Edition; Chapter 2 – Government Pension Programs

Commentary on Question:

The general goal of this questions was comprehension of CPP disability benefits and to illustrate the calculation of both contributions and benefit payments

Solution:

- (a) Describe current Canada Pension Plan (CPP) contribution requirements.
 - Both Employer and Employee contribute equally to CPP.
 - Contributions to CPP are calculated based on earnings between the Year's Basic Exemption (YBE) and Year's Maximum Pensionable Earnings (YMPE) and are remitted monthly.
 - If self-employed you must contribute both the employer and the employee amounts
 - Self-employed persons must pay contributions by April 30 of the following year.
 - Contributions are required on earnings from age 18 to earlier of date of death, commencement of the retirement pension or age 70 at the latest
 - The government sets and regularly adjusts the contribution percentage.
 - Contributions are remitted monthly until earnings exceed the YMPE.
 - If an employee works for more than one employer in any year, deductions must be made by each employer without regard for the other(s). Refunds at the employee level are attained through the income tax return.

5. Continued

- (b) Calculate Beekman's CPP contribution for Susan in 2014 and 2017. Assume the Year's Basic Exemption (YBE) remains at \$3,500 for all years. State your assumptions and show your work.

Commentary on Question:

Because Susan started in September 2014 Beekman is only contributing for 4 months in that year. For 2017, Beekman contributes for a full year but her earnings are capped by the YMPE.

Annual Salary: \$51,000
 Annual Salary adjustment: 3.5%
 Contributory months: 4
 YBE: \$3,500
 Beekman's Contribution rate: 4.95%

Beekman's 2014 contribution

$$= \text{Rate} * (\text{Min}(\text{Annual Salary } 2014 * 4/12, \text{YMPE } 2014) - \text{YBE})$$

$$= 4.95\% * (51,000 * 4/12 - 3,500)$$

$$= \$668.25$$

Beekman's 2017 contribution

$$= \text{Rate} * (\text{Min}(\text{Annual Salary } 2017, \text{YMPE } 2017) - \text{YBE})$$

$$= 4.95\% * (\text{Min}(51,000 * (1.035)^3, 55,300) - 3,500)$$

$$= \$2,564.10$$

- (c) Calculate total monthly CPP disability benefits payable to John. State your assumptions and show your work.

Commentary on Question:

It is important to note than John becomes disabled on January 1, 2018.

Year	Earnings	YMPE	Ratio: Avg YMPE/YMPE	Adj Mly Earn: Min (earn,ympe)/12 * ratio	Months
2014	50,000	52,500	1.0400	4,333	12
2015	52,500	53,600	1.0187	4,457	12
2016	55,125	54,900	0.9945	4,550	12
2017	57,881	55,300	0.9873	4,550	12
2018		<u>56,700</u>	0.9630		0
Avg YMPE		54,600			

$$\text{Avg Mly Pen Earn} = \frac{(4,333 + 4,457 + 4,550 + 4,550)}{4} = 4,472.5$$

$$\text{CPP retirement benefit} = 25\% * \text{Avg Monthly Pensionable Earnings} = 1,118.12$$

$$\text{Member CPP Dis Benefit} = \text{Min}(475 + \text{CPP ret ben} * 0.75, 1,400) = 1,313.59$$

$$\text{CPP Dis Ben for dependent children} = 2 * 250.75 = 501.50$$

$$\text{Total CPP Dis Ben} = 1,313.59 + 501.50 = 1,815.09$$

6. Learning Objectives:

5. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS & IAS.
6. Evaluate the impact of regulation and taxation on companies and plan sponsors in Canada.

Learning Outcomes:

- (5g) Explain fair value accounting principles and describe International Accounting Standards (IAS)
- (6c) Understand the impact of taxation of both insurance companies and the products they provide.

Sources:

Ch. 35, Group Insurance Financial Reporting

Ch. 2, Canadian Insurance Taxation, 4th Edition, Taxation of Life Insurers - An Introduction

Ch. 6, Canadian Insurance Taxation, 4th Edition, Reserves

Ch. 9, Canadian Insurance Taxation, 4th Edition, Investment Income Tax

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast tax financial reporting between the US and Canada.

Commentary on Question:

Candidates generally noted that both Canada and US use statutory financial reports as a starting point. Points were awarded for similarities and differences identified in US and Canada separately.

US

- Statutory financial reports are starting point
- Tax reserves set using minimum tax interest rates, other assumptions similar to Statutory
- DAC tax exist –delay recognition of certain expenses for taxable income
- For tax basis calculations, group carriers must also reduce their provisions for refunds and unearned premiums by 20% for the purpose of determining their taxable income.
- Subject to US federal taxes, state premium taxes and some states on state income tax

6. Continued

Canada

- Also uses Statutory financial reports as starting point
- Tax reserves are generally limited to 95% of statutory reserves
- Similar to a US DAC tax – Expenses incurred on account of the acquisition of an insurance policy must be capitalized and amortized over the term of the policy where the term extends beyond the end of the taxation year.
- Investment income tax, at the rate of 15%, is paid by life insurers on investment income earned on assets supporting the reserves
- Subject to Canadian federal income tax, provincial income tax, taxes on capital and premium tax

- (b) List and describe the types of maximum tax actuarial reserves (MTARs) that may apply to Can LI under Canadian regulation.

Commentary on Question:

Candidates were able to list the reserves, however, needed to also describe the reserves for full marks.

Unearned Premium reserve

- Unearned portion of the net premium
- 100% of closing reserve can be used MTAR

Reserve for unearned reinsurance/retrocession commission

- Reserve for portion of commission income allocable to a period after the ceding company's year-end
- 100% of closing reserves can be used MTAR

Unpaid Claims Reserves

- Claims incurred and reported, but payments extend past year-end (or disabled life reserves if they use that wording)
- Claims incurred but not yet reported (IBNR)

Non-cancellable/Guaranteed renewable policy reserves

- Policy liability for future premiums, claim/potential claim/risk
- Note may be positive or negative
- MTAR: 100% of lesser of reported reserves or policy liability (for post 1995 policies)

Experience Rating Refund Reserve

- Reserve for dividends/refund of premium/premium deposits provided under group A&S policy
- MTAR: 100% of lesser of reported reserves, reasonable amount or 25% of annual premium

6. Continued

Reserve for Deposits

- Reserve for deposits that may be reasonably expected to be returned/credited to the policyholder when the policy expires
- MTAR: 200% of the portion that will be returned

(c) Describe tax considerations related to working with an offshore entity.

Commentary on Question:

Candidates were required to provide more than one consideration for full marks

- GST/HST on Reinsurance premiums paid to non-resident related parties
- Captive Insurance – anti avoidance rules for captive insurance arrangements
- Offshore Regulated Financial institutions – recent changes limit the loopholes where foreign investments need to be taxed

(d) Calculate Can LI's investment income tax for 2018. Show your work.

Commentary on Question:

Candidates were generally able to receive part marks for the tax rate and application of loss carry forward, however, statement of formula and identification of items that were \$0 were required for full marks.

Life investment income +/- Experience rating reserve adjustment - Amounts reported to policyholders as includable in income of the policyholder

$$\begin{aligned}\text{Life investment income} &= \text{average MTAR} * \text{yield} \\ &= (\$350\text{m} + \$300\text{m}) / 2 * 3.7\% \\ &= \$12.025\text{m}\end{aligned}$$

$$\begin{aligned}\text{Experience rating refund reserve adjustment} &= \$0 \\ \text{Amount reported to policyholders} &= \$0\end{aligned}$$

$$\text{Canadian life investment income for 2018} = \$12.025\text{m} + \$0 + \$0 = \$12.025\text{m}$$

$$\begin{aligned}\text{Taxable Canadian life investment income} &= \text{Canadian life income or loss for the year} - \text{Canadian life investment loss carry forward} \\ &= \$12.025\text{m} - \$5\text{m} = \$7.025\text{m}\end{aligned}$$

$$\text{Tax rate} = 15\%$$

$$\begin{aligned}\text{Investment income tax} &= \text{Tax rate} * \text{Taxable Canadian life investment income} \\ &= 15\% * \$12.025\text{m} \\ &= \$1.05375\text{m}\end{aligned}$$

7. Learning Objectives:

4. The candidate will understand how to describe 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:

Sun Life Nov 2017 Focus Update

GHC-653-16 Telus Health Note

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
 - (i) Define value based pricing.
 - (ii) Describe the benefits associated with this approach.

Commentary on Question:

Many candidates did well on this part of the question recognizing that value based pricing was related to drug pricing.

- (i) Explanation of what it is:
Under value-based pricing agreements, payers and pharmaceutical companies agree to link payment for a medicine to value achieved.
- (ii) Benefits:
 - Agreements dictate price and coverage relative to actual performance observed in the real world.
 - The intent is to encourage pharmaceutical innovation rather than simply development of “me too” drugs, for which a similar solution already exists.
 - The value-based pricing approach would incorporate a wider set of factors when determining price, such as burden of the illness in society, whether the drug addresses an unmet need, how innovative the drug is, and the wider social benefits it offers.

7. Continued

- (b) Clarkson is considering re-introducing the same prescription drug benefits plan beginning in 2019.
- Average unit cost of prescription drugs has increased at a rate of 5% per annum
 - 75% of every person's drug costs are for drugs on the Ontario Drug Benefit formulary
 - Prescription drug utilization is assumed to increase at a rate of 1% for each year of attained age
 - 30% of costs are attributable to multi-source brand name drugs (brand name drugs where a generic alternative exists)
 - Assume OHIP coverage in effect as of January 1, 2018
- (i) (3 points) Calculate the total claims cost of the prescription drug benefit plan in 2019 if the 2012 plan is reinstated.
- (ii) (1 point) Calculate the impact to the total prescription drug plan claims cost in 2019, assuming a mandatory generic substitution provision is added to the plan.

State your assumptions and show your work.

Commentary on Question:

- (i) *Most candidates failed to realize that individuals under age 25 and individuals over age 65 both qualified for OHIP coverage.*

Some candidates recognized that OHIP+ changed at April 1, 2019 such that individuals under age 25 who are covered by a private plan do not receive OHIP+ coverage. These candidates were given full marks if they prorated 2019 OHIP+ savings for those under age 25.

- (ii) *The solution uses 25% as the Ontario maximum price for generic but other assumptions were acceptable provided the candidate stated their assumption.*

- (i) Individuals eligible for OHIP: Chuck (age 68), Jacob (age 24), Mia Child 1 and 2 (ages 22 and 19)

$$2019 \text{ Cost} = 2012 \text{ Cost} \times (1 + \text{aging})^7 \times (1 + \text{trend})^7 \times \text{If (eligible for OHIP, 25\%, 100\%)}$$

OHIP Individuals

$$2019 \text{ Cost} = 2012 \text{ Cost} \times (1 + 1\%)^7 \times (1 + 5\%)^7 \times (1 - 75\%)$$

7. Continued

Non OHIP Individuals

$$2019 \text{ Cost} = 2012 \text{ Cost} \times (1+1\%)^7 \times (1+5\%)^7$$

2019	Chuck	Mia	Jacob	Total
Coverage Type	Single	Family	Single	
Employee Age	68	49	24	
Actual Plan Cost	\$ 792	\$ 754	\$ 415	\$ 1,961
Spouse Age		51		
Actual Plan Cost		\$ 2,489		\$ 2,489
Child 1 Age		22		
Actual Plan Cost		\$ 38		\$ 38
Child 2 Age		19		
Actual Plan Cost		\$ 30		\$ 30
Total	\$ 792	\$ 3,311	\$ 415	\$ 4,518

- (ii) 30% of costs are attributable to multi-source brand name drugs so introducing mandatory generic substitution only impacts these costs.

Assumption – Generic is 25% of brand name cost

Revised 2019 plan cost = (% Drugs where no generic exists + % Drugs where generic exists x Ontario maximum price of generic) x Plan cost prior to change

$$\begin{aligned} \text{Revised 2019 plan cost} &= (70\% + 30\% \times 25\%) \times \$4,518 \\ &= \$3,501 \end{aligned}$$

$$\begin{aligned} \text{Savings} &= \$4,518 - \$3,501 \\ &= \$1,017 \text{ or } 22.5\% \text{ of costs} \end{aligned}$$

8. Learning Objectives:

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

Learning Outcomes:

- (5a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (5b) Evaluate key financial performance measures used by L&H insurers for both short and long-term products.
- (5c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (5h) Construct basic financial statements and its actuarial entries for an L&H insurance company.

Sources:

Simple CALM example

OSFI Guideline E18 – Stress Testing

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) List and describe the purposes of stress testing as outlined by the Office of the Superintendent for Financial Institutions Canada (OSFI).
 - **Risk identification and control** – Stress testing should be included in an institution’s risk management activities at various levels to adjust the institution’s business strategy.
 - **Providing a complementary risk perspective to other risk management tools** – Stress tests should complement risk quantification methodologies that are based on complex, quantitative models using backward looking data and estimated statistical relationships.
 - **Supporting capital management** – Stress testing should form an integral part of institutions’ internal capital management.
 - **Improving liquidity management** – Stress testing should be a central tool in identifying, measuring and controlling funding liquidity risks.

8. Continued

- (b) List institutions where Canadian Asset Liability Method (CALM) stress testing should be applied.

Commentary on Question:

For full credit, candidates needed to know that CALM applied to all trust/loan companies that are federally regulated. Not only insurance companies.

- Banks
- all federally regulated trust and loan companies such as cooperative credit associations, life insurance companies and fraternal benefit societies, property and casualty insurance companies and insurance holding companies

- (c) List the types of risks that a comprehensive stress testing program should address.

Commentary on Question:

To get full credits, it was important to mention market risk and insurance risk and list some examples for both of them.

- credit risk, including counterparty and reinsurance risk
- market risk such as general market, specific, cash flow mismatch, interest rate, foreign exchange or commodity
- insurance risk such as mortality, morbidity, claim frequency and severity, persistency and lapse risk
- liquidity risk
- operational and legal risk
- concentration risk
- contagion risk
- risk to reputation
- securitization risk
- new business risk
- regulatory risk
- inflation risk

- (d) List and describe the general considerations for stress testing programs.

- Stress testing programs should take account of views from across the organization and should cover a range of perspectives and techniques.
- Institutions should have written policies and procedures governing the stress testing program. The operation of the program should be appropriately documented.

8. Continued

- An institution should have a suitably robust infrastructure in place, which is sufficiently flexible to accommodate different and possibly changing stress tests at an appropriate level of granularity.
- An institution should regularly maintain and update its stress testing framework. The effectiveness of the stress testing program, as well as the robustness of individual components should be assessed regularly and independently.

(e)

- (i) Calculate the net cash flow at the end of year 3.
- (ii) Calculate the change in net cash flow if the short-term interest rate drops to 1% per annum in each of the 3 years.

State any assumptions and show your work.

Commentary on Question:

Most candidates did well on this question which was very similar to the simple CALM example in the source material. Candidates who did not perform well on this question did not recognize that interest is only applied to cash.

The net cash flow is 14.31 at the end of year 3.

Year	Invested Assets Cash Flow	ST cash flow	Inv. Assets + ST Cash	Reserve Cash Flow	Net Cash Flow	ST Interest Rate
1	500	102.00	602.00	530	72.00	2%
2	500	73.44	573.44	530	43.44	2%
3	500	44.31	544.31	530	14.31	2%

The change in net cash flow is \$1 in year 1, \$1.73 in year 2 and \$2.18 in year 3.

8. Continued

Year	Invested Assets Cash Flow	ST cash flow	Inv. Assets + ST Cash	Reserve Cash Flow	Net Cash Flow	ST Int. Rate	Diff
1	500	101.00	601.00	530	71.00	1%	(\$1)
2	500	71.71	571.71	530	41.71	1%	(\$1.73)
3	500	42.13	542.13	530	12.13	1%	(\$2.18)

9. Learning Objectives:

3. Evaluate and recommend an employee benefit strategy.

Learning Outcomes:

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.
- (3b) Describe elements of flexible benefit design and management.
- (3c) Recommend an employee benefit strategy in light of an employer's objectives.

Sources:

Canadian Handbook of Flexible Benefits – Ch. 7

Handbook of Employee Benefits – Ch. 7

Commentary on Question:

Overall, candidates needed to better understand the differences between the accounts available in Canada vs. the US.

Solution:

- (a) Describe the advantages to both the employer and employee of each type of flexible spending account in Canada.

Commentary on Question:

Some candidates failed to attribute advantages to specific types of flexible spending accounts.

- Health-related spending account advantages:
 - Employer
 - Tax effective way to deliver compensation
 - Encourage employees to self-insure predictable expenses
 - Employee
 - Softens the impact of higher employee cost sharing
 - Helps maximize value from health benefits for a Quebec employee
- Personal account advantages:
 - Employee
 - Allows fund to be used for a variety of eligible expenses such as wellness, mental health expenses, CPR courses and individual life insurance premiums depending on employer restrictions
 - Unused balances at the end of the year can be rolled over indefinitely
 - Unused balances can be cashed out by the employee upon termination of employment

9. Continued

- Executive perquisite account advantages:
 - Employer
 - The employer's cost is limited to a fixed dollar amount
 - Administration can be reduced compared to a traditional perquisite program, since each executive makes his or her own arrangements and submits expenses to the company for reimbursement
 - Employee
 - Each executive can choose the perquisites of most value to him or her;
 - Executives can maximize the tax-effectiveness of perquisites by choosing how to spend the money in the account (the tax treatment of the perquisite account dollars spent depends on the type of perquisite chosen);
 - All accounts advantages:
 - Employer
 - Expand the types of benefits offered to employees with little or no additional employer cost (for example, orthodontia, laser eye surgery, and health clubs)
 - Add a new benefit without subsidizing an expensive coverage area
 - Offer a benefit that might appeal to only a small segment of the employee population
 - Contain costs by establishing a defined company contribution toward benefits, while providing employees with flexibility over how the funds are spent
 - Test the appeal of flexible benefits without committing to a broad-based, full-choice program
 - Employee
 - Expand the types of benefits offered
- (b) A US based employer wants to offer a health plan with a \$200 deductible and a health care account that allows for employee contributions up to \$2,500 annually.
- (i) List types of health care accounts available in the US.
 - (ii) Recommend a health care account for the US employer described above. Justify your response.

Commentary on Question:

Candidates needed to fully name the accounts rather than just listing acronyms. Many candidates did not know the full names of these 3 accounts. A common error was to label the HSA as a Health Spending Account.

9. Continued

- (i) Health Savings Account (HSA)
Health Reimbursement Account (HRA)
Flexible Spending Account (FSA)
- (ii) I recommend a Flexible Spending Account (FSA)
Justification:
 HSA's are not allowed due to deductible level
 HRA's do not allow employee contributions
- (c) Compare and contrast Canadian Health Spending Account plans and US Health Savings Account plans in terms of requirements and provisions.

Commentary on Question:

Many candidates did well on this section, however, most did not mention that Canadian HSA's can be used to pay healthcare premiums while US HSA's cannot.

Common characteristics between Canadian and US HSA's are:

- Both accounts rely on pre-tax funding
- Employee's election to allocate funds to the account must be made in advance of the plan year
- Both types of accounts are used to pay for health-related expenses
Both types of accounts have some sort of roll-over provision

Differences between Canadian and US HSA's include:

- Canadian HSA's can be used to pay for health insurance premiums while US HSA's cannot
- US HSA's do not have any annual or lifetime limits on the amounts that can be carried over or accumulated. Canadian HSA's restrict the amount that can be carried over by using either a one-year roll over of unused balances or a one-year roll over of unpaid claims

- (d)
 - (i) Calculate Pat's 2018 beginning balance under a Canadian Health Spending Account. Show your work.
 - (ii) Calculate Pat's 2018 beginning balance under a US Health Savings Account. Show your work.

9. Continued

Commentary on Question:

Many candidates did not recognize that the difference between the two accounts was that premiums could not be reimbursed from a US HSA.

Candidates who assumed that the rollover of unused claims method had been selected in Canada, were not penalized provided they came up with a 2018 beginning of year balance of \$1,460.

Assumed that member elected rollover of unused credits method for Canada.

	(i) Canada			(ii) US		
	2016	2017	2018	2016	2017	2018
BOY Balance	\$1,500	\$1,790	\$1,750	\$1,500	\$2,020	\$2,220
Qualified Spending	\$1,210	\$1,540		\$980	\$1,300	
EOY Balance	\$290	\$250		\$520	\$720	

10. Learning Objectives:

2. The candidate will understand and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (2a) Identify and evaluate sources of data needed pricing, including the quality, appropriateness and limitations of each data source.
- (2d) Calculate and recommend a manual rate.
- (2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Group Insurance, Skwire Ch 6, 20, 21, 24 and 25.

ASOP 23

ASOP 41

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Calculate the expected total premium revenue over the next two years following the approach from the finance team for the following:
 - (i) The new Group Life product
 - (ii) The new Group Disability product

Show your work.

Commentary on Question:

In general, candidates did well on this question. Most were able to identify the correct metrics/assumptions to use in the calculation. However, those that did not receive full marks typically made errors with incorrect employee counts, expenses or confusing daily/monthly/annual figures. Also, most did better on the Life calculation compared to the LTD calculation.

(i)

Calculate monthly manual rates

Male = manual claim rate for male 46-50 * face value / (1-expense load)

Year 1 = $[2.16 \times 40,000/1,000] / (1 - 0.5) = \172.80

Year 2: $\$172.80 \times 1.02$ (salary increases) = $\$176.26$

10. Continued

Female = manual claim rate for female 46-50 * face value / (1-expense load)
Year 1 = [1.25 x 40,000/1,000] / (1 - 0.5) = \$100.00
Year 2: \$100.00 * 1.02= \$102.00

Calculate number of covered lives from Moonraker census

Males = 47+237+1,068+1,425+1,900+1,425+593+356+20 =7,071 insured lives
Females = 11,875 - 7,071 = 4,804 insured lives

Calculate total premium

Premium = Covered lives * months covered * average rate for the two years for males
+ Covered lives * months covered * average rate for the two years for females
=7,071 * 24 * (172.80+176.26)/2 for males + 4,804 * 24 * (100.00+102.00)/2 for females
=7,071*24 * 174.53 + 4,804 * 24 * 101.00
=29,618,439.12 + 11,644,896.00
= 41,263,335.12 =41.263 million (rounded)

(ii)

Calculate disability manual rates

Male Plan 2 = [139.77 x 2000/100] / (1 -0.4) = \$4,659 / month

Female Plan 2 = [177.86 x 2000/100] / (1 - 0.4) = \$5,929 / month

Calculate premium

Premium =number of covered lives * months * average manual rate for males
=7,071 * 24* 4,659
=790,650,936

+ number of covered lives * months * average manual rate for females
=4,804* 24 * 5929
= 683,589,984

=790,650,936 + 683,589,984
=1,474,240,920

(b)

- (i) Assess the pricing approach and data used by the finance team.
- (ii) Recommend alternatives to the pricing approach and data used by the finance team. Justify your response.

10. Continued

Commentary on Question:

The majority of candidates were able to achieve part or full marks on both part (i) and part (ii). Those that received part marks typically didn't provide enough information for each section. The below represents examples of what could be included but is not exhaustive. Also, all the responses below were not required to achieve full marks.

- (i) Use of employer group rates for non-employer group pricing is a concern
- (i) Using employer group demographic data for target market of non-employers is a concern
- (i) Use of data obtained inappropriately obtained from competitor (Thunderball) is a concern
- (ii) Look for other data (public or internal) or hire a consultant to provide data

- (i) Support for expense rates is lacking and loads seem high
- (ii) Have finance provided detailed support to validate the reasonability of the expense loads and research any minimum loss ratio requirement

- (i) Is premium tax included in expense assumption?
- (ii) If not should there be some adjustment
- (i) Is risk or profit charge included in expense assumption?
- (ii) If not should there be some adjustment
- (i) Is expense assumption net of investment income?
- (ii) If not, shouldn't we adjust.
- (i) Using LTC claim costs for disability claim costs is a concern
- (ii) Locate disability data or hire consultant to provide data

- (i) Assuming everyone is one age for disability or on one age range for life is not right
- (ii) Use a distribution of insureds that is more reasonable to develop the rates

10. Continued

- (i) Underlying demographic data used to model market is only 11K lives so may not be credible
- (ii) See out alternative data or confirm the 11K is adequate

- (i) 2% salary increase could be ok
- (ii) Probably want to look for public or internal data to confirm reasonability

(i) The voluntary nature of this product means using Thunderball's rates is a concern since we would expect different lapse, selection on a voluntary product

(ii) Locate different public or internal data or hire a consultant to provide data

- (c) Describe how your actuarial memorandum would need to address the use of the finance team's methodology, assumptions, and data, if you comply with the CFO's request.

Commentary on Question:

Most candidates were able to identify the ASOP's that should be referenced when creating an actuarial memorandum. However, to achieve full marks, more detail was needed to describe the details of the memorandum. Below captures the key elements that should be addressed.

An actuary who makes an actuarial communication assumes responsibility for it, except to the extent the actuary disclaims responsibility by stating reliance on others for data or information.

The actuary is responsible for all assumptions and methods utilized in the preparation of a communication unless the actuary discloses otherwise within the communication by including appropriate disclosures.

An actuarial communication making use of any such reliance should define the extent of reliance, for example by stating whether or not checks as to reasonableness have been applied.

Reliance is ok except where limited or prohibited by applicable standards of practice or law or regulation.

For any assumption or method that did not conflict significantly with my professional judgement, I did not need to say anything.

10. Continued

If the assumption or method significantly conflicts with my professional judgment, I must disclose that fact and be reasonable for the purpose of the assignment and the following items: (1) the assumption or method that was set by another party, (2) the party who set the assumption, (3) the reason that the party and not the actuary has set the assumptions, and (4) statement that assumption or method conflicts with my judgement or I can't judge their reasonableness.

If I am unable to judge the reasonableness of the assumption or method without performing a substantial amount of additional work beyond the scope of the assignment, or if I am not qualified to judge the reasonableness of the assumption, the actuary should disclose that fact.

11. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - a. Group and individual medical, dental and pharmacy plans
 - b. Group and individual long-term disability plans
 - c. Group short-term disability plans
 - d. Supplementary plans, like Medicare Supplement
 - e. Group and Individual Long Term Care Insurance
2. The candidate will understand and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (1c) Evaluate the potential financial, legal and moral risks associated with each coverage.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

[Combo Long-term Care Products: A Solution to Address Market Needs](#), The Actuary, October / November 2013

Group Insurance, Skwire, 7th Edition, 2016, Chapter 26

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
 - (iii) List six solutions believed to provide coverage for Long Term Care (“LTC”) in the US.
 - (iv) Describe whether the solutions in (i) provide coverage for LTC, and the conditions under which funding for each solution is provided.

Commentary on Question:

Most candidates received partial marks for this part. For part (ii), candidates were expected to describe whether the solutions provided coverage for LTC, not state the sources of funding for each solution.

11. Continued

(i)

- Medicare
- Medicaid
- Employer-provided retiree healthcare
- Community living assistance services and supports (CLASS) act
- State partnerships
- Private insurance

(ii)

- Medicare – doesn't cover LTC
- Medicaid – only covers LTC if the beneficiary is deemed impoverished (defined as having assets of less than \$2,000 in most states)
- Employer-provided retiree healthcare – doesn't cover LTC
- CLASS Act – doesn't cover because it was repealed
- State partnerships – covers LTC and allows beneficiaries to shield assets from the Medicare “impoverishment” rules
- Private insurance – covers LTC

- (b) Assess whether a 39% rate increase is justified under the LTC Model Regulation. Show your work and justify your response.

Commentary on Question:

Candidates were required to apply the model regulation that was stated in the question. Candidates that understood this model regulation did well on this part.

- Future premium after rate increase = $0.39 \times \text{premium} = 6.24 \text{ M}$
- 58% times (present value of past initial premium plus present value of future initial premium) plus 85% times (present value of prior premium rate schedule increases plus present value of future premium for current rate increase that is not part of the initial earned premium) must be less than the sum of the present value of past claims plus present value of future claims for the rate increase to be justified.
- Test whether $58\% * (800,000 + 16,000,000) + 85\% * 6,240,000$ is less than $120,000 + 18,000,000$
- It is, therefore, the rate increase is justified

11. Continued

- (c)
- (i) Assess whether a 39% rate increase is justified under the LTC Model Regulation for the product issued in 2013. Show your work and justify your response.
 - (ii) Calculate the expected future loss ratio if the rate increase is approved. Show your work.

Commentary on Question:

Part (i) of Part C tested candidates on how to justify an exceptional rate increase. It was also required for the candidates to recognize which model law was in place for the state in the question. Most candidates did not do well on this section, but many candidates received partial credit.

Part (ii) of part c tested on the calculation of a future loss ratio. Common mistakes include applying the increase to past premium and including the past claims and past premium to calculate the future loss ratio.

- (i)
- 70% replaces 85% in the test.
 - Test whether $58\% * (800,000 + 16,000,000) + 70\% * 6,240,000$ is less than $120,000 + 18,000,000$
 - It is, therefore, the rate increase is justified
- (ii)
- Formula for future loss ratio = $18,000,000 / (16,000,000 + 6,240,000)$
 - Future loss ratio = 80.9%
- (d) A new executive has joined XYZ and would like to offer a LTC product with a better risk profile than the current stand-alone LTC product.

Recommend a product. Justify your response.

Commentary on Question:

Candidates needed to recognize that a combo product needed to be recommended instead of a stand-alone product, as well as recognizing what a better risk profile meant from XYZ's view. Many candidates did well on this part.

I recommend an LTC Combo product, such as Annuity and LTC combo, or Life and LTC combo.

11. Continued

Justification - An SOA study conducted stress tests for the financial results of standalone LTC, Life and LTC Combos, and Annuity and LTC Combos in relation to:

- LTC incidence
- Active life mortality
- Investment earnings
- LTC Claim termination rates
- Persistency

Both Life and Annuity LTC combo products had dramatically lower sensitivity to the above noted assumptions, than standalone LTC.

12. Learning Objectives:

3. Evaluate and recommend an employee benefit strategy.

Learning Outcomes:

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.
- (3c) Recommend an employee benefit strategy in light of an employer's objectives.

Sources:

GHC-108-17: Post-Affordable Care Act Trends in Health Coverage for Small Business: Views from the Market

Group Insurance, Chapter 19

Group Insurance, Chapter 20

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Critique the Human Resources director's statement. Justify your response.

Commentary on Question:

Generally, candidates correctly identified that this plan was not grandfathered based on the change to cost sharing. However, very few candidates took the next step in identifying the plan as meeting the grandmothers/transitional qualifications.

The plan has been around long enough to qualify, as it was in existence before the ACA enactment in 2010. However, because the plan has increased cost sharing since that time, it cannot be considered a grandfathered plan.

However, this plan does satisfy the requirements of being a grandmothers/transitional plan. To qualify for this status, health plans must satisfy the following:

1. In existence before implementation of ACA reforms in 2014
2. Plan subject to approval by states
3. Benefits and cost-sharing may change if allowed by states

12. Continued

- (b) Explain how this hiring decision affects the following aspects of Holston's health coverage offering:
 - (i) Risk pool
 - (ii) Rating factors
 - (iii) The employer mandate
 - (iv) Any federal small business health care tax credits

Commentary on Question:

Candidates did fairly well on this part of the question. The common mistakes were stating that Holston moved to a large-group risk pool (part i), and stating that the small business tax credit was for under 50 employees (part iv).

- (i) Moving above 50 employees allows Holston to avoid the small group state risk pool, which is for groups with less than 50 employees. The group may find better rates and more coverage, as they can now be rated based on their own experience.
 - (ii) Moving above 50 employees means rating will not be limited to the ACA rating factor restrictions (age, family size, geography, and tobacco use). They may now be subject to rating based on health status/prior claims history, gender, and occupation.
 - (iii) With greater than 50 employees, Holston will now be subject to the Employer Mandate, which means they will face financial penalties if at least one full-time employee receives a federal subsidy for an individual policy.
 - (iv) Holston's eligibility would not be impacted based on this expansion, as the Federal Small Business Tax Credit is only available to employers with less than 25 employees. Holston already did not qualify.
- (c) Describe options for providing health care coverage to Holston's employees for each of the following scenarios:
 - (i) Holston maintains its current employee count of 48
 - (ii) Holston expands its employee count to 52

12. Continued

Commentary on Question:

Candidates did fairly well on this question. Self-funded and Fully Insured were the most popular responses. A few other options for both part (i) (keep current grandmothers plan or go to SHOP) and part (ii) (drop coverage and pay the ER mandate penalty) were also accepted.

- (i) – Move to self-funded health plan/arrangement
 - Pursue any one of the group-purchasing arrangements
 - Terminate coverage (optionally, with an increase in wages to assist employees' purchase of individual coverage)
 - Maintain grandmothers/transitional plan
 - Go to SHOP
- (ii) – Seek a new fully insured plan
 - Move to self-funded health plan/arrangement
 - Pursue any one of the group-purchasing arrangements
 - Terminate coverage and pay ER Mandate penalty
- (d) Explain required changes to Northern Insurance's rate factors and manual rates to become ACA-compliant.

Commentary on Question:

Candidates did well on this part, with most candidates receiving most of the credit.

- The maximum difference in rates due to age is 3:1 ratio. The current ratio exceeds that limit, so they would need to reduce the age 64 factor to 1.83 (age 21 factor x 3 = 0.61 x 3 = 1.83).
 - Tobacco users may only be charged more than non-tobacco users by a 1.5:1 ratio. The current tobacco factor needs to be lowered.
 - Premium rates must be based on the combined risk pool that includes all of an insurer's small group insureds.
 - Premium rate can't differentiate based on industry factor.
 - Gender rating is not allowed, that that factor needs to be removed.
- (e) Calculate whether or not Stone LLC should change to an ACA-compliant plan based on the monthly financial costs. Show your work and justify your response.

Commentary on Question:

Candidates did fairly well on this question. Most knew what they were being asked to calculate, and then stated their recommendation based on that calculation. The biggest mistake was mixing up some of the rating factors and not using the correct manual rate in part of the calculation.

12. Continued

Formula: Final Premium = Manual x Age factor x Gender factor x Tobacco factor

Calculation of non-ACA compliant premium:

Age	Gender	Tobacco User	Age Factor	Gender Factor	Tobacco Factor	Total	Manual	Premium
21	M	Yes	0.500	1.000	2.000	1.000	250	\$250.00
64	F	No	2.070	0.900	1.000	1.863	250	\$465.75

\$715,75

/2

= \$357.88

Calculation of ACA compliant premium:

Age	Gender	Tobacco User	Age Factor	Gender Factor	Tobacco Factor	Total	Manual	Premium
21	M	Yes	0.610	1.000	1.500	0.915	300	\$274.50
64	F	No	1.830	1.000	1.000	1.830	300	\$549.00

\$823.50

/2

= \$411.75

They should not switch to the ACA compliant plan, because the premium rates would be higher than they are under the non-ACA compliant plan.

13. Learning Objectives:

2. The candidate will understand and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (2b) Develop an experience analysis.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance, Chapter 7, 23

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Identify key factors that determine a PBM's leverage in negotiating rebate contracts with pharmaceutical manufacturers.

Commentary on Question:

Most candidates did well on this section.

Key factors that determine negotiating leverage with manufacturers are

- (1) number of lives represented,
 - (2) control of market share, or ability to move market share to preferred products in a drug class, and
 - (3) consistency of behavior, meaning the degree of predictability of the plan's response to a manufacturer's actions.
 - (4) preferred placement of the manufacturer's drug on the PBM's formulary
- (b) Recommend the scenario with the best financial outcome for RXHP in 2018. Show your work. Justify your answer.

Commentary on Question:

Candidates generally did well on this section. Candidates were required to identify the components in the net plan liability calculation (Allowed \$s, Member Cost Share, and Rebates) and calculate liability for each drug based on provided 2017 experience data, discounts, cost share, and rebate.

Full credit was given when candidates correctly applied utilization and unit cost trend, added in market share shift component where necessary, using coinsurance for non-preferred drug in scenario 2, and evaluated new rebate deals based on net plan liability. Partial credit was given if there was an error in the calculation but candidate still recommended the scenario with the lowest plan liability.

13. Continued

Drug Y Calculation (Same for both Scenarios):

$$Y = 30,000 \text{ Scripts} * (1 + 3\% \text{ utz trend}) * (\$600,000 \text{ AWP} / 30,000 \text{ Scripts}) * (1 + 2\% \text{ cost trend}) * (1 - 75\% \text{ discount}) + 30,000 \text{ Scripts} * (1 + 3\% \text{ utz trend}) * \$1.50 \text{ Dispense Fee} - 30,000 \text{ Scripts} * (1 + 3\% \text{ utz trend}) * \$5 \text{ Copay} = \$49,440$$

Scenario 1 Drug X Calculation:

$$X = 10,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 10,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * (1 - 15\% \text{ discount}) + 10,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * \$1.50 \text{ Dispense Fee} - 10,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * \$30 \text{ Copay} - 10,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 10,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * 33\% \text{ Rebate} = \$141,120.00$$

Scenario 1 Drug Z Calculation:

$$Z = 5,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 5,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * (1 - 15\% \text{ discount}) + 5,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * \$1.50 \text{ Dispense Fee} - 5,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * \$30 \text{ Copay} - 5,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 5,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * 15\% \text{ Rebate} = \$426,300.00$$

Scenario 2 Drug X Calculation (1) and Result (1):

$$X = (10,000 \text{ Scripts} * (1 - 75\% \text{ loss of market share}) * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 10,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * (1 - 15\% \text{ discount}) + 10,000 \text{ Scripts} * (1 - 75\% \text{ loss of market share}) * (1 - 2\% \text{ utz trend}) * \$1.50 \text{ Dispense Fee}) * (1 - 20\% \text{ member cost share}) = \$140,385.00$$

Scenario 2 Drug Z Calculation (1) and Result (1):

$$Z = (5,000 \text{ Scripts} + 75\% * 10,000 \text{ Drug X Scripts}) * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 5,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * (1 - 15\% \text{ discount}) + (5,000 \text{ Scripts} + 75\% * 10,000 \text{ Drug X Scripts}) * (1 - 2\% \text{ utz trend}) * \$1.50 \text{ Dispense Fee} - 5,000 \text{ Scripts} * (1 - 2\% \text{ utz trend}) * \$30 \text{ Copay} - (5,000 \text{ Scripts} + 75\% * 10,000 \text{ Drug X Scripts}) * (1 - 2\% \text{ utz trend}) * (\$750,000 \text{ AWP} / 5,000 \text{ Scripts}) * (1 + 10\% \text{ cost trend}) * 50\% \text{ Rebate} = \$358,312.50$$

$$\text{Scenario 1 Net Plan Liability} = X + Y + Z = \$616,860.00$$

$$\text{Scenario 2 Net Plan Liability} = X + Y + Z = \$548,137.50$$

Scenario 2 Net Plan Liability < Scenario 1 Net Plan Liability so Scenario 2 is best

13. Continued

- (c)
- (i) (1 points) Describe the concept of price protection as a negotiation strategy and how it might help reduce the impact of price increases.
 - (ii) (2 points) Calculate the impact of price protection on net plan liability for Drug P after July 1, 2019, on a per prescription basis. Show your work.

Commentary on Question:

This section tested the candidate's knowledge on price protection and candidates with a good understanding of the material generally received full credit on both parts.

Common omission from part (i) was not mentioning the additional rebate to the health plan if price exceeds the price protection threshold.

Computation errors would be consistent with errors found in part b.

- (i) Mentions that
 - (1) Price protection is a negotiation between the manufacturer and health plan or PBM
 - (2) Price protection can help control price increases in the cost of a drug
 - (3) Price protection negotiation relies on setting a threshold or set level for price
 - (4) Health plan receives additional rebate if price exceeds threshold
- (ii) Use knowledge of price protection arrangement to calculate impact on net plan liability

Calculate Drug P Per Script Net Plan Liability without Price Protection:
= (\$1,500,000 AWP/2,500 Scripts * (1+15% cost trend) * (1-15% Discount) + \$1.50 Dispense Fee) * (1 - 10% Mbr Coinsurance) - (\$1,500,000 AWP/2,500 Scripts * (1+15% cost trend) * 25% Rebate) = \$356.70

Calculate Drug P Per Script Net Plan Liability with Price Protection:
= (\$660 AWP/Script * (1-15% Discount) + \$1.50 Dispense Fee) * (1 - 10% Mbr Coinsurance) - (\$660 AWP/Scripts * 25% Rebate) = \$341.25

Calculate Impact of Price Protection by Comparing:
Net Plan Liability per Script (No Price Protection) - Net Plan Liability per Script (Price Protection) = \$356.70 - \$341.25 = \$15.45

13. Continued

- (d) Calculate the change in member liability for Drug P on a per prescription basis under the proposed POS rebate arrangement relative to the current rebate structure. Show your work.

Commentary on Question:

Candidates either did very well or very poorly on this section depending on the candidate's knowledge on POS rebates.

Common minor mistake was not calculating the liability on a per prescription basis.

Calculate impact of rebate when used to reduce member liability rather than plan liability

POS formula must subtract rebate prior to cost share application: Member Liability = (AWP/Scripts * (1- Discount %) + Dispense Fee - (AWP/Script * Rebate)) * (10% coinsurance)

Drug P Per Script Member Liability without POS Rebates
= (\$1,500,000 AWP/2,500 Scripts * (1-15% Discount) + \$1.50 Dispense Fee) * (10% coinsurance) = \$51.15

Drug P Per Script Member Liability with POS Rebates
= (\$1,500,000 AWP/2,500 Scripts * (1-15% Discount) + \$1.50 Dispense Fee - (\$1,500,000 AWP/2,500 Scripts * 25% Rebate)) * (10% coinsurance) = \$36.15

Impact of POS Rebates = Drug P (No POS) - Drug P (POS) = \$51 - \$36 = \$15

14. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - a. Group and individual medical, dental and pharmacy plans
 - b. Group and individual long-term disability plans
 - c. Group short-term disability plans
 - d. Supplementary plans, like Medicare Supplement
 - e. Group and Individual Long Term Care Insurance
2. The candidate will understand and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (1c) Evaluate the potential financial, legal and moral risks associated with each coverage.
- (2c) Calculate and recommend assumptions.

Sources:

Group Insurance, Chapter 20

Commentary on Question:

Candidates should be able to identify the risks pertaining to fully insured and self-funded groups, small and large groups.

Candidates should be able to calculate the pre-tax profit margin percentage to in the rate calculation.

Candidates should be able to recommend changes to the target surplus assumptions. Increasing the fully insured and decreasing the self-funded.

Solution:

- (a) Compare and contrast the risks for the two new products to the risks of the current product from the perspective of Squares.

Commentary on Question:

The majority of candidates compared the products instead of comparing the risks associated with the products. Thus, only a few risks were identified by each candidate.

14. Continued

Risks	Current Product Fully Insured 250-500 Employees	New Product 1 Self-Funded 250-500 Employees	New Product 2 Fully-Insured 2-50 Employees
Squares is not at risk for the claims because the employer is.		X	
Squares is at risk for claims.	X		X
Squares is at risk the admin fees may not cover its costs.	X	X	X
Squares is at risk that it might not process claims properly which could result in lawsuits.	X	X	X
Squares is at risk that the employer may fail to meet its financial obligations for claims and if this occurs the employer, the employees, or the regulator may look to Squares for financial support.		X	
Risk in projecting the group's own claims accurately.	X		
The risk of underestimating claims in the pricing of the pool.			X
Small group rate and benefit regulations introduce additional risks that premiums may not be sufficient.			X
Risks resulting from new benefit mandates.	X		X
Risks resulting from regulations that restrict underwriting flexibility.	X		X
Rate regulation may restrict rate increases so that premiums cannot be increased sufficiently to cover costs.	X		X

14. Continued

Risks associated with a new product launch including the risk that the initial expenses might not be recovered.		X	X
Risk of entering into a new marketplace.		X	X

- (b) Calculate the pre-tax profit margin percentage to include in the rate calculation for each of the three products using the table provided by the product team. Show your work.

Commentary on Question:

Few candidates included the target surplus in their calculation.

Formula: Pre-tax margin/revenue = surplus/revenue x rate of return / (1-tax rate)

Current fully insured large group
 $= 0.125 \times 0.15 / (1 - 25\%) = 2.5\%$

New self-funded large group
 $= 0.225 \times 0.15 / (1 - 25\%) = 4.5\%$

New fully insured individual
 $= 0.055 \times 0.15 / (1 - 25\%) = 1.1\%$

- (c) Recommend changes to the target surplus assumptions provided by the product team. Justify your response.

Commentary on Question:

Most candidates identified the appropriate recommendations and included justifications.

I recommend increasing the target surplus for the small group product to something higher than for the large group fully insured product. One rationale is that the small group fully insured business has more regulatory constraints than large group fully insured business which makes it more risky.

I recommend decreasing the target surplus for the self-funded product to something lower than for the large group product. One rationale is that Squares does not have claims risk for the self-funded business but does for the large group fully insured business.