

# RET DAC Model Solutions

## Spring 2016

### 1. Learning Objectives:

8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8d) Advise retirement plan sponsors on funding costs including tax deductibility, required contributions and other alternatives to meet the sponsor's goals, consistent with government regulation.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

### Sources:

DA-147-13: Intricately Linked: Pensions and Corporate Financial Performance

### Commentary on Question:

*The purpose of this question was to test candidates' understanding of how the use of surplus affects the employer and employees with respect to funding, accounting, human resources, and plan investments.*

*Candidates were able to identify the funding, accounting, and HR issues from the employer perspective, but to achieve full marks, candidates also needed to identify the employee perspective*

### Solution:

- (a) Funding

### Commentary on Question:

*Most candidates understood that the funded status would decrease as a result of the contribution holiday. Some candidates discussed legal trust issues and surplus entitlements – topics which were not in the scope of the question since they are not implications of using surplus to fund a plan's normal cost.*

## 1. Continued

### **Employer Perspective**

- Not contributing in the current year will erode the funded status by the amount of benefit accrual.
- Barring favorable experience, this may result in sudden and large contribution requirements in the future when no surplus assets exist.
- Contributions to the plan are tax deductible up to certain limits, not contributing eliminates this deduction

### **Employee Perspective**

- If the funded status falls below a specific threshold restrictions on distribution may be imposed.
- If the funded status falls below a specific threshold, benefit levels or accruals may decrease for certain types of plans.

#### (b) Accounting

### **Commentary on Question:**

*Most candidates understood that expense would increase for the employer. Candidates were also required to address the employee perspective to achieve full marks.*

### **Employer Perspective**

- Not contributing will increase expense due to the lower expected return on assets component.
- Not having a level contribution policy will increase the volatility of expense and funded status.
- If fund the benefit accrual, the higher asset value will immediately be reflected in the funded status on the company's balance sheet.
- Potential Reduction in shareholder equity, however company can spend cash elsewhere

### **Employee Perspective:**

- Reduction in shareholder equity affects any applicable employee company stock options or defined contribution investments

#### (c) Human Resources

### **Commentary on Question:**

*Candidates generally understood the attraction, retention, and morale issues.*

## 1. Continued

### **Employee perspective**

- Affects perceived level of benefit security.

### **Employer Perspective**

- Need to balance company cost, attraction and retention of employees, interest of plan participants, and the ability to save for retirement.
- Employee morale may be affected and HR may receive additional questions when employees see plan funding history and funded status

### (d) Plan Investments

#### **Commentary on Question:**

*Candidates appear to have found part (d) the most challenging, for both the employer and employee perspectives.*

### **Employer perspective**

- Level and volatility of contributions affects the investment strategy.
- Changes in contributions can affect the allocation of funds among asset classes.
- Changes in contributions can affect the duration of assets invested in bonds.
- Changes in contributions can affect the use of leverage, swaps and other hedges and the amount of active management.

### **Employee perspective**

- Employee may care more about how plan is invested if the company is going to rely on surplus assets as a means to fund

## **2. Learning Objectives:**

3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### **Learning Outcomes:**

- (3a) Identify risks face by retirees and the elderly.
- (3d) Propose ways in which retirement plans and retiree health plans can manage the range of risks faced by plan participants and retirees.
- (8a) Perform valuations for special purposes, including:
  - (i) Plant termination/windup
  - (ii) Accounting valuations
  - (iii) Open group valuations
  - (iv) Plan mergers, acquisitions and spinoffs
- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.
- (8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

### **Sources:**

Retirement Survey Report Key Findings and Issues: Understanding and Managing the Risks of Retirement

Managing Post-Retirement Risks, A Guide to Retirement Planning

DA-143-13: Comp of IAS 19, Rev. 2011 with FASB ASC 715 Summary of Provisions Affecting Accounting for Postretirement

DA-157-15: PWC IFRS Manual of Accounting (paragraphs 11.1 – 11.10 (Intro), 11.53-11.63 (termination benefits), 11.63-11.261 (Post- employment benefits (exclude paragraphs and notes that start with "UK"))

DA-611-13: Introduction (A58), IFRS1, paragraphs 1-40, Appendix A, Appendix D, D10 and D11 only, IAS19, IFRIC14

DA-804-13: FASB Accounting Standards Codification Topic 715

## 2. Continued

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Describe four risks participants would face if they take the lump sum offer.

### **Commentary on Question:**

*In order to receive full credit for part (a), candidates needed to identify four risks and to provide an explanation for each risk in the context of the one-time lump sum offer. Other relevant risks and explanations not mentioned below were also accepted.*

Four risks participants would face if they take the lump sum offer include:

- (a) Longevity risk: Participants electing the lump sum may outlive their retirement savings.
  - (b) Inflation risk: Participants may not invest the lump sum in assets that keep pace with or out-pace inflation.
  - (c) Interest rate risk: The value of the lump sum received today may result in a low annuity payout at retirement.
  - (d) Stock market risk: If the lump sum is invested in stocks, the market may fluctuate significantly in the future, potentially resulting in losses prior to retirement (eroding retirement savings).
- (b) Describe strategies participants could employ to mitigate the risks identified in part (a).

### **Commentary on Question:**

*In order to receive full credit for part (b), candidates needed to identify strategies to mitigate the risks mentioned in part (a) and link each strategy to the appropriate risk(s).*

The following are strategies participants could employ to mitigate the above-mentioned risks:

- (a) For longevity risk: Use the lump sum to purchase a deferred annuity.
  - (b) For inflation risk: Use the lump sum to invest in inflation-indexed securities (examples include Treasury bonds, inflation-indexed annuities, etc.)
  - (c) For interest rate risk: Invest the lump sum in long-term bonds, mortgages, or dividend-paying stocks.
  - (d) For stock market risk: Invest the lump sum in diversified assets, mutual funds, hedge funds, etc.
- (c) Describe the accounting implications for Company ABC under U.S. Accounting Standard ASC 715 and International Accounting Standard 19.

## 2. Continued

### **Commentary on Question:**

*In order to receive full credit for part (c), candidates needed to identify the impact of the one-time lump sum offer on Company ABC's financial statements and accounting process for the fiscal year under ASC 715 and IAS 19. While it was important for candidates to recognize that a settlement might be triggered as a result of this event, the question was looking for candidates to describe the implications of the settlement on the plan's balance sheet, income statement, Statement of Other Comprehensive Income, etc., along with explaining how accounting results may need to be remeasured due to the event and what settlement recognition entails.*

The following is a description of the similarities and differences in the accounting implications of the lump sum offer under ASC 715 and IAS 19.

1. With respect to the plan's funded status and balance sheet:
  - a. Impact would be similar under ASC 715 and IAS 19.
  - b. Deterioration may result if benefit obligation assumptions and lump sum assumptions differ.
2. With respect to the Profit & Loss (P&L)/Income Statement:
  - a. ASC 715: Gain/loss recognition and settlement cost impacts P&L.
  - b. IAS 19: Gain/loss recognition does not affect P&L (handled through OCI), Settlement cost is recognized on the P&L as a "past service cost."
3. With respect to Other Comprehensive Income (OCI)/Accumulated Other Comprehensive Income (AOCI):
  - a. ASC 715: Gains/losses are generally deferred through AOCI with a portion of unrecognized gain/loss (UGL) amortized each year and recognized through the P&L; additional portion of UGL recognized (through the P&L) as a settlement expense if settlement threshold triggered.
  - b. IAS 19: Gains/losses recognized immediately through OCI. Settlement gain/loss also recognized immediately through P&L in operating cost.
4. With respect to accounting remeasurements:
  - a. Remeasurement of benefit obligation and expense upon settlement trigger under both ASC 715 and IAS 19 (unless the settlement is deemed immaterial to the company's P&L).
  - b. ASC 715: PBO and expense remeasurement for remainder of fiscal year (or until next event) based on assumptions as of remeasurement date.
  - c. IAS 19: Expense remeasurement for remainder of fiscal year (or until next event) based on assumptions as of beginning of year; however, need to measure DBO using assumptions as of remeasurement date for settlement gain/loss.

## 2. Continued

5. With respect to settlement threshold and recognition:
  - a. ASC 715: Settlement threshold is based on Service Cost plus Interest Cost. If lump sums paid exceed settlement threshold, recognition of UGL and remeasurement of PBO and expense required.
  - b. IAS 19: No settlement threshold. Need to recognize settlement gain/loss once the lump sums have been paid.
  - c. ASC 715: Settlement recognition considers all lump sums paid—both routine lump sums that ABC’s pension plan may pay as well as non-routine lump sums paid through this one-time window.
  - d. IAS 19: Settlement recognition considers only non-routine lump sums.

### **3. Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans
2. The candidate will understand the impact of the regulatory environment on plan design.
5. The candidate will be able to evaluate sponsor's goals for the retirement plan, evaluate alternative plan types and features, and recommend a plan design appropriate for the sponsor's goals.

### **Learning Outcomes:**

- (1a) Describe the structure of the following plans:
  - (a) Traditional defined benefit plans
  - (b) Defined contribution and savings plans
  - (c) Hybrid plans
  - (d) Retiree Health plans
- (1b) Given a plan type, explain the relevance, risks and range of plan features including the following:
  - (a) Plan eligibility requirements
  - (b) Benefit eligibility requirements, accrual, vesting
  - (c) Benefit/contribution formula, including the methods of integration with government-provided benefits
  - (d) Payment options and associated adjustments to the amount of benefit
  - (e) Ancillary benefits
  - (f) Benefit subsidies and their value, vest or non-vested
  - (g) Participant investment options
  - (h) Required and optional employee contributions
  - (i) Phased retirement and DROP plans
- (2a) Explain and apply restrictions on plan design features to a proposed plan design.
- (5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.
- (5e) Identify the ways that regulation impacts the sponsor's plan design goals.
- (5f) Design retirement programs that manage retirement risk and are consistent with sponsor objectives.

### **Sources:**

Morneau 15th Chapter 1 Overview of Retirement Income Arrangements

Morneau 15th Chapter 12 Other Retirement Income, Savings and Deferred Compensation Arrangements



### 3. Continued

DA-603-13: CAPSA Guideline No. 3: Guidelines for Capital Accumulation Plans

The TFSA: A Practical addition to your client's savings portfolio

Towers Watson 5th Chapter 1 Overview pp36-55

Towers Watson 5th Chapter 16 Registration rules for Money Purchase Plans

#### **Commentary on Question:**

*Commentary listed underneath question component.*

#### **Solution:**

(a) Compare and contrast the following arrangements from a design perspective:

- Defined Contribution Registered Pension Plan
- Group Registered Retirement Savings Plan
- Tax Free Savings Account

#### **Commentary on Question:**

*To receive full credit for part (a), candidates were required to compare and contrast design features of all three types of savings plans. Credit was not granted for funding or regulatory features. Credit was awarded for correct responses not noted below.*

#### **DC RPP:**

- Eligibility depends on plan provisions
- Employer contribution is % of pay or a flat dollar amount
- Benefit locked-in after member meets locking-in requirements
- Employer can contribute to a member's account based on deemed earnings
- Employer contributions are not subject to payroll taxes
- Employer contributions are tax deductible
- Investment earnings accumulate before tax
- Withdrawals are taxed

#### **Group RRSP:**

- Immediate vesting
- More flexibility of employer contributions
- No locking-in requirements (funds may not necessarily be used for retirement income)
- Can contribute to the spousal RRSP, impacts contribution ceiling of contributor for RRSP

### 3. Continued

- Contribution is included as taxable income and attracts payroll taxes
- Employee contributions to an RRSP are tax deductible
- Investment earnings accumulate before tax
- Withdrawals from an RRSP are taxed

#### **TFSA:**

- Less restrictive eligibility
- Contribution room is limited
- General savings vehicle, funds may not necessarily be used for retirement income
- Employer contributions to a TFSA are not tax deductible
- Employee contributions to a TFSA are not tax deductible
- Withdrawals are not taxed, and contribution room is restored the following year
- Withdrawals from a TFSA do not impact income tested government benefits
- Investment earnings accumulate before tax

- (b) Describe considerations Company XYZ should make when implementing and maintaining a group savings plan to ensure compliance with CAPSA's Guideline Number 3: Guideline for Capital Accumulation Plans

#### **Commentary on Question:**

*Part (b) was a relatively straightforward question requiring familiarity with CAPSA's Guideline Number 3.*

The plan sponsor's considerations when implementing and maintaining a savings plan:

- Information, documentation and decision-making tools should be easy to read and comprehend
- Sponsor should select, offer and monitor a diversified range of investment options
- Should allow investment transfer at least quarterly
- Should have a default investment option policy
- Should provide advance notice when investment activity will be suspended and disrupted
- Should recommend member seek advice from investment experts if plan does not provide one
- If an investment advisor is provided then should monitor their performance
- Should establish criteria for the periodic review of all service providers

### **3. Continued**

- Sponsors must:
  - Document roles and responsibilities of all parties involved in the plan
  - Document activities to be performed in-house and outsourced
  - Establish procedures for proper maintenance of records and appropriate records-retention

#### **4. Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.
9. The candidate will be able to apply the standards of practice and guides to professional conduct.

#### **Learning Outcomes:**

- (1) Describe the structure of the following plans:
  - (a) Traditional defined benefit plans
  - (b) Defined contribution and savings plans
  - (c) Hybrid plans
  - (d) Retiree Health plans
- (6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.
- (6b) Given a specific context, apply principles and features of supplemental retirement plans.
- (6c) Integrate a plan for executives with the basic benefit plan.
- (8a) Perform valuations for special purposes, including:
  - (v) Plant termination/windup
  - (vi) Accounting valuations
  - (vii) Open group valuations
  - (viii) Plan mergers, acquisitions and spinoffs
- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.
- (9a) Apply the standards related to communications to plan sponsors and others with an interest in an actuary's results (i.e., participants, auditors etc.).
- (9c) Explain and apply relevant qualification standards.

## 4. Continued

- (9d) Demonstrate compliance with requirements regarding the actuary's responsibilities to the participants, plan sponsors, etc.

### **Sources:**

DA 156-15: Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan

DA 154-15: Implementing Early Retirement Incentive Programs: a Step by Step Guide

DA 151-14: The Real Deal 2012 Retirement Income Adequacy at Large Companies Highlights

DA-102-13: OECD Paper, Evaluating the Design of Private Pension Plans: Costs and Benefits of Risk Sharing

DA 142-15: ASOP 4, Measuring Pension Obligations

DA-614-14: CIA Consolidated Standards of Practice

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Approximate the increase or decrease resulting from these events on the following:
- (i) 2016 defined benefit cost for all of NOC's pension arrangements
  - (ii) 2016 defined benefit cost for the retiree health and welfare program
  - (iii) 2016 salary and other benefit costs

Show all work.

### **Commentary on Question:**

*The calculations included in this model solution illustrate ways to arrive at the results; more than one approach was accepted as long as it was clearly described. Credit was given for any reasonable way to approximate estimate given information in case study. As this question pertains to the Case Study, successful candidates referred to the case study in estimating the impact. Due to the complexity of the question, points were given for stating the impact in word as well as for valid (but not exact) calculations.*

## 4. Continued

- (i) 2016 defined benefit cost for all of NOC's pension arrangements

(in \$000's)

Prior to termination, the displaced 50 executives were participants in the NOC Salaried Pension Plan and NOC SRP

### Change in Cost for NOC SRP:

- 2016 pension cost eliminated (5,421)
- Cost of additional 3 years of service paid as lump sum (assume = 3 x service cost) 5,703
- There is a settlement but there is no unamortized loss to recognize since IAS
- Estimate ABO to get immediate recognition of curtailment gain
- Estimate of inactive liability = annual benefit x estimated annuity factor (*any reasonable annuity factor applied is acceptable*) x # of retirees =  $16,800 \times 10 \times 35 = 4,704$
- Estimate of active liability = annual benefit (backing out Qualified Plan benefit) x estimated annuity factor x # of actives x discount factor  $(.02 * 21 * 450,000 * .9 - 3,000 * 21) \times 12 \times 50 / (1.04)^{(62-57)} * .9 / 1000$  (in 1000s) = 47,535
- total estimate of ABO = 52,239
- DBO prior to change = 86,401
- Curtailment (gain) = (34,162)

Total = (33,880)

*Other examples of possible methods for calculating DBO to ABO decrease were accepted, such as:*

- Simple proration on total participants with or without salary scale adjustment*
- using non-vested DBO*
- using DBO, but stating the impact would be larger since would be removing pay increases*

### Change in cost for the NOC Pension Plan:

- Portion of SC is eliminated due to 50 employees (prorating based on employee count):  $50 / 3280 * 64,067 = (977)$
- Cost of additional 3 years of service paid as lump sum (assume = 3 x service cost): 2,930
- No curtailment or settlement impact
- No settlement because payout is less than sum of SC + IC

## 4. Continued

- Assume no DBO impact since participants most likely capped at maximum benefit (*points also given if a DBO impact was calculated*)
- Change in IC based on change in liability - minimal so not calculated (*points also given if interest cost impact calculated*)
- No impact on PSC or EROA, Gain/Loss calculated
- Total change in Qualified Plan cost for year: 1,953

- Total SRP plus Salaried Pension Plan impact:  $(33,880) + 1,953 = (31,927)$

(ii) 2016 defined benefit cost for the retiree health and welfare program

(in \$000s)

Change in cost:

- Total number of actives = Hourly + Salaried: 9,210
- Portion of SC is eliminated, prorated based on number of employees: -  $(50/9,210) \times 108,792 = (591)$
- Decrease in employee future service is not enough to trigger curtailment
- Will be change in IC based on change in liability - minimal so not calculated
- Unrecognized Gain/Loss calculation
  - Immediate loss due to early retirement
  - Assume =  $5 \times \$18,000 \text{ claims cost} \times 50 \text{ \# of employees (to account for number of years retiring early)} / 1,000 \text{ (in 000s)} = 4,500$
  - Amortization of loss in 2016: 453
  - over average future service to retirement = 9.94
  - (*other method to estimate or state would be small impact on 2016 cost*)

- Total change in retiree health & welfare plan cost for year: (138)

(iii) 2016 salary and other benefit costs

Change in cost:

- Salaries being eliminated  $(\$450k \times 50) = (22,500,000)$
- Cost of benefits being eliminated (30% of above number) =  $(6,750,000)$
- New salary for replacements  $(\$200k \times 50) = 10,000,000$
- New benefits for replacements (30% of above number) =  $3,000,000$
- New retirement DC benefit: 1,500,000
- Total new cost:  $(14,750,000)$

## 4. Continued

- (b) Describe the appropriate Canadian Actuarial Standards of Practice requirements necessary to document your estimate.

**Commentary on Question:**

*Points credited for referring to existing actuarial opinion, accepted actuarial practice, plan provisions and source of data.*

- Specific circumstances: due to nature of urgent request, must caveat limitations of estimates provided
- Uncertainty or risk associated with using rough approximations
- Reliance on Case Study information
- Detail all assumptions and methods used not documented in case study
- Information date of the report
- Identification of responsible actuary
- Identification of the actuarial document
- Intended users of the actuarial report
- Scope of the assignment
- Acknowledgement of qualification
- Any conflict of interest



## 5. Learning Objectives:

5. The candidate will be able to evaluate sponsor's goals for the retirement plan, evaluate alternative plan types and features, and recommend a plan design appropriate for the sponsor's goals.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

- (5b) Assess the tradeoffs between different goals.
- (5e) Identify the ways that regulation impacts the sponsor's plan design goals.
- (8a) Perform valuations for special purposes, including:
  - (i) Plant termination/windup
  - (ii) Accounting valuations
  - (iii) Open group valuations
  - (iv) Plan mergers, acquisitions and spinoffs
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

### Sources:

DA-148-13: Mergers and Acquisitions: Due Diligence of Retirement Plans

DA-161-16: Pension Issues in Mergers & Acquisitions

### Commentary on Question:

*The purpose of this question is to test candidates' knowledge regarding the process/procedure that relates to pension plan activities in the event of an acquisition and merger.*

*Part (a) of this question requires candidates to retrieve the list of items required to be collected when a company acquires another company which has an existing defined benefit pension plan.*

*Part (b) of this question requires candidates to utilize their knowledge of merging two pension plans following an acquisition and identify the advantages and disadvantages of such action.*

### Solution:

- (a) List items that Company A should collect regarding Company B's DB pension plan as part of the due diligence process.

## 5. Continued

### **Commentary on Question:**

*It was not necessary to list all of the items below to receive full points for this part of the question. Candidates received full points if they identified at least 8 items.*

### **List of items that Company A should collect regarding Company B's DB pension plan:**

Plan document, all amendments and board resolutions

- Current Summary of Plan Description (SPD). Prior SPDs used within the last 5 years
- Two most recent funding and accounting actuarial valuations
- Two most recent PBGF filings (Ontario members only) and other regulatory filings such as AIR
- Any PBGF notices during the past 5 full calendar years relating to the plan or from the plan sponsor with respect to any plan it sponsors (Ontario members only)
- Trust agreement and any amendments. Trustee's most recent financial statements
- All investment manager agreements and agreements with other service providers
- All election forms and notices used with respect to the plan, and administrative procedure
- Financial statement disclosures
- Legal documents regarding marriage breakdown cases (if any), litigation issues, and other legal proceedings
- Extracts from any collective/union agreements that impact on company-provided benefits or require the company to guarantee a level of benefit
- Investment, funding and governance policies

- (b) Describe the advantages and disadvantages of merging the pension plans.

### **Commentary on Question:**

*Candidates received full points if both advantages and disadvantages were listed. Since Company A sponsors an open defined benefit (DB) pension plan, Company B employees will enter Company A's DB plan and therefore employees from A and B will have the same future accruals. Credit was not given if a candidate's response contradicts this logic.*

## 5. Continued

### **Advantages of merging the plans:**

- Merging plans can reduce plan administration costs and streamline regulatory compliance obligations (i.e. one actuarial valuation, one quarterly contribution requirement instead of 2, one plan document and SPD to maintain, etc.)
- By transferring the pension funds into a master trust arrangement for investment purposes, this ensures that all funds have consistent financial reporting and consistent investment management
- Mergers are very attractive when one of the plans is underfunded and the other has excess funding. In certain situations, plan sponsors may be able to use the surplus in one plan to offset contributions to the other
- Company A may be in the process of designing a uniform retirement package tailored to their new workforce that is consistent or similar across all employee groups (i.e. provide benefit accruals for employees in Company B under Company A's formula; modify the existing benefit formula for the ongoing pension plan to apply to all employees, etc.)

### **Disadvantages of merging the plans:**

- Disposition of surplus – if one of the plans is overfunded while the other plan is poorly funded, participants in the overfunded plan may be upset that “their surplus” is being shared with a poorly funded plan
- Employees from Company B may have different demographics than Company A, the plan may experience intergenerational risk transfer or cross subsidization issues
- Employee sentiment issues – this may occur because prior company B employees may not understand the new Company A plan nor understand that their frozen Company B benefit is payable out of Company A's assets. This in turn can result in reduced productivity among those workers.
- Recent regulations have cast doubt over whether plan mergers described above continue to be legally permissible. Recent changes to Pension Benefits Act (Canada) place new restrictions on asset transfers, including the requirement that any transfer involving an underfunded plan satisfy additional requirements to be prescribed

**6. Learning Objectives:**

- 7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.
- 9. The candidate will be able to apply the standards of practice and guides to professional conduct.

**Learning Outcomes:**

- (7d) Recommend appropriate assumptions for a particular type of valuation and defend the selection.
- (9a) Apply the standards related to communications to plan sponsors and others with an interest in an actuary's results (i.e., participants, auditors etc.).
- (9b) Explain and apply the Guides to Professional Conduct.
- (9c) Explain and apply relevant qualification standards.
- (9d) Demonstrate compliance with requirements regarding the actuary's responsibilities to the participants, plan sponsors, etc.
- (9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.
- (9f) Recognize situations and actions that violate or compromise Standards or the Guides to Professional Conduct.

**Sources:**

DA-614-14: Practice Specific Standards for Pension Plans 3100-3500, CIA Consolidated Standards of Practice

CIA Rules of Professional Conduct

**Commentary on Question:**

*Commentary listed underneath question component.*

**Solution:**

- (a) Explain the way(s) in which the signing actuary violated the CIA Rules of Professional Conduct.

## 6. Continued

### **Commentary on Question:**

*Successful candidates both stated the Rule and described the way in which the Rule was violated as it pertains to the question. Rule 12 was considered not applicable as it pertains to cooperation with actuarial professional or disciplinary bodies, not outside entities or organizations like auditors. Rule 13 is also not applicable since the question is asking about how the signing actuary violated rules; Rule 13 addresses the situation of the new actuary.*

**Rule 3** violation - Standards of Practice - ensure professional services performed by or under direction of member meet applicable SOP.

Rule 3 was violated as new mortality was not used in the solvency valuation.

**Rule 8** violation - courtesy and cooperation. The signing actuary declined the request and was not cooperative with others in the client's interest.

Rule 8 indicates the signing actuary shall cooperate by providing relevant information. Shall not refuse to cooperate with another member based on unresolved compensation issues with client.

- (b) Describe the disclosures that are required with respect to the solvency valuation.

### **Commentary on Question:**

*The following solution illustrates many applicable answers that were given credit, yet it is not an exhaustive list. Successful candidates listed approximately six to eight disclosure items.*

- Report the funded status at the calculation date
- Include a description of the postulated scenario
- Description of the extent to which contingent benefits provided under the pension plan are included or excluded in determining the funded status
- Report the incremental cost between the calculation date and the next calculation date
- Report the effect on the solvency liabilities, at the calculation date, of a discount rate 1% lower than that used in the valuation
- If the funding valuation report does not include a going concern valuation, the gains and losses between the prior calculation date and the current valuation date
- Describe the basis for inclusion and the amount considered in respect of a letter of credit of which the pension plan is beneficiary.
- Describe the methods used to determine the reported liabilities

## 6. Continued

- Describe the assumptions used to determine the reported liabilities and provide the rationale for each assumption that is material to the actuary's advice
  - Statement of opinion
    - Statement as to sufficiency and reliability of membership data
    - Statement as to appropriateness of assumptions
    - Statement as to appropriateness of methods
    - "This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada."
  - Plan Provision
  - Asset valuation method
  - Subsequent event
  - Special payments
  - Date of valuation, next required calculation date
  - Source of data of membership
- (c) Describe the additional assumptions and disclosures required in the full wind up valuation report.

### **Commentary on Question:**

*The following solution illustrates many applicable answers that were given credit and is an extensive list. Full credit was awarded for a complete description of six items.*

- The cut-off date which is the date up to which subsequent events would be recognized in the valuation.
- Best estimate assumptions would be selected as at the cut-off date.
- Assumptions would reflect the expected method of benefit settlement.
- Where a member has a choice that the member has not yet made between a commuted value and a deferred or immediate pension, describe the assumptions made regarding such choice.
- Unless it's expected that expenses will not be paid from the pension plan's assets, the actuary should select explicit assumptions regarding the expenses of wind-up and either offset the resulting expense provision against the pension plans' assets or add the resulting expense provision to the pension plan's liabilities.
- Report the explicit assumption regarding expenses or justify the expectation that expenses will not be paid from pension plan assets.
- If a previous report is prepared, describe and quantify gains and losses between the prior calculation date and the calculation date
- External user report should include wind up date, calculation date, cutoff date and report date

## **6. Continued**

- Describe the events precipitating the wind-up of which the actuary is aware, that affect the terms of the wind-up, benefit entitlements or valuation results.
- Describe membership data, including assumptions about missing data.
- Liquidation value of assets

## **7. Learning Objectives:**

6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.
7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.

### **Learning Outcomes:**

- (6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.
- (6b) Given a specific context, apply principles and features of supplemental retirement plans.
- (7a) Evaluate appropriateness of current assumptions.
- (7e) Select demographic and economic assumptions appropriate for a projection valuation.

### **Sources:**

DA-156-15: Moving from a DB Executive Retirement Plan

DA-135-13: Towers Perrin, The Handbook of Executive Benefits, Chapter 15 (Golden Parachutes) pp. 238-244 only

DA-155-15: TW Executive Retirement Benefits 2013: Recent Action and Design Considerations

DA-608-13: Funding Supplementary Pension Plans

DA-139-15: ASOP 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

DA-140-15: ASOP 27, Selection of Economic Assumptions for Measuring Pension Obligations

Morneau Shepell Handbook of Canadian Pension and Benefit Plans, 15th Edition Ch. 11



## 7. Continued

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Describe issues your client should consider when designing and implementing the SRP.

### **Commentary on Question:**

*Part (a) of this question requires candidates to describe issues a client needs to consider. Successful candidates were able to demonstrate their understanding of issues related to SRPs from multiple different perspectives – including plan provisions, accounting, HR impact.*

- It is essential to first determine the company's and the plan's overall objectives in order to craft the most effective and value-driven benefit.
- Accounting considerations – will need to measure DB SERP accounting under IAS
- Is company able to take on volatility of DB SERP liability? Liability will be subject to discount rates that change annually
- For public companies, how will expense impact earnings per share? How will SERP impact proxy disclosure?
- Review employment agreement to see if additional SERP benefit if change in control (that is if company taken over and executive is terminated)
- Tax considerations: Need to consider deductibility of employer contributions and the taxation of contributions and benefits to executive at the time of retirement
- Coordination with broad-based plans – The company already has a broad based plan. How should the SERP coordinate with the broad-based plan? Will it replace limited compensation using the same formula as the registered formula? Or will the gross SERP target a specific percentage of final average earnings and then be reduced with the registered plan formula and any other company provided benefits (ie, employer provided DC benefit)?
- HR considerations: What do competitors provide for their executive? Will the SERP attract and retain a mid-career executive? What is desired replacement ratio? What will perception be from lay employees?

## 7. Continued

- Detailed plan provisions:
    - Eligibility (Is SRP for named, specific individuals or all individuals over compensation limit?)
    - Compensation definition – same as broad based plan? Include or exclude particular pay codes, such as bonus?
    - How will service be credited – from date of hire with company or from date promoted to specific executive level? Long service employees may view the plan as inequitable, especially if past service is not fully granted. Will service be capped at a specific amount?
    - Retirement age – apply golden handcuffs?
    - Vesting – apply longer vesting period since not subject to registered plan rules – delay vesting until retirement eligible? Should vesting be accelerated if death or disability?
    - Form of benefit – allow same options as broad based plan or limit optional forms? Offer a lump sum provision? Consider 409A rules (US)
  - Funding considerations:
    - How will the plan be funded or financed: formally fund with irrevocable trust versus finance versus terminal funding, pay as you go.
    - Funding decision is affected by tax status of company
    - Affects benefit security for executive resulting in greater perceived value – need to consider if that is a desired goal for the company
    - If there is no pre-funding, company is choosing to push the responsibility for paying for today's benefits to future shareholders
- (b) Your client has asked you to perform a SRP liability forecast based on the assumptions used in the accounting valuation for the registered pension plan.

Critique the proposed method of selecting assumptions.

No calculations required.

### **Commentary on Question:**

*Part (b) of the question requires candidates to critique the use of accounting valuation assumptions for the general plan in a liability forecast for the supplemental plan. Successful candidates were able to identify the difference in demographics between the two plans which drive different applicable assumptions and also identify different assumptions used for an accounting valuation versus a liability forecast.*

## 7. Continued

Assumptions for an executive group might very well differ from those used for rank-and-file employees:

- Future salary growth – higher salary increase for executives might be expected. Consider whether bonus is part of SERP plan compensation and whether to have a salary scale for the base salary and a separate bonus assumption.
- Turnover – executive less likely to terminate due to golden handcuffs
- Retirement– SERP likely has a different unreduced retirement age than registered plan and SERP assumption should reflect SERP provisions.
- ASOP 35: Retirement/termination assumption should take into account the following, which are different between executives and the general staff population: occupation (i.e., if company a blue collar industry, would want to use White Collar table for executives), plan design/provisions (eligibility, vesting, early retirement)
- ASOP 27: Economic assumptions – (Salary scale as described above). Discount rate for SERP should reflect SERP benefit payments, rather than developed based based on registered plan's benefit payments
- Depending on the plan provisions, the assumptions required might not be exactly the same. For example, if the basic plan does not provide dual normal form but SERP does, proportion married and spousal age difference will be needed for a SERP valuation

While using accounting assumptions may provide a quick ball park for a forecast, assumptions should be trued up to be more realistic to forecast a more accurate cost for accounting impact. In addition, a separate forecast for the impact on company cash flow when executive retires should also be considered. It should also be noted that using registered plan's assumptions method to measure SERP liability forecast is used often for small plans without enough experience to justify other assumptions and when the executive population is similar to the rank & file demographics.

## 8. Learning Objectives:

2. The candidate will understand the impact of the regulatory environment on plan design.

### Learning Outcomes:

- (2a) Explain and apply restrictions on plan design features to a proposed plan design.

### Sources:

DA-160-16: OECD Pensions Outlook 2014

DA-114-13: Risk Management and Public Plan Retirement Systems

### Commentary on Question:

*This question tested candidates' understanding of the differences between Pay-as-you-go and Funded private pension systems, and how risks associated with population aging, poor financial market returns and low interest rates impact the two pension systems.*

*Successful candidates explained how each condition impacts each pension system, demonstrated an understanding of the differences between Pay-as-you-go public pension systems and Funded private pension systems and provided/described policy actions to help improve financial sustainability of public benefit pension systems.*

### Solution:

- (a) Explain how each of these conditions impact:
  - (i) Pay-as-you-go public pension systems
  - (ii) Funded private pension systems

### Population aging:

Population aging happens through both increased longevity rates and lower fertility rates.

- (i) Pay-as-you-go public pension systems:
  - Pay-as-you-go public pension systems are funded through resources generated by the working population. Lower fertility and thus a shrinking workforce will result in fewer workers per retired person to fund the benefits paid by these plans.
  - Increased longevity (higher life expectancy) means that retirees collect benefits for longer periods of time which results in increasing the cost of the plan.
  - Increased life expectancy increases the cost of indexing provisions that are common in public pension systems.

## 8. Continued

- As benefits under public pension systems are generous with their indexation, their large retirement benefits to compensate for the lower pay and lack of other compensation, and the fact that many public employees are not covered by Social Security, the cost associated with longevity risk is much more significant for pay-as-you-go public pension systems.

(ii) Funded private pension systems:

- As opposed to Pay-as-you-go public pension systems, funded private pension systems are not as impacted by lower fertility rates. If the plan is properly funded, the decrease in the workforce should not directly have an impact on the plan.
- Increased longevity (higher life expectancy) means that retirees collect benefits for longer periods of time which results in increasing the cost of the plan.
- Financial instruments are needed to facilitate the management of longevity risk which funded private pension systems are exposed to.
- Increased life expectancy increases the cost of indexing provisions that can be offered in funded private pension systems.
- Increased longevity also increases calculated liabilities for funded DB plans as new mortality tables are published, which impacts the cash cost of the plan

**Poor financial market returns**

(i) Pay-as-you-go public pension systems:

- As the plans are not pre-funded and hence, there are no assets invested as part of the plans, poor financial market returns should not really impact pay-as-you-go public pension systems.
- At times of financial stress, government tax revenues are reduced, which directly impacts these plans as taxes are their main source of funding.

(ii) Funded private pension systems:

- Poor financial market returns affect pre-funded plans by reducing asset returns and thus deteriorating the funded position of the plan. In addition, for privately sponsored plans, it affects the employer's ability to make contributions.

## 8. Continued

### Low interest rates

- (i) Pay-as-you-go public pension systems:
    - Traditional pay-as-you-go pension plans' liabilities are valued with expected long term returns. As a result, low interest rates have no direct impact on the liabilities. However, low interest rates result in higher lump sum values paid to plan members (if that payment option is offered).
  - (ii) Funded private pension systems:
    - Low interest rates generally increase funded defined benefit plans' liabilities. In addition, it will also increase the lump sum values paid to plan members (if that payment option is offered).
- (b) Describe possible policy actions to help improve financial sustainability of public defined benefit pension systems.
- Nominal benefit cuts
  - Increase taxes on pension income
  - Increase contributions to public systems
  - Reduce or defer indexation of retirement benefits
  - Increase the retirement ages and/or index future retirement ages to increase longevity
  - Curb administration costs of the systems
  - Incentivize working longer
  - Use de-risking strategies such as annuity purchase, LDI, etc.

## **9. Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.
9. The candidate will be able to apply the standards of practice and guides to professional conduct.

## **Learning Outcomes:**

- (1b) Given a plan type, explain the relevance, risks and range of plan features including the following:
  - (a) Plan eligibility requirements
  - (b) Benefit eligibility requirements, accrual, vesting
  - (c) Benefit/contribution formula, including the methods of integration with government-provided benefits
  - (d) Payment options and associated adjustments to the amount of benefit
  - (e) Ancillary benefits
  - (f) Benefit subsidies and their value, vest or non-vested
  - (g) Participant investment options
  - (h) Required and optional employee contributions
  - (i) Phased retirement and DROP plans
- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.
- (4b) Assess the risk from options offered, including:
  - (i) Phased retirement
  - (ii) Postponed retirement
  - (iii) Early Retirement
  - (iv) Option factors
  - (v) Embedded options
  - (vi) Portability options
- (9b) Explain and apply the Guides to Professional Conduct.
- (9c) Explain and apply relevant qualification standards.
- (9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

## 9. Continued

### Sources:

Embedded Options and Pension Plans, SOA Pension Section,

DA-142-15: ASOP 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the considerations under Actuarial Standard of Practice No. 4 when measuring plan provisions that are difficult to measure.

### Commentary on Question:

*In addition to identifying alternative valuation procedures such as stochastic modeling, candidates were required to identify plan provisions that are difficult to value and to describe the use of professional judgment and requirement for appropriate disclosures.*

- There are a number of plan provisions that are difficult to value using traditional techniques, such as the following: gain sharing provisions, floor-offset provisions, indexed provisions subject to a floor or ceiling, low frequency/high magnitude events like plant shutdown benefits
  - The actuary should consider using alternative valuation procedures (i.e., other than traditional single-point best estimate procedures)
  - The alternative valuation procedures include stochastic modeling, option pricing techniques or deterministic procedures with adjusted assumptions to account for valuation experience
  - The actuary should use professional judgment based on purpose of the measurement
  - The actuary should disclose the approach with any of the plan provisions that are difficult to value
- (b) Describe the risks faced by the plan sponsor and plan participants under each option.

### Commentary on Question:

*Successful candidates were able to describe the risks faced by both the plan sponsor and plan participants.*



## 9. Continued

### *Plan Sponsor Perspective:*

- Lump sum option exposes sponsor to anti-selection risk, because participants taking lump sums when in ill health or when interest rates are low
- Lump sum option exposes sponsor to liquidity risk. The plan sponsor must have liquid assets to pay lump sums when elected and this could impact other cash flow needs.
- Lump sum option protects sponsor from longevity risk to the extent utilized
- COL increases exacerbate the plans longevity risk by extending the tail of the benefit payment distribution
  - COL increases change the risk reward proposition related to taking investment risk as gains must be shared with the participant
- Floor offset plans expose the plan sponsor to investment risk in that when DC plan investments do not perform the DB floor will kick-in – in addition to the traditional investment risk of pre-funding the DB benefit
- Floor offset plans may limit the plan sponsors exposure to longevity risk by moving some of the retirement benefit to a DC plan

### *Plan Participant Perspective:*

- As the lump sum is optional it is hard to argue this exposes the participant to additional risks
- The participants intended retirement date may coincide with a time of high interest rates and low lump sum values
- If the participant takes a lump sum they will need to invest it throughout their retirement exposing them to investment risk and longevity risk
- A COL increase provides some inflation protection that is not present in an otherwise additional pension benefit, although the COLA is not tied to CPI so is not a pure inflation hedge
- The DB floor provides some protection against catastrophic investment outcomes
- Additional investment risk is present with the DC portion of the benefit

- (c) Recommend a methodology to value Option 2.

Justify your response.

### **Commentary on Question:**

*The solution below describes the methodology to value Option 2 as a call option. Other valid methodologies were also accepted. Candidates were granted partial marks for recommending a valid methodology to value Option 2, and full marks for justifying their choice of methodology.*

## 9. Continued

- This plan provision can be valued like a call option.
- Call options “pay off” only when the actual return exceeds a hurdle rate (strike price).
- There are closed-form option-pricing formulas that may be used to value call options.
- The formula requires assumptions about the risk-free rate of return, the volatility of the underlying investment, among others
- The riskier the underlying investments the more value will be placed on the call option.

## 10. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.

### Learning Outcomes:

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (j) Plan eligibility requirements
  - (k) Benefit eligibility requirements, accrual, vesting
  - (l) Benefit/contribution formula, including the methods of integration with government-provided benefits
  - (m) Payment options and associated adjustments to the amount of benefit
  - (n) Ancillary benefits
  - (o) Benefit subsidies and their value, vest or non-vested
  - (p) Participant investment options
  - (q) Required and optional employee contributions
  - (r) Phased retirement and DROP plans
- (3a) Identify risks face by retirees and the elderly.
  - (3c) Evaluate benefit adequacy and measure replacement income for members of a particular plan given other sources of retirement income.
  - (3d) Propose ways in which retirement plans and retiree health plans can manage the range of risks faced by plan participants and retirees.

### Sources:

DA-123-13: Replacement Ratio Study – A Measurement Tool for Retirement Planning

DA-151-14: The Real Deal: 2012 Retirement Income Adequacy at Large Companies, Highlights

The Next Evolution in Defined Contribution Retirement Plan Design

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the risks that impact an employee's ability to generate adequate retirement income through a defined contribution plan.

## 10. Continued

### **Commentary on Question:**

*Successful candidates listed and described the risks. Other applicable responses not shown below were awarded points.*

- Longevity Risk - risk that retiree will live longer than expected
  - Inflation risk – risk that future inflation may increase individual’s cost of living
  - Market risk - risk that investment income from assets is lower than expected
  - Health risk – risk that participant might have higher health expenses during retirement than budgeted for
  - Property risk – risk that retiree has property expenses during retirement (e.g., expensive house repairs)
  - Investment risk – risk that participants make poor investment decisions
  - Interest rate risk – risk that interest rates are low upon retiring causing the cost of annuitizing to be high annuity
  - Fraud risk – risk that participant may obtain misguided advice
- (b) Describe actions an employer can take to improve post-retirement income adequacy in a defined contribution plan.

### **Commentary on Question:**

*Successful candidates listed an action and justified the action by describing how it would increase improve post-retirement income adequacy. Other applicable responses not shown below were awarded points.*

- Adding automatic enrollment - ensures employees are saving for retirement
- Adding automatic escalation – helps employees save more than they otherwise might save
- Perform a back-sweep of eligible non-participants – captures employees that may not be saving
- Offer access to online investment advice – helps employees increase their financial knowledge, which in turns helps them make better investment decisions
- Offer a managed account option – helps prevent employees from making poor investment decisions
- Offer pre-mixed investment alternatives (such as target date funds) – helps prevent employees from making poor investment decisions
- Offer lifetime income options – helps mitigate longevity risk
- Match x% of employee contributions up to y% of pay – encourages employees to save more to get the company match; also increases the amount being contributed to employees’ accounts balances

## 11. Learning Objectives:

7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

- (7b) Describe and explain the different perspectives on the selection of assumptions.
- (7d) Recommend appropriate assumptions for a particular type of valuation and defend the selection.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.
- (8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

### Sources:

DA-143-13: Comparison of IAS 19, Rev. 2011 with FASB ASC 715

DA-611-13: Introduction (A58), IFRS1, paragraphs 1-40, Appendix A, Appendix D, D10 and D11 only, IAS19, IFRIC14

DA-136-16: Selection of Actuarial Assumptions, Consultant Resource Manual, SOA Version

DA-139-15: ASOP 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

DA-140-15: ASOP 27 Selection of Economic Assumptions for Measuring Pension Obligations

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the accounting treatment of this event under International Accounting Standard 19 and U.S. Accounting Standard ASC 715.

No calculations required.

### Commentary on Question:

*Candidates who performed well on part (a) of this question considered several factors of each accounting standard not just points of difference.*

## 11. Continued

### Event type

- Event is a curtailment under both standards

Under ASC 715 – curtailment defined as event that significantly reduces employees’ expected years of future service or eliminates future accrual of future defined benefits for a significant number of employees, whereas under IAS 19 a curtailment is defined as a significant reduction in the number of employees

### Timing

- Recognized on 9/30/2016 under both standards
- Reason for timing under ASC 715 is due do curtailment gain recognition when employees terminate or plan amended. Reason for timing under IAS 19 is recognition at earlier of curtailment date or termination benefits recognized
- If curtailment was a loss, ASC 715 would recognize at 3/31/2016 and IAS 19 would recognize at 9/30/2016

### Interim remeasurement

- Under ASC 715, liability remeasured as of 9/30/2016 using updated discount rate
- Under IAS 19, beginning of year discount rate used for interim remeasurements

### Gain/Loss

- Gain/loss amortization only under ASC 715
- Amortize using 10% corridor
- No amortization under IAS19

### Curtailment

- Under IAS 19, full change in liability is recognized in expense as a part of past service cost, but ASC 715 has several steps.
- Under ASC 715:
  - i. Decrease in liability used to offset unrecognized loss of the plan.
  - ii. Pro rata portion of unrecognized prior service cost recognized in expense
  - iii. Curtailment charge shown as separate line item, not a part of service cost

- (b) Calculate the revised 2016 Defined Benefit Cost and Other Comprehensive Income (OCI) under IAS 19.

Show all work.

## 11. Continued

### Commentary on Question:

*Successful candidates reflected the curtailment event as of the correct date, measuring the expense for the second part of the year using the beginning of year discount rate and showing all work. Credit was given for both simple and compound interest calculations. Credit was also given for interest cost calculations calculated by components as well as proration.*

Under IAS 19, current service cost includes interest to the end of fiscal year, while interest cost excludes interest on current service cost. Hence, prior to considering the location closure, the 2016 service cost and interest cost would be revised as follows:

2016 Service cost =  $\$108,792 \times (1 + 3.75\%) = \$112,872$  (increased by  $\$4,080$ )

2016 Interest cost =  $\$120,274 - \$4,080 = \$116,194$

Defined Benefit Obligation (DBO) rollforward to 9/30/2016 – (all components needed for the rollforward are from the case study)

DBO as of 1/1/2016 = 3,128,517

$\frac{3}{4}$  of 2016 Service Cost =  $\$84,654$

$\frac{3}{4}$  of 2016 Interest Cost =  $\$87,146$

$\frac{3}{4}$  of 2016 Expected Benefit Payments = 45,000

9/30/2016 Rollforward DBO =  $3,128,517 + 84,654 + 87,146 - 45,000 = 3,255,317$

Alternatively revised Interest cost for first 9 months of 2016

$= (\$3,128,517 - \$45,000/2) \times 3.75\% \times 9/12 = \$87,357$

9/30/2016 Rollforward DBO =  $3,128,517 + 84,654 + 87,357 - 45,000 = 3,255,528$

Interim remeasurements are based on beginning of year discount rate and DBO is not remeasured based on curtailment event date.

Full amount of the reduction in liability is recognized immediately in the defined benefit cost. Curtailment Gain = 1,000,000

DBO after curtailment =  $3,255,317 - 1,000,000 = 2,255,317$

Service cost for the remainder of the year following the curtailment

$= 25,000 * ((1 + .0375)/4) = 25,234$

Net Interest Cost for the remainder of the year following the curtailment

$= (2,255,317 - 15,000/2) * .0375 * .25 = 21,073$

(15,000 is  $\frac{1}{4}$  of 2016 expected benefit payment from case study)

Other Comprehensive Income (OCI)

Assuming no change in assumptions and without actual information for 2016, remeasurement amount is expected to be \$0

## 11. Continued

	2016 Expense	Jan - Sept	Oct - Dec	Revised 2016 expense
Current Service Cost	108,792	84,654	25,234	109,888
Past service cost due to curtailment	<u>0</u>	<u>0</u>	<u>(1,000,000)</u>	<u>(1,000,000)</u>
Service Cost	108,792	84,654	(974,766)	(890,112)
Interest Cost	120,274	87,146	21,073	108,219
Remeasurement	0	0	0	0
Total Cost/(Income)	229,066	171,800	(953,693)	(781,893)

- (c) Describe the assumption changes NOC should consider as a result of the location closure.

**Commentary on Question:**

*Successful candidates identified the relevant assumptions and provided support for an assumption change. Other suggested assumption changes were accepted beyond those listed below.*

A large shift in population change may change the demographic patterns of the group. As a result the following demographic assumption need to be review for potential updates: mortality, retirement, withdrawal, and disability.

Since the closure affects half of the salaried population consider reviewing the demographic assumptions of other plans as well such as Full-Time Salaried Pension & Salaried Supplemental Retirement Plan.

Changing population may impact the duration and cash flows from the plan, therefore the discount rate selection may shift as a result of the closure.

After a significant closure, management may consider altering their plan for future salary increases. The new policy should be reviewed and the assumption updated as appropriate.

The remaining population after the closure may have different spousal characteristics than the group as a whole; the data for the remaining employees should be reviewed. This could impact the percent married assumption and spousal age difference assumption.



## 12. Learning Objectives:

4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.

### Learning Outcomes:

- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.
- (4b) Assess the risk from options offered, including:
  - (i) Phased retirement
  - (ii) Postponed retirement
  - (iii) Early Retirement
  - (iv) Option factors
  - (v) Embedded options
  - (vi) Portability options
- (4c) Recommend ways to mitigate the risks identified with a particular plan feature

### Sources:

DA-154-15: Implementing Early Retirement Incentive Programs: A Step-by-Step Guide  
Fundamentals of Private Pensions, McGill, 9<sup>th</sup> Edition, Ch. 5

### Commentary on Question:

*The question was testing candidates understanding of the steps involved in implementing an early retirement incentive program. To receive full credit, candidates were required to explain each step. Advantages and disadvantages in part (b) were to be from the perspective of the Company, rather than the employees.*

*ERIP means early retirement incentive program.*

### Solution:

- (a) Describe the steps involved in implementing an early retirement incentive program.

#### Commentary on Question:

*To receive full marks, candidate was required to identify and provide an explanation of each step.*

- 1) Determine the eligible group
  - first, determine the business objectives and goal of the ERIP, then determine the demographic you are trying to target
  - make sure you comply with any legal or anti-discrimination requirements
- 2) Determine the retirement effective date
  - usually it is the last day of work

## 12. Continued

3) Determine the length of the retirement incentive window

- the window is the period of time an employee has to decide to accept the offer (example: 45 days)
- consider the timing of the window, will it conflict with other business initiatives

4) Determine the program offerings

- incentives should be attractive to participants but not cost prohibitive to the organization
- Could offer enhancements to the pension plan such as an age credit, service credit or better early retirement factors (ERFs)
- Could extend health insurance coverage
- Could provide a termination incentive bonus or other lump sum payment

5) Analyze program costs

- calculate the cost of the expected payments outside of the pension plan, other termination benefits or incentives and compare to the savings you expect
- do a few years of projections, look at both on a cash basis and accounting basis
- consider the cost of new hires or replacement employees

6) Prepare the release waivers

- waiver is to limit the employee's ability to take legal action
- should be reviewed by a lawyer

7) Prepare the announcement/communication

- ensure the communication is clear

Include the following statements:

- that the company has no plans to offer other programs in the future but reserves the right to
- continued employment is never guaranteed

8) Make the announcement

- consistent message to all employees
- also consider how to support employees and answer questions once the announcement is made

(b) Describe the advantages and disadvantages of implementing an early retirement incentive program from the company's perspective.

### **Commentary on Question:**

*Advantages and disadvantages were from the company's perspective. No points were awarded for listing advantages/disadvantages solely to the employees. Candidates had to list both advantages and disadvantages to receive full marks.*

## 12. Continued

### Advantages:

- Can reduce payroll and, therefore, reduce costs if higher salaried employees are replaced with lower salaried employees.
- May reduce or eliminate the need to do involuntary reductions which can be worse for employee morale
- Can target specific eligibility group or groups of employees
- Supports business initiatives and the reason for doing the reduction
- Cooperative way for the company to meet their objectives while also supporting employees who want to move into retirement by giving them an incentive and a choice
- Reduces risk of legal action because the waivers can protect against litigation
- Provides incentives to encourage employees to retire earlier than they might have otherwise. These employees might now be able to afford to retire early but they can now with the ERIP

### Disadvantages:

- Cannot pick/choose who takes the incentive, so individuals that you wanted to leave will stay; individuals you wanted to stay will leave
- Loss of key talent or skills, may reduce productivity and efficiency
- If not enough people choose the ERIP, then involuntary reductions may still be needed
- The process to develop a ERIP takes time and requires a lot of administration
- Depending on the incentives offered, the ERIP could increase the costs or liabilities of other programs. For example, healthcare costs if health coverage is offered as an incentive
- The effectiveness of the program and final costs will depend on how many employees take the ERIP vs. the number you expected