RET DAC Model Solutions
Spring 2017

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.

9. The candidate will be able to apply the standards of practice and guides to professional conduct.

Learning Outcomes:

(8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

(9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

Sources:

DA-615-14 CIA Standards of Practice for Post-Employment Benefit Plan 6000-6600

DA-168-17: IFRS and US GAAP: Similarities and Differences, Chapter 5 only

Solution:

(a) Identify information you will need to perform an accounting valuation for a post-retirement non-pension benefit (PRB) plan, based on the CIA Standards of Practice.

Need to determine the plan provisions with sufficient accuracy.

- Sources of information on plan provision include:
  - Current plan documents,
  - Funding or underwriting agreements,
  - Collective bargaining agreements,
  - Information regarding past practices,
  - Cost sharing arrangements between the plan sponsor(s)/plan administrator and plan members, and
  - Communication between the plan sponsor/plan administrator and plan members.

1. **Continued**

- Need to gather current members' data.
- Need to gather historical claims experience, such as nature of absence and benefit levels.
- Actuarial cost method
- Assets valuation method
- Anticipated amendment or deferred recognition of a pending amendment
- Assumptions
- Expenses

(b) Describe the differences between U.S. accounting standard ASC 715 and international accounting standard IAS 19, Rev. 2011 when accounting for an unfunded retiree group benefit plan.

Recognition of re-measurements/gains and losses:

- Under IFRS, the effects of re-measurements (which include actuarial gains/losses) are recognized immediately in other comprehensive income (OCI) and are not subsequently recycled through the income statement.
- Under US GAAP, these gains/losses are recognized in the income statement either immediately or in the future. It amortizes amounts outside of a corridor over average future service of active participants (or life expectancy if mostly inactive population). Immediate recognition through P&L is also permitted. If gain/loss is amortized, the unamortized amounts are part of AOCI.

Past service costs:

- Under IFRS, all prior service costs (positive or negative) are recognized in profit or loss when the employee benefit plan is amended and are not allowed to be spread over any future service period, which may create volatility in profit or loss.
- This is different from US GAAP, under which prior service cost is recognized in OCI at the date the plan amendment is adopted and then amortized into income over the participants' remaining years of service, service to full eligibility date, or life expectancy, depending on the facts and circumstances. It is a part of past service cost.

Presentation of Net Benefit Pension Cost:

- Under IFRS, there is no requirement to present the various components of pension cost as a net amount. As such, companies have flexibility to present components of net benefit cost within different line items on the income statement. Components recognized in determining net income (i.e., service and finance costs, but not actuarial gains and losses) may be presented as
  i. a single net amount (similar to US GAAP) or
  ii. Those components may be separately displayed.

1. Continued

- Under US GAAP, all components of net benefit cost must be aggregated and presented as a net amount in the income statement. Although it is appropriate to allocate a portion of net benefit cost to different line items (such as cost of goods sold or general and administrative expenses, based on which line items for other employee costs are included), disaggregating the components of net benefit cost is not permitted.

Settlements:

- Fewer settlements may be recognized under US GAAP (because of an accounting policy choice that is available under US GAAP but not IFRS). Under US GAAP, a settlement gain or loss normally is recognized in earnings (AOCI) when the settlement occurs. However, an employer may elect an accounting policy whereby settlement gain or loss recognition is not required if the cost of all settlements within a plan year does not exceed the sum of the service and interest cost components of net benefit cost for that period. If the settlement does exceed the threshold, then a pro-rata portion of the unrecognized gain/loss would need to be recognized in the P&L expense based on the amount settled as a percentage of the PBO immediately before the settlement. Also, for US GAAP, a partial settlement of any one participant's obligation is generally not allowed.
- Under IFRS, a settlement gain or loss is recognized when the settlement occurs. If the settlements are due to lump sum election by employees as part of the normal operating procedures of the plan, settlement accounting does not apply. Also, a partial settlement occurs if a transaction eliminates all further legal or constructive obligations for part of the benefits provided under a DB plan.

Curtailments:

- Under US GAAP, a curtailment is defined as an event that significantly reduces the expected years of future service of present employees or eliminates for a significant number of employees the accrual of defined benefits for some or all of the future service. Curtailment losses should be recognized when it is probable that a curtailment will occur. Curtailment gains are recognized when realized (i.e., once the terminations have occurred or the plan amendment is adopted).
- Under IFRS, the definition of a curtailment is limited to "a significant reduction by the entity in the number of employees covered by a plan". Curtailment gains and losses should be recorded when the curtailment occurs.

2. 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.

(8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

Sources:

Duration and convexity for pension liabilities, pension section news issue #81 September 2013

Commentary on Question:

Successful candidates identified formulas and showed all calculations.

For part c), candidates needed to determine the present value of the cash flows at two different discount rates other than 5%. The model solution has determined the present values of the cash flows at +/- 1% (i.e. at 4% and 6%) from 5%. Candidates who used other spreads were also given full credit.

Solution:

(a) Macauley duration

Present Value (PV) of cash flows at 5%:

Date	Amount	Year Discounted	PV CF*
1/1/2018	100,000	1	95,238
1/1/2020	200,000	3	172,768
1/1/2021	50,000	4	41,135
1/1/2025	1,000,000	8	676,839
1/1/2030	100,000	13	53,032

*PV CF = Amount x (1.05)^(- Year Discounted)

PV at 5% = 95,238 + 172,768 + 41,135 + 676,839 + 53,032 = 1,039,012

2. **Continued**

PV of cash flows at 5% weighted by time:

Date	PV CF	t	PV CF x t
1/1/2018	95,238	1	95,238
1/1/2020	172,768	3	518,303
1/1/2021	41,135	4	164,540
1/1/2025	676,839	8	5,414,715
1/1/2030	53,032	13	689,418

PV at 5% weighted by time = 95,238 + 518,303 + 164,540 + 5,414,715 + 689,418 = 6,882,214

Macauley duration = PV at 5% weighted by time / PV at 5%
= 6,882,214 / 1,039,012
= 6.62

(b) Modified duration

Modified duration = Macauley duration / (1+ i / Payments per year)

i = 5%
Payments per year = 1

Modified duration = 6.62 / 1.05 = 6.31

(c) Effective duration

The present value of cash flows must be calculated at equal incremental changes in the discount rate.

2. Continued

Date	Amount	Year Discounted	PV CF + 1%*	PV CF - 1%**
1/1/2018	100,000	1	94,340	96,154
1/1/2020	200,000	3	167,924	177,799
1/1/2021	50,000	4	39,605	42,740
1/1/2025	1,000,000	8	627,412	730,690
1/1/2030	100,000	13	46,884	60,057

*PV CF + 1% = Amount x (1.06)^(- Year Discounted)
**PV CF - 1% = Amount x (1.04)^(- Year Discounted)

PV CF + 1% = 94,340 + 167,924 + 39,605 + 627,412 + 46,884 = 976,164
PV CF – 1% = 96,154 + 177,799 + 42,740 + 730,690 + 60,057 = 1,107,441

Effective duration = (PV CF - 1% - PV CF + 1%) / (2 x PV at 5% x 1%)
= (1,107,441 - 976,164) / (2 x 6,882,214 x 1%)
= 6.32

(d) Convexity

Show all work.

Convexity = (PV CF - 1% + PV CF + 1% - 2 x PV at 5%) / (2 x PV at 5% x $(1\%)^2$)
= (1,107,441 + 976,164 – 2 x 6,882,214) / (2 x 6,882,214 x 0.0001)
= 26.86

3. 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:

(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

(3c) Evaluate benefit adequacy and measure replacement income for members of a particular plan given other sources of retirement income.

Sources:

DA 110-13 Integration with social security study note

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Calculate the projected replacement ratios at retirement for Employee H and Employee S from the DC plan.

Commentary on Question:

Candidates must show all work in order to get full credit. No points were awarded for including social security benefits at retirement in the replacement ratio calculation. Candidates could assume future DC contributions were made at the end of the year, or equally throughout the year, so both end of year interest and middle of the year interest assumptions received full points.

Employee S:

1. Estimate DC balance at retirement = current DC account balance accumulated with interest + future contributions with interest
   DC pension includes bonus for employee S

3. **Continued**

Current DC balance accumulated with interest =
= 225,000 x (1.05^15) = 467,759

Future contributions with interest (assumes DC contributions are made at the end of the year =
= (100,000 + 25,000) x 0.12 x [(1.05^14) + 1.03*(1.05^13) + . . . + (1.03^14)]
= 15,000 x [this is the future value of an increasing annuity]
= 15,000 x (1.05^15) x [1 – (1.03/1.05)^15] / (0.05 – 0.03)
= 15,000 x 26.04804
= 390,721

Total DC balance at retirement = 467,759 + 390,721 = 858,480

2. Annuitize the DC balance = 858,480 / 13 = 66,037

3. Calculate income at retirement (age 64) =
   = (100,000 + 25,000) x (1.03^14)
   = 189,074

4. Calculate replacement ratio = 66,037 / 189,074 = 35%

Employee H:

1. Estimate DC balance at retirement = current DC account balance accumulated with interest + future contributions with interest
   DC pension excludes overtime for Employee H

   Current DC balance accumulated with interest =
   = 130,000 x (1.05^23) = 399,298

   Future contributions with interest (assumes DC contributions are made at the end of the year =
   = (60,000 + 0) x 0.12 x [(1.05^22) + 1.02*(1.05^21) + . . . + (1.02^22)]
   = 7,200 x [this is the future value of an increasing annuity]
   = 7,200 x (1.05^23) x [1 – (1.02/1.05)^23] / (0.05 – 0.02)
   = 7,200 x 49.820816
   = 358,710

   Total DC balance at retirement = 399,298 + 358,710 = 758,008

2. Annuitize the DC balance = 758,008 / 13 = 58,308

3. Continued

3. Calculate income at retirement (age 64) =
   = (60,000 + 10,000) x (1.02^22)
   = 108,219

4. Calculate replacement ratio = 58,308 / 108,219 = 54%

(b) Compare and contrast the direct versus indirect method of integrating the DC plan with Social Security.

Commentary on Question:
The question asked for methods of integrating the DC pension plan with social security; no points were awarded for discussing methods of integrating a DB pension plan.

The **Direct Method** of integrating the DC plan with social security is the contribution offset method.
Example: change the contribution formula to be (12% - X%) below the Social Security wage threshold and 12% above the wage threshold.

- The direct method addresses the disparity of social security benefits relative to earnings for higher income individuals

The Indirect Method is to lower the DC contribution percentage based on the average employee and the company's target replacement ratio.
Example: change the contribution formula to be 7% for all covered earnings

- The indirect method does not address the skew of social security benefits. Social security benefits have a higher value and provide a higher replacement ratio for lower income individuals
- The indirect method may be easier to administer

Another Indirect Method is to opt out of Social Security and provide a benefit at least as good.

(c) Recommend an employer contribution formula to integrate the DC plan with Social Security using the direct method that results in the same replacement ratio at retirement age for Employee S and Employee H.

Show all work.

Commentary on Question:
Part (c) was a defective question. Partial credit was given for attempting to answer the question. The defective question was factored into the final pass mark so that nobody was penalized for not attempting to answer the question.

4. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.

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:

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
(e) Other alternative retirement plans

(7d) Recommend appropriate assumptions for a particular type of valuation and defend the selection.

(7e) Select demographic and economic assumptions appropriate for a projection valuation.

(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.

(9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

Sources:

DA-137-13: Pension Projections

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

DA-611-13: Introduction (A58), IFRS1, paragraphs 1-40, Appendix A, Appendix D, D10 and D11, IAS 19, IFRIC14

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

4. Continued

Commentary on Question:
For parts a) and b), successful candidates provided not only the affected assumptions, but also the rationale and some explanations surrounding the impact of these assumptions on the DBC.

Solution:
(a) Identify assumptions that may be affected by the economic downturn.

Commentary on Question:
To receive full credit, candidates needed to identify 5 relevant assumptions.

- Discount rate
- Salary scale
- Withdrawal/termination rates
- Retirement rates
- Inflation
- YMPE/ITA limit increase
- New entrant assumption

(b) Evaluate four key assumptions from part (a) with respect to:

(i) Potential change in assumption

(ii) Impact on Defined Benefit Cost

No calculations are required.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible scenarios. Successful candidates provided an explanation to support the potential change in assumption and the corresponding impact on DBC.

(i)

- Discount rate: The discount rate may decrease from its current level as the economy declines because the yield curves allowed for creating the discount rates have shifted downward.
- Salary scale: The salary scale may decrease from its current level because the company is unable to provide the same pay increases as have been provided historically

4. **Continued**

- Withdrawal/termination rate: The withdrawal rate may increase if the company determines that it will need to lay-off staff as economic conditions worsen. *(Another valid response would be to explain that withdrawal rates could decrease if participants are unable to forfeit their current jobs as a result of less jobs being available during the market downturn.)*
- Inflation rate: The inflation rate may decrease, as the economy continues to decline since this assumption is linked to the ongoing health of the economy. This rate may also be linked to the salary scale.

(ii) Impact to **DBC** due to change in:

- Discount rate: A decrease in discount rate will increase the DBC because account balances receive less discounting and the present value of the liability will be higher.
- Salary scale: A decrease in salary scale will decrease the DBC because in an open plan, the liability will decrease when pay increases are projected to be lower.
- Withdrawal/termination rate: An increase in withdrawal rate will decrease the DBC because the liability will decrease due to a higher number of leavers who are not vested or with potentially higher earnings compared to new entrants. *(Per comment above, another justification could have been provided for a decrease in withdrawal rates.)*
- Inflation rate: A decrease in inflation rate will decrease the DBC. Inflation is tied to the salary scale assumption and a decrease will impact the liability/service cost as benefits won't increase as much.

(c) Propose two disclosure statements that should be added to the email, taking into consideration the Canadian Institute of Actuaries Standards of Practice.

Commentary on Question:
Successful candidates provided two detailed disclosure statements to be added to the email. The solution below is a sample and not intended to be an exhaustive list of possible statements.

4. **Continued**

(1) Future actuarial measurements may differ significantly from the measurements presented here due to (but not limited to) such factors as the following:

a. Plan experience differing from that anticipated by the economic and/or demographic assumptions
b. Changes in economic or demographic assumptions
c. Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period)
d. Changes in plan provisions or applicable law

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

(2) In conducting the calculations, we have relied on personnel, plan design, and asset information supplied by ABC company as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

5. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.

Learning Outcomes:

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

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

Sources:

DA-112-13 Converting Pension Plans from a DB to a DC Design

DA-619-17 CAPSA Guideline No. 8 Defined Contribution Plans

Commentary on Question:

The question was testing the candidate's knowledge on adverse amendments how they could apply to a DB to DC conversion.

Successful candidates were able to identify how members' rights and obligations were negatively affected and propose corrective measures to the proposals.

Solution:

(a) Define an adverse amendment according to the *CAPSA Guideline No. 8: Defined Contribution Plans*.

5. Continued

An Adverse Amendment is:
1) An amendment made to the pension plan;
2) Which negatively (adversely) affects;
3) The prospective benefits, rights, and/or obligations;
4) Of members or other persons entitled to payments from the fund.

(b) Critique each proposal taking into account adverse amendment guidelines according to *CAPSA Guideline No. 8*.

Critique of Proposal #1

- Employee contributions rate increase prospectively (i.e. prospective benefit is adversely affected)
- In order for employee to achieve the same level of matching, employees would need to elect to contribute more (i.e. employees obligation is adversely affected)
- Proposal #1 would provide a lower replacement ratio which may not be a reasonable replacement ratio after a full career based on a deterministic projection when compared to the existing DC plan design
- Employer match percentage decreases prospectively
- Employer contributes less at every point under the new contribution formula as compared to the old contribution formula
- An automatic, uniform employer contribution for all employees usually suggests the employer's focus in offering a plan that provides a reasonable level of retirement savings for its employees regardless of the employees' ability or desire to save. However, Proposal #1 is disadvantageous to employees that are unable or unwilling to contribute the higher amount to achieve the same dollar level of employer matching contribution
- Employee participation in the plan could possibly decrease if Proposal #1 results in more employees electing 0%

Critique of Proposal #2

- Could be considered adverse if the lump sum value of the annual DB benefit provided for the current year is less than the employer matching DC contribution
- Not all employees would be adversely affected as the lump sum value of the annual DB benefit in Proposal #2 compared with the old DC plan provisions would depend on several factors – member's age, pensionable salary, member's gender, and prevailing interest rates.

5. Continued

- Employee participation in the Proposal #2 plan would <u>increase</u> compared with the existing plan design due to the change to a mandatory participation (i.e. pension coverage would increase)
- Employee need to contribute more to receive a benefit from the pension plan since employee contributions increased from 0-6% voluntary to 6% mandatory
- Employees have more restrictive retirement options (i.e. Life Only pension is the only form of pension allowed) when compared to the decumulation options available for DC plans
- The conversion from DC to Proposal #2 suggest the employer's focus in offering a pension plan that provides a reasonable level of retirement income regardless of the employees ability or desire to save. For example, employees who elected 0% in the old DC plan arrangement are not negatively/adversely affected with respect to their <u>benefit</u> as they are gaining pension coverage. However, these members are negatively/adversely affected with respect to their <u>rights and obligations</u> because they are required, as a condition of employment, to participate in the new DB pension plan (Proposal #2)

(c) Revise each proposal, if necessary, to avoid an adverse amendment.

Justify your response.

For **Proposal #1**:

Revise the employer matching formula to ensure that the members' prospective benefits are either preserved or enhanced by:

- Keeping old uniform matching of 50% or revising the matching formula upwards; and/or
- Provide an automatic employer contribution that is graded by years of service or by age plus service points; and/or
- Different tiers of matching formula depending on the contribution percentage elected (e.g. matching percentage between 6% - 9% would attract a higher amount than the lower percentages; and/or
- Automatic employer contributions paid for certain tiers if specific business results are achieved

5. **Continued**

Revise the employee contribution formula so that the members' rights and obligations are not adversely affected by:

- Making employee contributions voluntary between 6% - 9% level (i.e. not required) with 50% or higher matching between 0% - 6%
- Lower the amount of employee required contributions or make the plan non-contributory with employer contributions automatic

For **Proposal #2**:

- Decrease the required employee contributions rate or make it non-contributory
- Increase the DB accrual rate to a level where the value exceeds the annual matching contributions
- Increase the level of ancillary benefits (death benefits, indexation, early retirement benefits, temporary bridge pensions, form of pension)
- Provide comparable payout options.

Other modifications that could be considered (applies to both Proposal #1 and Proposal #2):

- Grandfathering of the existing DC provisions with changes only affect new hires after implementation; and/or

Data analysis of actual elections can assist and inform in the selection of the correct threshold in order to see if changes would actually affect member benefits/rights/obligations adversely

6. Learning Objectives:

6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.

Learning Outcomes:

(6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.

Sources:

DA-802-13 Internal Revenue Code 409A and Non-Qualified Plan Design Considerations

DA-621-17 US Tax Rules Impact Canadian-Sponsored Plans

Commentary on Question:

Successful candidates described the implications of terminating the plan as these relate to 409A.

Solution:

Describe the implications of terminating the non-registered retirement plan from the perspective of the employees who file U.S. taxes.

- When distributed, amounts are fully and immediately taxable to the employee
- The employee will receive a full benefit distribution between 13th and 24th months because the employer will need to leave plan in place for 12 months.
- As long as the employer meets the 409A requirements for voluntary plan termination, the distribution will not be subject to the additional 20% penalty tax or other penalties
- Employees will have lower tax-deferred retirement income since past service benefits are cashed out
- Employees will not be covered under a new NQDB for at least 3 years since the employer is forbidden from establishing a new one
- Plan termination may cause benefits competitiveness, morale and/or retention issues for employees and they may consider other employment

Other implications which received credit include but are not limited to:

- Employees will need to save/manage their distribution for future retirement
- Any other nonaccount balance plan subject to 409A sponsored by the employer will also need to be terminated, with comparable implications on employee as above

7. 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:

(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:

Pension Risk Transfer_Evaluating Impact and Barriers for De Risking Strategies 16, 17, 20-27

DA-157-17: PWC IFRS Manual of Accounting (paragraphs11.1 – 11.10 (Intro), 11.53-11.63 (termination benefits),11.63-11.260 (Post-employment benefits)

DA-616-15 CPA Handbook, Section 3462 & 3463

Solution:

(a) Describe reasons why the annuity buyout premium may be different from the accounting liability for retired members.

Commentary on Question:
Successful candidates provided details of assumption differences beyond just noting the risk premium.

- Insurers have access to more current mortality tables whereas accounting is more likely to use published tables
- Insurers consider investment fees in their assumptions
- Insurers consider administrative expenses in their assumptions
- Insurers require a risk premium since they want a profit

(b) Describe in words the impact of the annuity buyout on the 2017 Defined Benefit Cost and Other Comprehensive Income (OCI) under international accounting standard IAS 19, Rev. 2011 (IAS 19).

No calculations are required.

Commentary on Question:
None

7. **Continued**

- An annuity buyout is a settlement
- If the settlement premium is greater than the accounting liability settled then there is a settlement loss
- The settlement impact is included in the service cost and affects the P&L but not the OCI
- A mid-year remeasurement may be required
- Expense for the second part of the year after settlement uses beginning of year assumptions

(c) Compare the accounting treatment of the annuity buyout under IAS 19 and CPA Handbook, Section 3462.

Commentary on Question:
None

- Under both standards, it is a settlement
- Under both standards, the event is recognized at the date of settlement
- Under both standards, the gain/loss is the difference between the assets transferred and the liabilities recognized
- Under both standards, there is immediate recognition
- Under IAS 19, the gain/loss is recognized as service cost
- Under CPA 3462, the settlement gain/loss is recognized under "remeasurement and other items"

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Learning Outcomes:

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(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

Sources:

DA-603-13 CAPSA Guideline No. 3

DA-619-17 CAPSA Guideline No. 8: Defined Contribution Plans

Commentary on Question:

The question was testing the candidate's knowledge on the rights and responsibilities of plan sponsors and service providers with respect to Defined Contributions Plans.

Solution:

(a) Describe the responsibilities of Company ABC and DEF Administration with respect to the maintenance of member records under the *Canadian Association of Pension Supervisory Authorities* (CAPSA) guidelines.

Responsibilities of ABC Company

- The ABC Company can maintain the records internally; or
- They can engage a service provider for that service.
- ABC Company is responsible in deciding and determining whether or not it has the necessary knowledge and skills to carry out the record keeping function to meet the CAPSA guidelines and other relevant legal requirements

8. Continued

- ABC Company is responsible for determining the scope of services of the service providers
- If ABC Company does not have the expertise, it should use service providers.
- ABC Company is responsible for establishing the criteria used in the selection of the service providers;
- When the responsibilities are delegated, ABC company is still responsible for documenting the roles of the service provider
- ABC Company is responsible for establishing a document retention policy for the plan.
- The contents of a document retention policy include:
  - a description of the types of documents to be retained;
  - how long various types of documents should be retained; and,
  - who can access the documents.
- ABC company is responsible for providing the members with a statement of their account at least annually
- ABC Company should establish criteria for the periodic review of service providers and use these criteria to review the service providers it engages
- If a DEF Administration fails to meet the criteria established, ABC is responsible for deciding what action to take
- ABC Company remains responsible for overseeing the discharge of the record keeping task by monitoring the activities of DEF Administration
- ABC Company is responsible for the accuracy of each member's service and earnings, and any other information that is required by the DEF Administration.
- ABC company is responsible for providing this information to DEF Administration in a timely manner
- ABC should periodically review how well the plan's records are maintained and is responsible for taking prompt corrective action if required

Responsibilities of DEF Administration

- DEF Administration is responsible for having the appropriate level of knowledge and skill to perform the tasks delegated to them; and
- to provide any advice within their area of expertise if requested by ABC Company
- DEF Administration is responsible for following the CAPSA guidelines and any applicable legal requirements

  DEF Administration is responsible for adhering to the scope of services delegated to them by ABC Company as documented by the role and responsibilities.

8. **Continued**

(b) Describe the potential conflicts of interest from the perspective of:

(i) Company ABC

(ii) DEF Administration

Commentary on Question:
Note that some candidates indicated that being paid for services would constitute a conflict of interest situation, which is not a conflict of interest. Successful candidates addressed proper delegation of certain tasks, monitoring, and disclosure of information to plan members.

DEF Administration: Potential conflict of interest can arise if,

- DEF Administration exceeds the scope of the records maintenance agreement with ABC company;
- DEF Administration provides potentially biased investment advice/information to plan members on the selection of their investment products.
- DEF Administration provides decision making tools where actuarial assumptions are unrealistic
- The potential variability of outcomes are not explained to plan members on the selection of the decumulation products.

ABC Company

- ABC company is responsible for the investment information and the decision making tools provided to the plan members.
- Conflict of interest would exist if the responsibility is not properly documented and delegated to DEF Administration.
- ABC Company does not take appropriate action to address the real or perceived lack of independence of DEF Administration relative to other service providers.
- ABC cannot demonstrate the application of prudence to the investment of the pension plan assets

ABC potentially is not properly overseeing the discharge of the tasks by monitoring the activities of their 3rd party service providers

(c) Explain how the potential conflicts of interest can be mitigated from each company’s perspective.

8. Continued

Commentary on Question:
Successful candidates explained how the potential conflicts identified in part (b) could be mitigated. The solution focuses on proper disclosure and documentation of the delegated tasks between ABC and DEF.

ABC company could do the following to address the potential conflict of interest

- ABC Company can enter into a formal service agreement with DEF Administration to provide investment information and investment advice to plan members;
- If ABC Company decides to delegate the investment information and advise function to DEF Administration, ABC Company should ensure the costs associated with obtaining the decision-making tools and investment advise are structured so that there is no inherent incentive or disincentive for members (i.e. unbiased).
- If ABC Company decided not to delegate the investment advise function to DEF Administration, ABC Company should monitor the services provided by DEF Administration
- ABC Company should refer plan members to the service providers who are authorized to provide members with investment advice about their investment decisions.
- ABC Company should provide plan members with their rights and responsibilities under the DC plan

DEF Administration could do the following to address the potential conflict of interest

- DEF Administration should obtain proper delegation of the investment advice function from ABC company.
- DEF Administration should ensure they have the appropriate level of knowledge of skill to provide unbiased investment advice to the members.
- DEF Administration should disclose to the members, the relationship between the investment funds and DEF Administration.

  If the investment advice function is not delegated to DEF Administration, then DEF Administration should limit their services to recordkeeping only.

9. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.

Learning Outcomes:

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

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

Sources:

Fundamentals of Private Pensions, McGill, 9th Edition, Chapter 10

Retirement Plans – 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen 11th Edition, Chapters 2 & 17

Morneau Ch 10

Commentary on Question:

The question was testing the Candidates knowledge on the different types of MEPPs.

Solution:

(a) Describe the distinguishing features of the following types of multiemployer pension plans (MEPP):

(i) Classic MEPP

(ii) Public sponsored MEPP

(iii) Cooperative MEPP

9. Continued

(i) Classic MEPP
  a. Traditional MEPP established by trade unions (collective bargaining)
  b. Tend to be defined benefit plans
  c. Formula based on fixed dollar amount per month per year of service or hour worked
  d. Employer contributions fixed during bargaining period

(ii) Public sponsored MEPP
  a. Established by governments, agencies, boards, commissions, municipalities, universities, schools, hospitals, social services, and other government funded organizations [Do not have to list all, but should demonstrate that these are organizations with government funding/involvement]
  b. Many established by statute
  c. Tend to be career average or final average earnings plans
  d. Many are classified as Jointly Sponsored Pension Plans (JSPP)

(iii) Cooperative MEPP
  a. Established to achieve administrative efficiencies and economies of scale
  b. Differ from Classic in there is an absence of underlying collective bargaining agreement
  c. Arise in private sector due to industry affiliations or associations; Not for profit sector arise out of church or education affiliations

  Employer participation bargained on a unit-by-unit basis

(b) Compare and contrast the characteristics of a MEPP to a single employer pension plan.

- Plan Administration
  - Board of Trustees for MEPP and Administrator for SEPP
  - Board of Trustees usually comprised of equal union and employer (ER) representation
  - Union representation elected
  - ER representation typically appointed by bargaining association and often made up of senior management of largest employers
  - Like the Administrator for SEPP, Board of Trustees have fiduciary responsibilities to the members of the plans.
- Contributions
  - Typically only ER contributions are required for MEPPs vs. SEPP which may require employee contributions
  - Contributions are usually fixed based on most recent collective bargaining agreement (CBA)

9. **Continued**

- Funding rules
  - In some provinces SEPP and MEPP funding rules are the same
  - Actuary must demonstrate fixed MEPP contributions are sufficient to cover minimum required contributions
  - If not sufficient - MEPP Board of Trustees must submit an action plan to reduce benefit and/or increase contributions vs. increased ER contributions for SEPPs
  - Actuaries have generally developed more conservative funding methods for MEPPs in hopes of avoiding pension reductions due to poor market conditions and periods of employment slowdowns
- Target benefits
  - SEPPs offer a fixed pension amount
  - MEPPs offer a target benefit based on prescribed formula outlined in the plan terms. Amount of benefit may be less than or greater than target based on financial position of the plan.
  - Most jurisdictions allow for the Board of Trustees to reduce benefits for past and future service.
- Membership and worker mobility
  - Pretty much the same except a member of a MEPP can work for more than one participating employer during a single year or period to qualify for membership
- Benefit formulas similar for MEPPs and SEPPs
  - Final or career average pay, flat dollar benefit plans and DC plans
  - Service based on hours of work or hours of contributions. Can usually bank excess hours in one year for slow periods in others.
  - Service definition tends to be more liberal for MEPPs
- Ownership of funds and surplus while ongoing and at plan termination
  - SEPPs are required (in most legislation) to define who owns the surplus. In the absence of such provision, no withdrawals can be made.
  - MEPPs – surplus belongs to members (not employers or unions).
  - When a deficit arises, the administrator must take considerable steps to balance assets and liabilities.
  - Most jurisdictions require the actuary to file a report outlining possible remedial actions and administrator must act within a specified period of time (usually 6 months) by reducing or adjusting benefits.
- Pooling & shared administration costs
  - MEPPs offer economies of scale for many smaller employers (vs establishing their own SEPP)

Pooling of assets and longevity risks associated with DC plans are minimized and members generally can expect to receive a larger retirement income for their contribution dollars than a DC SEPP.

10. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified 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:

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

(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:

Managing Post-Retirement Risks, A Guide to Retirement Planning

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

Commentary on Question:

The purpose of this question was to test the candidate's ability to determine the post-retirement benefit plan expense for the following year. Given a special event (such as a plan amendment), a candidate should be able to identify the correct event and accounting treatment, advise the plan sponsor on what the impacts are and re-calculate the annual post-retirement benefit plan expense factoring in the impacts of the event.

10. **Continued**

Solution:

(a) Describe the advantages and disadvantages of Health Care Spending Accounts from both NOC's and their employee's perspective.

From NOC's perspective, below are the advantages and disadvantages of Health Care Spending Accounts (HCSAs):

<u>Advantages</u>
Risk/cost management: Annual subsidy has "cap" of $2,500 per member per year, which makes ongoing employer costs more predictable.
Flexibility: It becomes easier for NOC to control the cost of the plan by adjusting the annual subsidy rather than adjusting the cost-sharing provisions of a traditional health plan.

<u>Disadvantages</u>
HR impact: This could be seen by employees as an inferior benefit compared to traditional health care coverage.
Communication risk: A health care spending account might have a "use it or lose it" provision which needs to be communicated properly to members.

Below are the advantages and disadvantages of HCSAs from the employee's perspective:

<u>Advantages</u>
Continuation of an employer subsidy: This protects the employees from unexpected health care cost to a certain extent (up to $2,500 per year).
Flexibility: HCSAs allow employees to utilize subsidy for ongoing health care expenses, including claims and insurance premiums.

<u>Disadvantages</u>
Inadequate benefit: A health care spending account with an annual maximum of $2,500 might not provide enough protection against more expensive health claims – for instance, in cases of major illness.

No benefit indexation: A health care spending account might not provide enough protection against rising cost of healthcare services, if not indexed at a high enough trend rate.

Other complications: A health care spending account might have a "use it or lose it" provision that is more difficult to understand.

10. **Continued**

(b) Calculate the revised fiscal 2017 Defined Benefit Cost under international accounting standard IAS 19, Rev. 2011 reflecting the plan change.

Show all work.

<u>Calculate the expense for the 1st half of 2017</u>
= 108,792 / 2 (SC) + [3,128,517*0.0375/2+108,792*0.0375/2-60,000*0.0375/2/2] (IC)
= 54,396 + 59,117
= 113,513

<u>Roll-forward DBO to 7/1/2017</u>
= 3,128,517 + 108,792 / 2 (SC for 1/2 year) + 59,117 (IC for 1/2 year) – 30,000 (ben pmts for 1/2 year) = 3,212,030

<u>Impact of plan change</u>

- The plan change is a negative plan amendment that should be treated as a past service credit. It is recognized immediately in the Current Service Cost component of the P&L.
- Using 3.75% discount rate (1/1/2017 assumption) = $350,000. This is the amount that is recognized in the P&L as a past service credit.
- Using 3.50% discount rate (7/1/2017 assumption) = $365,000. The additional $15,000 due to the difference in discount rate is a remeasurement effect that should flow through OCI.

<u>Remeasured DBO at 7/1/2017 after plan change at 3.75%*</u>
= 3,212,030 – 350,000
= 2,862,030
* *Under IAS 19, Rev. 2011, the post-event expense is re-measured using the beginning of year discount rate.*

<u>Remeasured DBO at 7/1/2017 after plan change at 3.50%</u>
= 3,212,030 + 97,000 – 365,000
= 2,944,030

<u>Calculate the expense for the 2nd half of 2017</u>
Service Cost
= [108,792 – 80,000] x ½
= 14,396

Interest Cost
= [2,862,030 x 0.0375 + (108,792 – 80,000) x 0.0375 – 60,000 x 0.0375/2] x 1/2
= 53,640

10. Continued

Past Service Cost Recognized = (350,000)*
** PSC is recognized immediately in the Service Cost component of the expense (P&L) under IAS 19, Rev. 2011.*

<u>Determine year-end 2017 DBO</u>
Roll-forward post-plan change DBO at 3.50% from 7/1/2017:
= [(2,944,030 + (114,231 – 83,000) / 2) x (1 + .035/2) – ½ x (60000 x (1 + .035/2))]
= 2,981,177

Roll-forward beginning of year DBO using service cost, interest cost, benefit payments, and plan change components during the year before the impact of the discount rate change:
= 3,128,517 (BOY DBO) + 54,396 (SC 1/1-6/30) + 14,396 (SC 7/1-12/31) + 59,117 (IC 1/1-6/30) + 53,640 (IC 7/1-12/31) – 60,000 (BPs) – 350,000 (plan change)
= 2,900,066

Difference = 2,981,177 – 2,900,066 = 81,111. This is recognized in OCI.

(Gain)/Loss Recognized (through Other Comprehensive Income) = 81,111.

Total Expense for 2nd half of 2017
= 14,396 (SC) + 53,640 (IC) – 350,000 (PSC) + 81,111 (GL)
= (200,853)

Total Revised Expense for 2017 = 113,513 – 200,853 = (87,340)

11. 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.

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

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:

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

(3d) Propose ways in which retirement plans and retiree health plans can manage the range of risks faced by plan participants and retirees.

(4c) Recommend ways to mitigate the risks identified with a particular plan feature

(5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.

(5c) Assess the feasibility of achieving the sponsor's goals for their retirement plan

(5f) Design retirement programs that manage retirement risk and are consistent with sponsor objectives.

(5g) Design retirement programs that promote employee behavior consistent with sponsor objectives.

11. Continued

Sources:
Managing Post-Retirement Risks – Guide to Retirement Planning

Next Evolution of DC Plan Design – Vernon

New Retirement Plan Designs for the 21st Century

OECD Roadmap for the Good Design of Defined Contribution Pension Plans

Solution:
(a) Identify the risks of the proposed plan design, including risks specific to highly-paid and lower-paid plan participants.

Commentary on Question:
Successful candidates identified risks in the context of the plan design. The solution below is a sample and not intended to be an exhaustive list of possible risks.

Highly-paid
Will hit $20,000 cap and this may prevent employer or employee contributions
Contribution cap may prevent reaching target replacement ratio

Lower-paid
May not take advantage of matching if fail to enroll or set contributions too low
No Social Security in Gevrey, so no savings mean no retirement income

Common risks
Retirement income adequacy
Voluntary participation may result in low or no savings for some participants
Matching rewards only eager participants
Delayed retirement for non-savers
Not investing properly (investment risk)
Interest risk / annuity conversion risk
Longevity risk

(b) Describe six different ways participants can mitigate risks identified in part (a) above.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible ways to mitigation risks.

11. Continued

Saving enough/delaying retirement:
Highly-paid: consider saving outside plan if $20,000 cap will generate insufficient funds
Join plan, do not delay participation; savings will compound over time
Make maximum voluntary contributions to achieve maximum match
Wait for interest rates go up before purchasing an annuity

Manage investment risk:
Consider target date fund
Select investment options in accordance with risk profile with proper allocation to equities
Select funds with lower fees
Consider index fund option
Delay retirement

Manage longevity risk:
Determine required contribution rate to achieve desired replacement ratio
Take advantage of retirement income solutions, if offered
Use online decision tools
Do not take loans or hardship withdrawals
Use plan adviser services and support, if offered

(c) Recommend changes to the plan design that would help participants maximize retirement income.

Justify your response.

Make plan mandatory so all employees participate

Add required employee contributions (e.g., 6 or 8%) and allow for voluntary above required contributions. Ensures basic coverage for all.

Increase employer matching to 100% of required contributions. Ensures adequate coverage

Increase maximum employee contribution cap not to overly limit highly paid and low contributions as a percent of salary.

Higher match on lower contribution to encourage participants to put more money in.

Provide for DC supplemental retirement plan (SRP) for excess contributions of highly-paid, to prevent capping of contributions.

Provide auto-enrollment and auto-escalation, to avoid apathy and ensure contributions reach the highest level.

Provide for fast vesting and/or eligibility, to ensure retirement savings accumulate at beginning of employment and entitlement to savings is rapidly achieved.

Include an option to annuitize.
Comments related to improvements in investments: e.g. default portfolio, efficient investment options, guaranteed return

12. 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.

6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.

Learning Outcomes:

(5c) Assess the feasibility of achieving the sponsor's goals for their retirement plan.

(5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.

(6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.

Sources:

DA-802-13 (Internal Revenue Code 409A and Non-Qualified Plan Design Considerations; on US & CA)

DA-156-15 (Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan Parts 1, 2 and 5 only)

DA-125-13 (Should Variable Pay Count Toward Benefits Calculations?)

Commentary on Question:

Commentary is provided below each component.

Solution:

(a) Identify benefits and vesting options for the plan that will achieve the objectives of the compensation philosophy.

Justify your response.

Commentary on Question:

Candidates generally did well identifying and justifying performance plans where benefit levels or vesting was tied to achieving company goals. Successful candidates also identified and provided justification for a holdback plan.

The company could institute a performance plan where benefits and/or vesting could be tied to company performance.

As an example, the annual allocation to the DC plan could be a percentage of pay based on sales or revenue growth relative to target. In addition, vesting of the DC contributions could be variable based on revenue growth relative to target.

12. Continued

Both of these options align rewards from the DC to company performance.

Alternatively, Company XYZ could institute a holdback plan where benefits are subject to verification of business results.

A holdback provision could be implemented such that the contributions to the plan would not vest for a period of X years so that revenue can be verified. This rewards long-term sustained performance rather than short term results that could be manipulated in the executives favour.

(b) Describe considerations of including or excluding variable pay from the plan benefit formula from the perspective of Company XYZ.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible considerations.

Considerations for excluding variable pay:
- Excluding variable pay could significantly reduce the cost of the plan
- Excluding variable pay could significantly reduce cost volatility
- Excluding variable pay would make providing retirement estimates/administering the plan easier
- Money could be spent on other programs that have a better internal ROI for the company

Considerations for including variable pay:
- Including variable pay would results in more adequate retirement benefits for their employees and better tie retirement income to gross working income
- Variable pay may be included in order to be competitive in Company XYZ’s industry
- Including variable pay would increase the retirement benefit and may act as a retention tool for executives
- If variable pay is related to performance, including variable pay aligns with the company philosophy of tying rewards to performance

13. Learning Objectives:

9. The candidate will be able to apply the standards of practice and guides to professional conduct.

Learning Outcomes:

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

CIA Rules of Professional Conduct

Solution:

(a) Describe the rules of the Canadian Institute of Actuaries (CIA) Rules of Professional Conduct that may have been violated by the actuary.

Commentary on Question:
Successful candidates not only were able to identify the rules that were violated, but also provided descriptions which included the details of the rules.

<u>Professional Integrity</u>

Rule 1
A member shall **act honestly, with integrity and competence**, and in a manner to fulfil the profession's responsibility to the public and to uphold the reputation of the actuarial profession.

Annotation 1-1
A member shall perform professional **services with skill and care**.

13. Continued

Annotation 1-2
It is the professional responsibility of the member **not to be associated with anything which the member knows or should know is false or misleading**.

Annotation 1-3
A member shall not engage in any professional conduct involving **dishonesty, fraud, deceit or misrepresentation** or commit **any act that reflects adversely on the actuarial profession.**

Standards of Practice

Rule 3
A member shall ensure that professional services performed by or under the direction of the member **meet applicable standards of practice.**

Annotation 3-1
It is the professional responsibility of the member to **observe applicable standards of practice** that have been promulgated by a recognized actuarial organization for the jurisdiction in which the member renders professional services and t**o keep current regarding accepted principles and standards of practice** in the jurisdiction in which the member renders professional services

Control of Work Product

Rule 6
A member who performs professional services shall take reasonable steps to ensure that such **services are not used to mislead other parties or to violate or evade the law.**

Annotation 6-1
Material prepared by a member may be used by another party in a way that may influence the actions of a third party. The member should **recognize the risks of misquotation, misinterpretation or other misuse of such material and should take reasonable steps to ensure that the material is clear and presented fairly**

Annotation 6-2
Material prepared by a member should **identify the client or employer for whom it is prepared**. Such material should also identify the member as the source of the material, the **capacity in which the member has acted in preparing the material, any aspect of the professional services for which the member does not take responsibility**, and the extent to which the member or other sources will be available to provide the client or employer with supplementary information and explanation as appropriate.

13. **Continued**

(b) Describe the disclosures that should be contained in a report with respect to economic assumptions based on the Actuarial Standards of Practice No 27.

Communications—Any actuarial report prepared to communicate the results of work subject to ASOP No. 27 should contain the following disclosures with respect to economicassumptions:

- **Assumptions Used:** The actuary should describe each significant assumption used in the measurement and whether the assumption represents an estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof (1 pt). Sufficient detail should be shown to permit another qualified actuary to assess the level and pattern of each assumption.

- **Rationale for Assumptions**: The actuary should disclose the information and analysis used in selecting each economic assumption that has a significant effect on the measurement. The disclosure may be brief but should be pertinent to the plan's circumstances

- **Changes in Assumptions**: The actuary should disclose any changes in the economic assumptions from those previously used for the same type of measurement. The general effects of the changes should be disclosed in words or by numerical data, as appropriate. For assumptions that were not prescribed, the actuary should include an explanation of the information and analysis that led to the changes

- **Changes in Circumstances**:
  Communication and disclosures regarding changes in circumstances known to the actuary that occur after the **measurement date** and that would affect economic assumptions selected as of the **measurement date.**

(c) Describe the qualifying opinion statements the signing actuary should have included in the report for the discount rate assumption.

The discount rate assumption was set by Company XYZ's management. –OR- Company XYZ has selected the assumption, rather than myself, based on management's best estimate

The discount rate assumption significantly conflicts with what, in my professional judgment, would be reasonable for the purpose of the report.