

RET DAU Model Solutions

Spring 2022

1. 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.).
- (9d) Demonstrate compliance with requirements regarding the actuary's responsibilities to the participants, plan sponsors, etc.
- (9f) Recognize situations and actions that violate or compromise Standards or the Guides to Professional Conduct.

Sources:

SOA Code of Professional Conduct

DA-139-21: ASOP 35 – Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

DA-146-15: ASOP 6 - Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions

Commentary on Question:

See separate comments in each part

Solution:

- (a) List the communication and disclosure requirements of the Society of Actuaries Code of Professional Conduct for an actuarial report.

Commentary on Question:

Credit was given for responses that list the disclosure information in the SOA Code of Professional Conduct. Candidates were not asked to list disclosure requirements from the Standards of Practice nor requirements from legislation; those responses did not receive credit.

Candidates did relatively well on part a. Many candidates erroneously listed disclosure requirements that were not part of the SOA Code of Professional Conduct.

1. Continued

Communication is clear and appropriate to the circumstances and its intended audience

Communication satisfies applicable standards of practice

Clearly identifies the Actuary as being responsible for it

Indicate the extent to which the Actuary or other sources are available to provide supplementary information and explanation

Identify the principals for whom the actuarial communication is issued and describe the capacity in which the Actuary serves

Appropriate and timely disclosure of the sources of all direct and indirect material compensation (that the Actuary or the Actuary's firm has received, or may receive, from another party in relation to an assignment for which the Actuary has provided or will provide Actuarial Services to the Principal)

- (b) Describe the factors to consider in selecting the mortality assumption in accordance with Actuarial Standards of Practice No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations.

Commentary on Question:

Credit was given for responses that describe the factors in selecting the mortality assumption.

Candidates did a good job in attempting and identifying relevant factors. The majority of answers were similar in nature – i.e. credibility, mortality improvement scale, subgroups, etc. The solution shown below would have received full credit, but it is not an exhaustive list of acceptable answers.

Characteristics of employees and retirees: may be appropriate to select different mortality assumptions pre and post retirement

Size of the coverage population; e.g. for a small plan it may be reasonable to assume no pre-retirement mortality

If applicable, characteristics of disabled lives depending on the plan's definition of disability

Characteristics of different participant subgroups and beneficiaries

1. Continued

Consider using actual participant mortality data, to the extent it is fully or partially credible, versus published mortality tables

If the actuary selects a mortality table that is older (predates more recently published tables), then the actuary should disclose the rationale for use of such table

Should reflect the impact of mortality improvement both before and after the measurement date

- (c) Critique the appropriateness of the above assumptions based on Actuarial Standards of Practice No. 6, Measuring Retiree Group Benefit Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions.

Commentary on Question:

Credit was given for critiquing, which calls for an analysis of the strengths and weaknesses of each assumption. Candidates were generally strong in critiquing the retirement and mortality assumption, but not a lot of candidates were able to draw the connection between retirement and the eligibility of medical benefits.

The solution shown below would have received full credit, but it is not an exhaustive list of strengths and weaknesses. Other valid points also received credit.

Termination:

Unlike pension plans, participants who terminate prior to attaining age 55 with 10 years of service are not vested in the benefit and would not receive any benefits from the plan

No termination rates prior to retirement may overstate the liabilities by assuming all participants reach retirement eligibility

Retirement:

The retirement assumption is critical in retiree health plan measurements because of the higher level of primary coverage a retiree receives prior to becoming eligible for Medicare or provincial health care.

The retirement assumption of a single age (65) is not appropriate given plan members can retire at age 55 with 10 years of service and the cost of coverage prior to age 55 is higher than at 65

1. Continued

Mortality:

The proposed assumption does not include a provision for mortality improvements, which may not be appropriate

When the per capita health care costs are expected to increase during the projection period or when death benefits are being valued, the results of the measurement may be sensitive to the mortality assumption

Disability:

The disability assumption should be consistent with the coverage provided to disabled participants under the retiree group benefits plan such as when benefits are payable

Retiree participation rate (100%) and spouse/dependent participation (0%):

Assuming a retiree participation rate of 100% when retirees are responsible for 50% of health care costs (premiums) is most likely too high

2. 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
 - (j) Risk-sharing provisions
- (3a) Identify risks faced by retirees and the elderly.
- (3b) Describe and contrast the risks face by participants of:
- (i) Government sponsored retirement plans
 - (ii) Single employer sponsored retirement plans
 - (iii) Multiemployer retirement plans, and
 - (iv) Social insurance plans
- (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.
- (4c) Recommend ways to mitigate the risks identified with a particular plan feature

2. Continued

- (5d) State relationships or recognize contradictions between a sponsor's plan design goals and the retirement risks faced by retirees.
- (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.
- (5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.

Sources:

DA-164-17: Defined Contribution Plan Success Factors

DA-159-16: The OECD Roadmap for the Good Design of Defined Contribution Pension Plans

The Next Evolution in Defined Contribution Retirement Plan Design: A Guide for DC Plan Sponsors to Implementing Retirement Income Programs

Commentary on Question:

See commentary for each question part.

Solution:

- (a) Describe the risks of the proposed plan design from the perspective of plan participants.

Commentary on Question:

To receive full credit, candidates needed to describe risks from the perspective of plan participants. Successful candidates provided justifications for each risk that they identified. The following solution illustrates many applicable risks, but it is not an exhaustive list. Other valid risks which were described also received credit.

Voluntary contributions may result in some participants having low or no contribution balance in the plan.

Matching contributions on voluntary employee contributions only (i.e., no core company contributions) reward only eager participants.

May result in delayed retirement for low or non-savers.

2. Continued

Withdrawals increase the risk of insufficient funds at retirement.

DC plan exposes participants to investment risk compared to current DB plan design.

DC plan may expose participants to potential longevity risk compared to current DB design (payout options not defined).

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

Justify your response.

Commentary on Question:

To receive full credit, candidates needed to provide six plan design recommendations and provide justifications for each. The solution below is a sample and not intended to be an exhaustive list of possible responses. Other valid responses also received credit.

- The DC plan should be changed to include auto-enrollment (or mandatory enrollment) so that participation is automatic and will maximize participation.
- The DC plan should be changed to not allow withdrawals so that retirement savings and investment returns are maximized.
- The DC plan should be changed to allow for a higher company contribution maximum so that high earners (or higher savers) get a full match on more contributions.
- The DC plan could be changed to allow the company contribution to be stretched over more contributions – e.g., could be a lower match proportion to encourage participants to contribute more to maximize the match.
- The DC plan should be changed to provide a core company contribution without requiring participants to make additional contributions to increase retirement savings potential and ensure basic level of coverage for all.
- The DC plan should have auto-escalation features to maximize contributions.

3. 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:

- (8a) Perform valuations for special purposes, including:
 - (i) Plan termination/windup
 - (ii) Accounting valuations
 - (iii) Open group valuations
 - (iv) Plan mergers, acquisitions and spinoffs
- (8b) Analyze, recommend, and defend an appropriate funding method and asset valuation method in line with the sponsor's investment policy and funding goals.
- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8d) Advise plan sponsors on accounting costs and disclosures for their retirement plans under various standards and interpretations.
- (8e) Demonstrate the sensitivity of financial measures to given changes in plan design.
- (8f) Describe how a plan's funded status can impact union negotiations and multiemployer plans.
- (8g) Perform and interpret the results of projections for short and long range planning including the effect of proposed plan changes.

Sources:

Morneau Shepell, Handbook of Canadian Pension and Benefit Plans, 17th Edition, 2020
Ch. 6

Fundamentals of Retiree Group Benefits, Yamamoto, Dale H., 2nd Edition, 2015 Ch. 7 & 9 (pp. 308-339 and pp.350-357)

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

DA-185-20: Plan Curtailments & Settlements Under FASB ASC Topic 715 Relating to Plan Terminations, Part 1

DA-186-20: Plan Curtailments and Settlements Under FASB ASC Topic 715 Relating to Plan Terminations, Part 2

3. Continued

Commentary on Question:

Parts (a) and (b) were numerical questions and both were answered well. Successful candidates were able to show their calculations for the calculation of the 2023 net periodic pension cost. Some candidates struggled with the calculation of the amortization component.

Successful candidates for part (c) were able to discuss both short and long-term impacts of the change in relation to the financial accounting results.

There was a typo in the question; the 2022 average future working lifetime should have been 11.9, not 11.8. This value was not used in determining the 2023 net periodic pension cost, but if candidates attempted to match the 2022 amortization of gain/loss provided in the question, they would not have been able to do so.

Solution:

- (a) Calculate the 2023 Net Periodic Pension Cost under ASC 715 assuming no experience gains or losses.

Show all work.

Commentary on Question:

See above

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

- (b) Calculate 2023 Net Periodic Pension Cost under ASC 715 based on these new assumptions.

Show all work.

Commentary on Question:

See above

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

- (c) Describe the impact of these strategies on Company ABC's financial results under ASC 715 in the short and long term.

No calculations required.

Commentary on Question:

See above

3. Continued

Strategy 1: Moving a portion of their target asset allocation from equities to fixed income over a period of 3 years

Company ABC will need to re-evaluate the EROA assumption
Depending on the materiality of the change, the EROA assumption may decrease for future years beginning with the following year's expense
A reduction in the EROA will lead to an increase in the expense for future years
As a result of the de-risking, the expense will likely be less volatile in the long-term
Depending on how long Company ABC decides to phase in the reduction of the EROA assumption, there may be a mismatch between the actual return on assets and expected return on assets, which could lead to additional volatility in the balance sheet in the short-term
De-risking the assets may also lead to a more stable funding position and may lead to a reduction in contributions to the plan going forward

Strategy 2: Providing a one-time option to all terminated vested employees to receive a lump sum payment in lieu of future benefit

If the total lump sum payments are greater than the sum of service cost and interest cost, settlement accounting will be triggered.
Depending on how long the payments take to process, settlement accounting may affect multiple year-ends
Depending on the basis used to determine the lump sum payment, settlement accounting may result in additional gains/losses in the short-term when compared to the accounting liability held for these members
As part of settlement accounting, a portion of unamortized losses will also need to be reflected immediately, which may result in additional losses in the short-term
In the long-term, the reduction in the PBO will reduce the volatility in the balance sheet
The payment of lump sums will also reduce the asset base used for EROA and may increase the expense in the long-term

4. Learning Objectives:

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.
7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.

Learning Outcomes:

- (4c) Recommend ways to mitigate the risks identified with a particular plan feature
- (5d) State relationships or recognize contradictions between a sponsor's plan design goals and the retirement risks faced by retirees.
- (5f) Design retirement programs that manage retirement risk and are consistent with sponsor objectives.
- (5j) Advise a plan sponsor regarding the choice of design elements for their retiree health program.
- (7a) Evaluate appropriateness of current assumptions.

Sources:

DA-133-13: Ch. 34 of The Handbook of Employee Benefits: Health and Group Benefits

Fundamentals of Retiree Group Benefits, Yamamoto, Dale H., 2nd Edition, 2015.Ch. 1, 4 (excluding pp. 89-110), and 9 (pp. 308-339 and pp. 350-357)

DA-146-15: ASOP 6 - Measuring Retiree Group Benefit Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions

DA-823-21: 2019 Retiree Health Care Survey, Plan Sponsor Challenges and Market Opportunities

Commentary on Question:

Comments entered in each part. Overall question was fair and candidates did well.

4. Continued

Solution:

- (a) Describe how NOC and the participants of the NOC benefit plans are impacted by the following risks:
- (i) Health care inflation risk
 - (ii) Longevity risk
 - (iii) Retirement risk

Commentary on Question:

Healthcare inflation and longevity risk were answered well from both an employer and employee perspective.

(i) Health Care Inflation Risk

- Health care inflation – rising health care costs will increase the plan sponsor's costs and liabilities. Since NOC pays the full cost of health care benefits, NOC is exposed to health care inflation risk in the medical plan.
- Prescription drug costs – the rising cost of prescription drugs continues to be the primary driver of health care cost inflation (more expensive drugs and biologics)
- Since NOC pays 100% of the premiums/cost for the health plan, retirees and spouses are not exposed to health care inflation risk
- The medical plan does not have any measure in place to share the health care inflation risk with retirees (no copay, no deductible, no coinsurance, no lifetime maximum)

(ii) Longevity Risk

- There are no state provided health benefits, therefore, NOC's health benefits are first payer pre and post 65. Since the health benefits are paid for life, NOC is exposed to longevity risk or the risk that retirees live longer than expected which will increase NOC's costs and liabilities.
- NOC also pays health benefits to the spouse for life after the death of the retiree
- NOC is also exposed to longevity risk in the National Oil Pension Plan since benefits are paid for life and the normal form for married employees is a J&S 50%
- Participants do not take on longevity risk in either the pension or health care plan since benefits are paid for life in both cases.

4. Continued

(iii) Retirement Risk

- Since the pension plan allows for early retirement with an unreduced pension as early as age 62, and offers a subsidized early retirement reduction prior to age 62, NOC is exposed to risk of higher costs if employees retire earlier than the normal retirement date
 - There is some risk to employees that they have accumulated a large enough benefit at retirement (or early retirement) to maintain their standard of living;
 - However, once they retire then the investment and longevity risk in the pension plan is held by the plan sponsor (NOC)
 - For medical and life benefits, the plans cover the full cost so there is no risk to employees if they retire early or prior to 65 as long as they have met the eligibility (55 & 10 years)
- (b) Recommend four plan design changes to the National Oil Retiree Health Benefit Program to mitigate the impact of NOC's rising health care costs.

Justify your response.

Commentary on Question:

Most candidates were able to identify 3-4 options, however supporting commentary was not strong and many presented the same idea as two options, only receiving credit for one option. Other valid answers not listed below also received credit.

Option 1: cost sharing on annual premiums/costs (i.e., recommend less than 100% employer paid coverage)

- Introduce cost sharing for retirees and spouses
- Reduces health care costs as retirees contribute a portion of the cost to the plan to cover premiums
- Increases in health care costs, via rising premiums/annual costs, can be shared between retirees and plan sponsor
- Could introduce higher cost sharing for spouses to discourage spouses from participating in the NOC plan if they have coverage elsewhere
- Introducing retiree contributions, NOC might see lower participation rates if retirees have coverage elsewhere, which will reduce exposure to rising health care costs

4. Continued

Option 2: change eligibility for spouse coverage

- Recommend that spouse's coverage terminates upon death of eligible retiree
- Survivor provision where coverage continues for the life of the spouse means that the plan sponsor continues to be exposed to rising health care costs after the death of the retiree for the duration of the spouse's life
- If the spouses are on average younger than retirees, then NOC can expect to make payments for longer, increasing exposure to rising health care costs

Option 3: introduce out of pocket costs/user fees in the benefits

- Introduce a deductible, copay or coinsurance percentage
- All three options are a form of cost sharing where the retiree or spouse would have an out of pocket cost associated with their claims
- Fixed deductibles are not very effective at protecting against rising health care costs if they do not increase with inflation over time (they become a smaller and smaller portion of the total claim cost)
- A coinsurance percentage may be more effective since retirees will share in the exposure to rising health care costs, so that plan sponsor does not take all the risk
- When they are out of pocket a portion of the claim, the retiree may be incentivized to find a lower cost provider or seek a lower cost alternative, thus helping keep health care cost inflation in check

Option 4: cap exposure with a lifetime maximum

- Implement a lifetime maximum
- A lifetime maximum limits NOC's exposure by capping claims paid to an individual
- The lifetime maximum is usually fixed, so as health care costs increase it provides greater protection as retirees will hit the lifetime maximum sooner
- Once the lifetime maximum is reached, no further claims are paid, and NOC is protected from further increases in health care costs

- (c) Evaluate the impact on the Defined Benefit Obligation under International Accounting Standard IAS 19, Rev. 2011 if the mortality assumption was updated to reflect the results of the study.

No calculations required.

Commentary on Question:

Most candidates were able to identify that APBO would increase for the health care benefits and received minimal grades. Very few were able to identify the life insurance impact and overall impact. A large number of candidates spent time talking about the components of expense which was not asked and thus did not receive any credit for that portion.

4. Continued

- If retirees are living longer than expected, then NOC will pay more health care claims over time (on average), which will increase the present value of the liabilities for the health care benefits (even with discounting)
- Longer life expectancy has the opposite impact on life insurance benefits because benefits are only paid at death in a single lump sum payment.
- Longer life expectancy means life insurance benefits are discounted for more years and reduces the present value of the liabilities
- The life insurance benefit provided by NOC is small (\$50,000) compared to the health care benefits (largely 100% employer-paid health care, with no maximums, deductibles or copays), so the overall impact on the health care costs will outweigh the impact on the life insurance costs
- Overall, the accumulated postretirement benefit obligation should increase as a result of retirees living longer than expected and updating the mortality assumption to reflect the longer life expectancy

5. 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:

- (8a) Perform valuations for special purposes, including:
- (i) Plan termination/windup
 - (ii) Accounting valuations
 - (iii) Open group valuations
 - (iv) Plan mergers, acquisitions and spinoffs
- (8b) Analyze, recommend, and defend an appropriate funding method and asset valuation method in line with the sponsor's investment policy and funding goals.
- (8d) Advise plan sponsors on accounting costs and disclosures for their retirement plans under various standards and interpretations.

Sources:

DA-807-13: ASOP 44 - Selection and use of asset valuation methods for pension valuations

DA-804-19: FASB Accounting Standards Codification Topic 715

Commentary on Question:

Comments are included in each part below.

Solution:

- (a) Describe the considerations when selecting an asset valuation method under Actuarial Standard of Practice No. 44, Selection and Use of Asset Valuation Methods for Pension Valuations.

Commentary on Question:

Full credit was provided if four considerations were provided with a description.

- Purpose and nature of the measurement - might select different methods for different purposes like a smoothed method for contribution forecasts and market value for termination basis
- Objectives of principal - like potential desire for more stable contributions or costs
- Multiple asset valuation Methods - different methods for different classes of assets, ex. smoothed for equities and market value for fixed income
- Adjustment of asset value for timing differences - Adjusting values if they are not available at the measurement date

5. Continued

- (b) Calculate the 2022 Net Periodic Pension Cost under U.S. Accounting Standard ASC 715 using the following asset valuation methods:
- (i) Fair Value of Assets
 - (ii) Market-related Value of Assets with unrecognized gains and losses smoothed over five years.

Show all work.

Commentary on Question:

Part (i) was generally well understood whereas many candidates experienced difficulties with Part (ii). Partial credit was awarded for demonstrating key concepts and correctly interpreting portions of the calculation. The use of either simple interest or compound interest in the calculation of pension cost was accepted. The model solution shown uses compound interest. One example of a 5-year smoothing market-related value of assets is shown; other valid interpretations also received credit.

The model solution for this part is in the Excel spreadsheet

- (c) Recommend whether Company ABC should move to using the Fair Value of Assets valuation method.

Justify your response. No calculations required.

Commentary on Question:

This portion of the question was generally well understood. Several interpretations of the recommendation with details for justification were awarded full credit.

- Recommend moving to Fair Value of assets
- Moving to more fixed income assets would make the assets more closely follow the liabilities so no longer have the need to smooth out asset gains and losses
- Using the fair value of assets to determine EROA going forward should lead to more stable expense (both EROA and G/L amortization components)

6. Learning Objectives:

3. Candidate will be able to analyze the risks faced by retirees and the participants 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:

- (3a) Identify risks faced by retirees and the elderly.
- (3b) Describe and contrast the risks face by participants of:
 - (i) Government sponsored retirement plans
 - (ii) Single employer sponsored retirement plans
 - (iii) Multiemployer retirement plans, and
 - (iv) Social insurance plans
- (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.
- (5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.
- (5b) Assess the tradeoffs between different goals.
- (5c) Assess the feasibility of achieving the sponsor's goals for their retirement plan.
- (5d) State relationships or recognize contradictions between a sponsor's plan design goals and the retirement risks faced by retirees.
- (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.
- (5g) Design retirement programs that promote employee behavior consistent with sponsor objectives.
- (5h) Evaluate the pros and cons from both a sponsor and employee perspective of introducing options that impact the labor force demographics.

6. Continued

- (5i) Recommend a method to integrate government-provided benefits with retirement plan designs in order to meet the plan sponsor's particular goals and defend the recommendation.
- (5j) Advise a plan sponsor regarding the choice of design elements for their retiree health program.
- (5k) Evaluate and incorporate, as appropriate, different social insurance and employer sponsored plan types and features that occur internationally in providing recommendations.
- (5l) Give examples of plans that are appropriate for multinational companies and their employees including third country nationals and expatriates.
- (5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.

Sources:

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen et al., 12th, Edition, 2018, Ch. 2 and 3

The Next Evolution in Defined Contribution Retirement Plan Design: A Guide for DC Plan Sponsors To Implementing Retirement Income Programs

Commentary on Question:

This question requires candidates to demonstrate knowledge on the calculations of contribution savings, as well as the implications of a plan freeze on different members. Successful candidates were able to calculate the flat-dollar annual contribution to the DC plan to provide the same replacement ratio prior to the plan freeze, as well as to analyze the impact of such plan change including impact of the risk transfer and impact of legislative limits.

Solution:

- (a) Calculate the 2022 contribution savings if NOC follows the actuary's contribution recommendation and were to freeze all future benefit accruals, including Best Average Earnings, effective January 1, 2022.

Show all work.

6. Continued

Commentary on Question:

A number of candidates mis-read this question and compared the expected 2022 employer contributions from the case study to the recommended contribution reflecting the freeze. Candidates needed to calculate the contribution following the actuary's recommendation, both with and without the plan freeze, to receive full credit. The decrease in liability due to the freeze results in a lower unfunded liability and, therefore, lower amortization payments. In addition to the lower amortization payments, the employer will save on the service cost (service cost = \$0 after the freeze). The model solution shows one acceptable method to calculate a 5-year amortization of unfunded liability. Other methodologies (ex. flat dollar without interest adjustment) were also accepted

The model solution for this part is in the Excel spreadsheet

- (b) Calculate the total flat-dollar annual contribution to the DC plan to provide the same replacement ratio prior to the plan freeze for the following:
- (i) Participant 1
 - (ii) Participant 2

Show all work.

Commentary on Question:

See above.

The model solution for this part is in the Excel spreadsheet

- (c) Analyze the impact of this plan change on retirement income adequacy for the following:
- (i) Participant 1
 - (ii) Participant 2

Commentary on Question:

See above.

With the plan change, investment risk, pre-retirement inflation risk, and post-retirement mortality risk are shifted from company to participant. However, a DC plan is more portable so if the participants change employers to one with the same plan they don't "lose" out on the higher valued accruals provided by a Final Average Pay DB plan towards the end of a participant's career.

6. Continued

In particular, for participant 1, if the company provides less than the amount calculated in (b) the participant must achieve higher than expected returns to receive an equivalent benefit. For participant 2, the legislated contribution limits prevent the DC plan from providing the same level of benefit as the DB plan at retirement age. To reach the same level of benefit the company would need to implement a supplemental plan.

7. 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.

Learning Outcomes:

- (51) Give examples of plans that are appropriate for multinational companies and their employees including third country nationals and expatriates.

Sources:

DA-181-20: International Pension Plans: Dispelling the Myths

DA-182-20: International Pension Plans: A Good Fit for Mobile Workers

Commentary on Question:

This question was testing plan design features and considerations for a company that employs expatriates. In general, candidates did not do very well on this question. Many candidates listed generic attributes of plans rather than applying their knowledge specifically to the plan in question.

Solution:

- (a) Describe risks and challenges to Company A when including the expatriates in their local defined benefit pension plan.

Commentary on Question:

Candidates did better on part a than other parts of this question. Most candidates were able to describe a few risks and challenges. The solution shown below does not include an exhaustive list of all correct answers; credit was also provided for valid answers not listed here.

- Cross border risk requiring the employer to satisfy cross border regulations such as local social and labor laws in other countries.
 - Regulatory time restrictions for participating in the local pension plan while accruing service in another country.
 - Providers' inability or lack of appetite to include overseas workers as this may create additional governance and administration challenges administering both local and international employees within the same pension plan.
 - Currency volatility affecting annual pension entitlement accruals and regulation accrual limits if the benefits are tied to expatriates' exchanged earnings.
- (b) Describe Company A's operational considerations before implementing the CAIPP.

7. Continued

Commentary on Question:

Candidates often listed generic considerations for plans rather than specific considerations for the CAIPP. The solution shown below does not include an exhaustive list of all correct answers; credit was also provided for valid answers not listed here. .

To fund the IPP or not to fund. The increasing preference is to fund the IPP, since these are seen as more secure, and providers are more willing to administer them.

If a funded IPP is preferred, whether to use a trust or contract structure. Increasingly, employers are favoring contract-based defined contribution plans since these are perceived as less legally onerous.

Bundled or unbundled arrangement. A bundled arrangement involves one provider taking care of the administration, investment, and insured or trust services, while an unbundled arrangement allows the employer to take elements of the operations in-house or choose multiple best-in-class external providers.

- (c) Critique the design of the CAIPP from the acquired expatriates' perspective.

Commentary on Question:

Similar to part b, candidates often listed more general design considerations rather than specific considerations for the CAIPP. To get full credit, both strengths and weaknesses needed to be considered. The solution shown below does not include an exhaustive list of all correct answers; credit was also provided for valid answers not listed here.

Strengths:

Tax:

The IPP can offer tax-free growth if benefits are accumulating during periods of work in low-tax countries and no tax is levied by the local office.

Regulatory time restrictions:

There are no regulatory time restrictions for the expatriates on long-term assignments compared to enrolling in the local defined benefit plan.

Simple Plan Design:

A Capital Accumulation IPP with a single guaranteed investment fund is a relatively simple plan design making it easy for Members to understand.

7. Continued

Weaknesses:

Inadequate benefit:

Given the demographics of the expatriates and the different lengths of assignments, this IPP design may not be appropriate for all of the expatriates. Retention in the local Defined Benefit Plan may benefit any younger expatriates or expatriates on a short-term assignment whose benefits would not be limited to regulatory time restrictions.

Security:

The true cost of the guaranteed investment fund is unknown, as these funds rarely provide any information on the underlying assets and charges.

As contributions are notional, if the plan is not fully or partially funded or secured by a letter of credit, there is benefit security risk.

Investment structure:

Returns for the guaranteed investment fund are at an all-time low and are being eroded in real terms by inflation.

US Tax law:

Under FATCA, all US citizens must report their worldwide assets and earnings to the IRS.

8. Learning Objectives:

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.
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:

- (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
- (4d) Analyze the issues related to plan provisions that cannot be removed.
- (5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.
- (5b) Assess the tradeoffs between different goals.
- (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.
- (5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.
- (8e) Demonstrate the sensitivity of financial measures to given changes in plan design.

Sources:

DA-165-17: Phased Retirement – An Important Part of the Evolving Retirement Scene

DA-804-19: FASB Accounting Standards Codification Topic 715

8. Continued

Commentary on Question:

This question was testing candidates' understanding of phased retirement programs.

Candidates who only provided suggested changes without justification of why they would increase utilization of phased retirement in part (a) or directional change of PBO/SC in (b), only received partial credit.

Solution:

- (a) Recommend design changes to each of the following plan provisions to encourage utilization of the phased retirement program:
- (i) Benefit service
 - (ii) Final average pay
 - (iii) Early retirement benefits

Justify your response.

Commentary on Question:

Most candidates were able to correctly identify that participants would miss out on accruals during phased retirement by not earning benefit service or reduce their benefit due to the final average pay definition. Many candidates correctly recognized that subsidized early retirement benefits encourage phased retirement if participants are allowed to start receiving pension benefits when they enter the phased retirement program..

(i) Benefit service: Under the current design, participants would be unlikely to accumulate enough hours to earn benefit service during a phased retirement due to working only part time.

- Company ABC could allow partial credit or reduce the amount of hours required such that the participants participating in the phased retirement program would be able to continue accruing benefit service.
- Company ABC could also remove the benefit service cap. Participants who are at the service cap and ready to retire would have incentive to remain employed part time and continue earning service.

(ii) Final average pay (FAP): Current design means those who utilized the phased retirement program would reduce their benefit since the final average earnings would be based on years during lower pay due to the reduced hours.

- The definition could be revised to use annualized compensation when calculating for the Final Average Pay (FAP). Participants would continue to increase their benefit for COLAs or merit increases during phased retirement.

8. Continued

- Another option would be to remove or extend the 5-year lookback period so the lower annual earnings during phased retirement do not hurt the participant.

(iii) Early retirement benefits: Current plan design subsidizes retirements prior to age 65 for participants with 10 or more years of service. Participants who have fewer than 10 years of service do not currently receive any subsidy if they retire early.

- Company ABC could consider providing the 3% reduction from age 62 to all employees who meet the early retirement requirement to encourage more participants to utilize the phased retirement program. Then employees with 5-10 years of service would receive a higher early retirement benefit than they would have otherwise and may be more financially able to retire under the phased retirement program.

(b) Assess the impact of a proposed plan design change from each subsection of part (a) under U.S. Accounting Standards ASC 715 on the following:

- (i) Projected Benefit Obligation
- (ii) Service Cost

No calculations required and justify your response.

Commentary on Question:

The question was asking the candidate to assess ONE of the suggested plan design changes from each subsection of part (a). Responses analyzing all of the recommendations in part (a) only received credit for the analysis of one change for each subsection.

Most candidates did not recognize that PBO is a participant's accrued benefit, with consideration of future pay increases, for their response regarding change to the benefit service provision. Therefore, strictly increasing the potential to earn future service would not increase a participant's PBO. There are many reasons the PBO would increase for the suggested plan changes, but they were required to be described in order for candidates to receive credit.

Credit was provided in part (b) for incorrect responses in (a) if the response was valid.

8. Continued

1. PBO:

(i) Benefit service: Removing the service cap would increase the PBO for participants with more than 25 years of service if the change is applied retroactively. Otherwise, the current PBO would remain unchanged.

(ii) FAP: Removing the lookback limit may increase the PBO since some participants may have had higher salaries prior to the 5-year lookback window.

(iii) Early retirement benefits: Enhancing the early retirement subsidy would increase PBO if early retirement decrements are assumed for the phased retirement program or when a participant actually retires early under the program. This is because a number of participants would be eligible for larger early retirement benefit amounts if they commence benefits earlier than age 65.

2. SC:

(i) Benefit service: Removing the service cap would increase the service cost assuming some participants are at the cap. If no participants are at the cap then there would be no impact.

(ii) FAP: Removing the lookback limit would likely increase the service cost since the value of one more year of accrual would be higher for participants mentioned above.

(iii) Early retirement benefits: Enhancing the early retirement subsidy would increase SC if early retirement decrements are assumed. This is because a number of participants would be eligible for larger early retirement benefit amounts if they first commence benefits earlier than age 65..

9. Learning Objectives:

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.

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.
- (6c) Integrate a plan for executives with the basic benefit plan.
- (8a) Perform valuations for special purposes, including:
 - (i) Plan termination/windup
 - (ii) Accounting valuations
 - (iii) Open group valuations
 - (iv) Plan mergers, acquisitions and spinoffs

Sources:

DA-145-13: Acquiring a U.S. Operation – A Primer

DA-156-15 Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan, Aon Hewitt, October 2014 (part 1, 2 and 4)

DA-803-13 Evaluating Financing Options for Nonqualified Benefit Plans

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen et al., 12th Edition, 2018 – Chapter 14

DA-156-15 Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan, Aon Hewitt, October 2014 (part 1, 2 and 4)

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the objectives of Company A's due diligence process when reviewing Company Z's NQDB pension plan.

9. Continued

Commentary on Question:

The objectives must be specific to NQDB and fully described to earn full points. Candidates received credit for reasonable responses and logic not contained in sample solution, such as performing compliance review or audit of financial valuation, including review of underlying actuarial assumptions.

Most candidates did well on part a) given there was a wide spectrum of items for consideration. Where some candidates fell short was identifying more than 1-3 items and/or only listing the items for considerations and not describing what the items entailed.

- **Overall objectives:** The overall objective of the due diligence is to identify, quantify and obtain coverage for all risks and liabilities associated with the NQDB.
- **Change in control:** Company A must review the applicable plan provisions to understand if there are applicable change in control agreements to the extent any executives are terminated upon acquisition. The company must then quantify the impact of the change in control provisions to use when negotiating a final purchase price.
- **Funding Vehicles:**
 - Company A must determine how the benefits are funded and whether those funds are accessible. Some vehicles, such as rabbi trusts and secular trusts, contain irrevocable trusts that Company A will not be able to use for anything else. Company A will certainly want to consider the existence of any such trusts in the final purchase price.
- **Benefit levels:** Company A must identify the overall benefit package available to Company Z executives. To the extent one company provides substantially different benefits, executives may expect their plans to be updated accordingly.
- **Tax Implications:** Company A must determine whether vested participants have paid any taxes on an early inclusion basis and whether Company Z paid the employer portion of the tax to ensure surprise tax payments don't occur in the future.
- **Benefit levels:** Company A must identify the overall benefit package available to Company Z executives. To the extent one company provides substantially different benefits, executives may expect their plans to be updated accordingly.
- **Plan termination:** Company A may ultimately decide to terminate the Company Z NQDB plan. It's important for Company A to determine the impact of terminating the plan under 409A.

9. Continued

- (b) Company A acquired Company Z and wants to simplify the delivery of nonqualified benefits while minimizing executive turnover.

Propose three strategies for Company A to achieve their goals.

Justify your response.

Commentary on Question:

Candidates received full credit if they described three strategies and identified how each impacts the goal of employee retention and how it impacts the goal of simplifying benefit distribution.

Candidates also received credit for any reasonable strategy and justification not outlined in the sample solution below.

Most candidates were able to identify and contrast at least two strategies and struggled to identify a third differentiating strategy. Some candidates only received partial credit if they described a strategy but did not specify how it achieved the goals of simplifying the benefit or minimizing turnover.

Strategy 1: Freeze the Z Plan; enroll Z executives in the A plan

- Future accruals and future executives would all be under the same plan. However, existing executives would have two plans and two forms of payments.
- Company A should perform a winners/losers analysis to understand the overall impact on Company Z executives. To ensure retention, the company may need to consider methods to make executives whole.

Strategy 2: Terminate the Z Plan; enroll Z executives in the A plan

- Under 409A, companies can terminate a plan and pay out all plan benefits, but certain conditions must be met, including:
 - Companies must leave the plan in place for 12 months after the plan to terminate, then benefits are paid between the 13th and 24th month
 - Termination cannot “occur proximate to a downturn in the financial health” of the company.
 - All similar plans must be terminated and the company cannot create a similar plan for another 3 years.
- From a benefit simplification perspective, all executives would be participating in the same plan and executives would not have two forms of payments once Z payments are paid out
- From a retention point of view, these distributions would be fully and immediately taxable, so it would be important to carefully consider timing and allow them enough time to offset the adverse tax effects so as to not negatively impact the executive

9. Continued

Strategy 3: Convert the Z Plan into a similar DC SERP

- Company A could consider converting the Z NQDB into a plan that is similar to Company A's plan
- This is the most complicated and feasible of the mentioned strategies for a number of reasons:
- Any plan participants who already elected an annuity form of payment would need to change their elections, which would be subject to a minimum 5-year delay
- If the Company instead decides to allow annuity payments, it must determine if legacy Z employees would be allowed to take this form of payment and consider the added longevity and investment risk.
- This change may potentially require individualized communications.
- Ultimately, this strategy could achieve the objectives of simplification and executive retention, but it has a longer horizon for success and communications with executives must be handled delicately

10. Learning Objectives:

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

Learning Outcomes:

- (2b) Explain and test for limits on plan designs and features that protect participation rights.
- (2c) Test for plan design restrictions intended to control the use of tax incentives.

Sources:

DA-132-13: Chapter 5 of Pension Policy: The Search for Better Solutions

DA-160-22: OECD Pensions Outlook 2020 - Highlights

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast the effect tax policy has on high-income employees and low-income employees participating in a defined contribution (DC) pension plan with respect to the following:
 - (i) Contributions
 - (ii) Investment earnings
 - (iii) Benefit payments

Commentary on Question:

Generally, candidates understood the concepts in this question. However, most candidates did not provide enough comments to receive full credits. Other valid effects of tax policy not listed below also received credit.

i) Contributions	High Earners	Lower Earners
Tax Subsidies	Tax subsidies are generally in the form of tax credits to incentivize employees saving for retirement or for employers to establish a pension plan	
Contribution Limits	Regulatory contribution maximum limits are used to limit loss tax revenue. Generally, the maximum would only apply to high income earners	Lower income earners would not be affected generally by the maximums as they are set quite high
Liquidity	Workers contributing to a pension give up liquidity since they cannot access the money until retirement. However, high income earners can respond by shifting existing assets from taxable to tax sheltered accounts	Lower income workers who cannot afford the drain on cashflow will choose to contribute less or not participate at all if given the choice

10. Continued

ii) Investment Earnings	High Earners	Lower Earners
Tax Free Investment	Investment Earnings on pension funds generally accumulate tax free	
	High-income earners benefit more because can create a larger asset base due to larger accumulations and/or accruals	Low-income earners benefit less due to lower accumulations, lower asset base
iii) Benefit Payments	High Earners	Lower Earners
Tax on Withdrawal	The tax system favors particular forms of benefit disbursements. Generally, benefit payments are taxable as ordinary income with some exceptions like repayments of contributions that were taxable	
Social Security	The benefit disbursements could cause the members' social security benefits to either be capped or limited	
Marginal Tax Rates	High-income earners benefit less as the disbursements are taxed at a higher tax bracket. Generally, tax rates are expected to be lower in retirement than during working career	Low-income earners benefit more in a progressive taxation system since the disbursements are taxed at a lower rate. Generally, tax rates are expected to be level in retirement as during working career
	The tax rates could be higher in retirement than while during the working life for both high and low-income members	

(b) Describe the unintended consequences of the following policies implemented in response to COVID-19 on DC pension plan members:

- (i) Suspension of employer contributions
- (ii) Early access to retirement savings accounts

Commentary on Question:

Generally, candidates understand what was required of them on this question, however most candidates did not describe enough unintended consequences to receive full credits.

- (i) Suspension of employer contributions
 - Reducing the employer contributions to Members' DC pension entitlements, may ultimately lead to lower retirement income adequacy of the DC Pension Plan.
 - May discourage employees to continue making their optional or voluntary contributions that were being fully, or partially, matched by the employer.
 - Reducing assets under management in the DC accounts thus may limit employees' ability to recoup financial losses experienced from the capital market turmoil during the pandemic.
 - May encourage employees to leave their current employer for another with greater pension benefits.

10. Continued

- (ii) Early access to retirement savings accounts
- May ultimately lead to lower income adequacy by encouraging leakage and using retirement income for non-retirement purposes.
 - Employees who access their funds early and then sell invested DC assets when shocks occur could lose asset value with no opportunity to recover those losses.
 - Retirement Plan leakage may later require employees to work longer to improve their lost retirement income, and employers having greater difficulty managing their senior workforce and their expected retirement age.
 - May cause liquidity and investment management disruptions for any pooled investments.
- (c) Describe four policy guidelines recommended by the Organization for Economic Co-operation and Development (OECD) to help ensure long-term sustainability of retirement savings arrangements.

Commentary on Question:

Generally, candidates did poorly on this question and provided recommendations under the OECD Roadmap for the Good Design of Defined Contribution Pension Plans for strengthened retirement income adequacy rather than the policy guidelines recommended for long-term sustainability of retirement savings arrangements.

Four policy guidelines recommended by the OECD to help ensure long-term sustainability of retirement savings arrangements are as follows:

Long-term saving

Saving for retirement is for the long term. Maintain investments in retirement portfolios to avoid short-term selling that will result in realization of losses when markets are low.

Act in accordance with Investment Objectives

Act in accordance with investment objectives. Pension providers should adhere to their investment objectives and carefully assess new investment opportunities. Their investment decisions should be at arms-length from governments.

Funding Flexibility

Allow for regulatory flexibility in recovery plans to address funding problems stemming from retirement promises. Make sure that once the emergency is over, measures providing flexibility are removed.

10. Continued

Counter-cyclical funding

Make sure that funding and solvency rules for DB plans are counter-cyclical. Introduce flexibility in meeting funding requirements, thereby avoiding 'pro-cyclical policies' and allowing pension funds to act as long-term investors and potentially stabilizing forces within the global financial system.

11. 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:

- (8a) Perform valuations for special purposes, including:
 - (i) Plan termination/windup
 - (ii) Accounting valuations
 - (iii) Open group valuations
 - (iv) Plan mergers, acquisitions and spinoffs
- (8b) Analyze, recommend, and defend an appropriate funding method and asset valuation method in line with the sponsor's investment policy and funding goals.
- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8d) Advise plan sponsors on accounting costs and disclosures for their retirement plans under various standards and interpretations.
- (8e) Demonstrate the sensitivity of financial measures to given changes in plan design.

Sources:

DA-168-19: IFRS and US GAAP: Similarities and Differences, Ch. 5 only

DA-185-20: Plan Curtailments & Settlements Under FASB ACS Topic 715 Relating to Plan Terminations, Part 1

DA-804-19: FASB Accounting Standards Codification Topic 715

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast the impact of closing the pension plan to new entrants under U.S. Accounting Standard ASC 715 (ASC 715) and International Accounting Standard IAS 19, Rev. 2011 (IAS 19) on the following:
 - (i) Net Periodic Pension Cost
 - (ii) Funded Status

11. Continued

(iii) Other Comprehensive Income

No calculations required.

Commentary on Question:

The question was trying to test the candidate's knowledge of US GAAP and IAS in a situation where a plan sponsor closes a final average pay defined benefit plan to new entrants. No calculations were required or expected. Candidates were expected to comment on both US GAAP and IAS19, or state where the impact was the same or different under each standard to receive full credit.

Net Periodic Pension Cost:

- Under both standards, closing the plan to new entrants will have no immediate impact on the net periodic pension cost given the PBO/DBO and service cost do not take into account new entrants
- Under both standards, the service cost will decrease over time as there are no new plan participants
- Under both standards, the interest cost will decrease over time as the PBO/DBO decrease
- Under ASC 715, if gains and losses are not immediately recognized, then gains and losses will be amortized over a shorter period as the average future working lifetime of the population decreases

Funded Status:

- Under both standards, there is no immediate impact on the funded status since closing the plan to new entrants does not immediately impact the assets or liabilities

Other Comprehensive Income (OCI):

- Under both standards, there is no immediate impact on OCI

(b) Compare and contrast the impact of freezing future service accruals under ASC 715 and IAS 19 on the following:

- Net Periodic Pension Cost
- Funded Status
- Other Comprehensive Income

No calculations required.

11. Continued

Commentary on Question:

Part b is looking for candidates to compare/contrast freezing future service accruals (but not freezing salaries/future pay accruals). This type of soft plan freeze does not trigger curtailment accounting under either accounting standard, but many candidates stated that it would. Candidates who received full credit described the impact on the different components of the Net Periodic Pension Cost.

Net Periodic Pension Cost:

ASC 715	IAS 19
Curtailment accounting will not be triggered even though future service accruals for a significant number of employees is eliminated. Employees will still be eligible to earn future benefits due to salary increases.	Not a curtailment because a curtailment under IAS 19 is described as a significant reduction in the number of employees covered by the plan
Should trigger a remeasurement	Should trigger a remeasurement
The PBO service cost will go to zero even though there are still future pay accruals (salaries were not frozen); PBO incorporates expected future salaries and will be higher than ABO	The DBO service cost will go to zero even though there are still future pay accruals (salaries were not frozen); DBO incorporates expected future salaries
The discount rate assumption may need to be revisited due to change in expected future cash flows	The discount rate assumption may need to be revisited due to change in expected future cash flows
No impact on EROA unless there is a change in assets due to remeasurement	

Funded Status:

ASC 715	IAS 19
There is no change to PBO due to the service accrual freeze. Only impact to funded status would be due to market movements and assumption changes between original measurement date and re-measurement date.	There is no change to DBO due to the service accrual freeze. Only impact to funded status would be due to market movements and assumption changes between original measurement date and re-measurement date.

Other Comprehensive Income (OCI):

ASC 715	IAS 19
Any gains or losses due to remeasurement become part of unrecognized gain/loss in OCI and are then amortized over time in expense	Any gains or losses due to remeasurement flow through OCI.

11. Continued

- (c) Compare and contrast the impact of freezing future pay accruals under ASC 715 and IAS 19 on the following:
- (i) Net Periodic Pension Cost
 - (ii) Funded Status
 - (iii) Other Comprehensive Income

No calculations required.

Commentary on Question:

Part c is looking for candidates to compare/contrast future pay accruals after service accruals had already been frozen (typically referred to as going from a “soft freeze” to a “hard freeze”). Curtailment accounting was triggered under ASC 715 due to the full plan freeze as all benefit accruals were ceased for current employees. Candidates who received full credit described the impact on the different components of the Net Periodic Pension Cost.

Net Periodic Pension Cost:

ASC 715	IAS 19
Curtailment accounting triggered. Timing – plan amendments are recognized when they are realized (i.e., once the plan amendment is adopted)	Not a curtailment Timing – recognition of past service costs is required when the plan amendment occurs
The service cost remains \$0	The service cost remains \$0
The interest cost will decrease since the PBO decreases due to removing future salary increases (PBO = ABO)	The interest cost will decrease since the DBO decreases due to removing future salary increases (DBO = ABO)
If gains and losses are not immediately recognized, then the gain/loss amortization period could be changed to average remaining life expectancy since all participants can be considered inactive. This will impact the gain/loss amount that is amortized	
Since the freeze eliminates all future years of service for benefit accruals, 100% of any existing prior service costs/credits and the curtailment gain of the liability decreasing from PBO to ABO should be immediately recognized in expense	Negative past service cost recognized in pension expense when the plan is amended and not amortized

11. Continued

Funded Status:

ASC 715	IAS 19
<p>Since there are no future service accruals or salary projections, the PBO decreases to the ABO.</p> <p>Assuming assets are unchanged, the funded status will improve.</p>	<p>Since there are no future service accruals or salary projections, the DBO decreases to the ABO.</p> <p>Assuming assets are unchanged, the funded status will improve.</p>

Other Comprehensive Income (OCI):

ASC 715	IAS 19
<p>Any gains or losses (excluding curtailment gain) due to remeasurement become part of unrecognized gain/loss in OCI and are then amortized over time in expense</p>	<p>Any gains or losses due to remeasurement flow through OCI</p>
<p>Any existing prior service cost/credit bases go to zero</p>	

12. 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:

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 such as share risk plans, target benefit plans, etc.

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
 - (j) Risk-sharing provisions
- (3a) Identify risks faced by retirees and the elderly.
- (3b) Describe and contrast the risks face by participants of:
- (i) Government sponsored retirement plans
 - (ii) Single employer sponsored retirement plans
 - (iii) Multiemployer retirement plans, and
 - (iv) Social insurance plans
- (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.

12. Continued

Sources:

The Retirement Forum, Apr 2019, Volume 22, Number 1

DA-114-13: Risk Management and Public Plan Retirement Systems - Appendices only (pages 1-33 background only)

Commentary on Question:

This question tested candidates' knowledge on public sector risk shared pension plans. Candidates that performed well in part a) appropriately described why the New Brunswick Shared Risk Pension Plan is better suited for the public sector. Candidates that performed well in part b) differentiated and identified similarities for the two different types of pension plans based on the criteria. Lastly, candidates that performed well on part c) highlighted the issues for why members in multiple jurisdictions can be a cause of concern for risk shared pension plans.

The model solution shown does not include an exhaustive list of all correct answers. Candidates who mentioned other valid points also received credit.

Solution:

- (a) Describe how the New Brunswick Shared Risk Pension Plan (SRPP) is better suited for the public sector versus the private sector.
- Private sector plans are more likely than public sector plans to have jurisdictional issues for Benefit reductions, marriage breakdown calculations, and termination values.
 - Unexpected changes in the overall level of payroll for a single employer target benefit pension plan (TBPP) sponsor in the private sector can lead to significant changes in the TBPP's outlook, including, for example, the plan's failure to maintain the high degrees of certainty around providing target benefit as is modeled. Public sector plan sponsors would generally have the size and stability to maintain levels of payroll needed to fund towards the required levels of certainty.
 - Additional challenges may occur throughout the life cycle of a private sector TBPP due to downsizing, mergers, acquisitions, divestitures and ultimately windup that may not happen as frequently in the public sector.
- (b) Compare and contrast a public sector SRPP and a unionized multiemployer pension plan (MEPP) with respect to the following:
- (i) Benefit design
 - (ii) Regulatory risk management framework

12. Continued

SRPP	MEPP
Benefit Design	
<ul style="list-style-type: none"> • Years of service based on service within the public sector. It is common to have service transferred in from a Reciprocal Transfer Agreement. • Many ancillary benefits (i.e. subsidized early retirement and COLA) • Permitted to reduce accrued benefits under certain conditions. • Common to require employee contributions. 	<ul style="list-style-type: none"> • Benefit is usually Flat Benefit with negotiated increases through collective bargaining. • Service is usually based on hours worked up to a maximum for one years credit. Common to have broken service and periods of inactivity. • Few ancillary benefits. Usually no indexation. • Permitted to reduce accrued benefits. • Can have required employee contributions. Some plans are non-contributory.
Regulatory risk management framework	
<ul style="list-style-type: none"> • May be required to perform risk management test on plan conversion to shared risk (i.e. 20- year stochastic asset-liability projection to assess the plan's sustainability). • The regulatory requirement for these plans is that, on conversion to a shared risk plan (or at certain other points in time), there must be at least a 97.5 percent chance that the past base benefits will not be reduced during the next 20- year period. 	<ul style="list-style-type: none"> • There is no uniform regulatory framework that sets out the priority of benefits in the event benefits need to be reduced. In fact, some jurisdictions do not permit benefit reductions. • For traditional multiemployer pension plans, the administrator is typically required to be a board of trustees, at least half of whom are representatives of the MEPP members. • No stochastic modelling required for MEPPs (at conversion or ongoing). Legislation is usually either permissive for benefit reductions or prohibitive.

(c) Describe the issues related to an SRPP with members in multiple jurisdictions.

- Certain jurisdictions do not yet have comprehensive target benefit legislation to support the framework.
- Benefit reductions in one jurisdiction may be prohibited in another jurisdiction (i.e. laws may conflict with each other).
- When benefit reductions are required, the results would be inequitable because only the jurisdiction that allows benefit reductions would bear the cuts.
- Marriage breakdown calculation would also be inequitable since the values are determined differently between jurisdictions.
- Termination values would also be inequitable between jurisdiction that recognize the funded status of the plan and jurisdiction that do not.

13. 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.

Learning Outcomes:

- (5i) Recommend a method to integrate government-provided benefits with retirement plan designs in order to meet the plan sponsor's particular goals and defend the recommendation.

Sources:

DA-110-13: Integration with Social Security

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen et al., 12th Edition, 2018 – Chapter 14

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the advantages of integrating an employer provided retirement plan with a defined benefit social security program from the plan sponsor's perspective.

Commentary on Question:

This part was generally well answered. Candidates generally had to give three valid answers to receive full credit. Many students only gave two answers, both of which were valid, and received partial credit.

The following solution illustrates an answer that would have received full credit, yet it is not an exhaustive list of valid advantages.

Given that social security plans tend to only cover pay up to a limit, integrating social security into the plan is a way of making the replacement ratio provided by the plan equitable for both high and low earners.

Integrating social security into the plan allows the employer to account for the benefit the members receive from social security, which allows the employer to avoid giving an overly generous benefit.

Since plan sponsors often contribute to social security, offsetting the social security benefit from the pension plan is a way to avoid "double-paying," allowing them to save on cost.

13. Continued

- (b) Propose two ways to integrate an employer provided retirement plan with a defined benefit social security program.

Commentary on Question:

*This part was generally very well answered with many candidates having very similar answers regarding the direct and indirect method
The solution below represents an answer that would receive full credit; other acceptable answers also received credit.*

1. Contribution offset
 - a. E.g. if the sponsor's original formula was a non-elective contribution of 10% of pay and the expected value of the social security benefit on earnings up to the integration point was 5% of pay, the formula for the sponsor could be a contribution of 5% of pay up to the integration point and 10% of pay over the integration point
 - b. This is a direct integration approach
2. Ignore a portion of the member's covered earnings
 - a. E.g. if the average earnings for an employer are \$100,000 and their benefit formula is a 10% non-elective contribution, the employer could change the formula to be a 10% non-elective contribution on earnings over \$50,000 (assumes value of social security benefit is ~5% of pay)
 - b. This is an example of an indirect integration approach

- (c) Describe the challenges in achieving full integration of an employer provided retirement plan with a defined benefit social security program.

Commentary on Question:

*Candidates did a good job describing some challenges; however there were many poor answers provided as well. Many candidates did not provide enough valid answers to receive full credit, candidates who received full credit tended to describe at least six valid challenges.
There are many different acceptable answers, valid answers not shown below also received credit.*

1. Employer's plan only covers service at employer (typically) while social security covers service across entire career
2. The employer plan and social security may have different definitions of covered earnings (e.g. social security only covering earnings up to \$120,000 while employer plan covering all earnings)
3. The employer plan and social security may have different normal retirement dates

13. Continued

4. The employer plan may use different compensation than social security, e.g., the employer plan may exclude bonuses/overtime while these may be included in social security earnings
5. The social security benefit may change over time which can cause difficulty in integration
6. The social security benefit is indexed, meaning its value will be influenced by inflation, while the employer plan benefit may not be indexed