RET 201 Model Solutions
March 2026

1. Learning Objectives:

5. The candidate will understand the general principles applicable to the funding of retirement income plans and recommend a funding policy.

Learning Outcomes:

(5a) Describe the options available to plan sponsors for funding their retirement plans.

(5b) Given a context, such as regulatory environment, plan asset composition, stakeholders' interests, sponsor goals, the candidate will be able to analyze and defend an appropriate funding policy for various types of retirement income plans, including:

- Single-employer plans
- Multi-employer plans
- Government-sponsored plans

Sources:

RET201-121-25 Introduction to Retirement Plan Funding

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

RET201-118-25: CAPSA, Guideline No. 7, Pension Plan Funding Policy Guideline

Commentary on Question:

This question is testing a candidate's ability to understand how different funding policies and methodologies have impacts on a plan and its plan sponsor.

Candidates mostly did well on this question but struggled on the multiemployer portion (part c).

1. Continued

Solution:

(a) Company ABC is evaluating two different funding policies for its defined benefit pension plan.

	Option 1	**Option 2**
Discount Rate	Current market yields on high-quality government bonds	Estimated long-term average return based on the plan's asset allocation
Amortization period for deficits	5 years	15 years
Asset valuation method	Market Value	5-year Smoothed Market Value

Compare and contrast the implications of the two funding policies on the following:

(i) Funded status of the plan

(ii) Contribution level

(iii) Company ABC's investment risk appetite

Commentary on Question:
Candidates mostly did well on this part. The most common mistake was limiting the discussion of discount rate to comparing the nominal value of liabilities and ignoring the potential impact of discount rate volatility under the two options.

(i) Option 1 is similar to a "marked-to-market" approach since it is based on current bond prices, has a shorter amortization period, and uses current market value to value the assets. This will create greater volatility in the plan's funded status from year to year but will also provide a better "current" estimate of the funded status of the plan. This funding policy provides a truer picture of funding requirements for plan termination or buy-outs.
Option 2 is a more smoothed option with a long-term view. Discount rate based on the plan's asset mix, a longer amortization period for deficits and a smoothed market value will limit volatility in the funded level, keeping it smoother over time.

1. Continued

(ii) Option 1 will create greater contribution volatility due to:

a. Funded status being more volatile as a result of changing bond rates (affecting both assets and liabilities),
b. Deficit funding over 5 years instead of 15 years resulting in accelerated recognition of gains and losses
c. Annual volatility in the market value of assets.

Option 2 will result in more stable contributions due to asset smoothing, longer amortization period, and a long term view of setting the discount rate assumption,.

(iii) Under Option 1, Company ABC's will likely want to invest more in fixed income securities to lessen the volatility they might experience due to changes in the market value of assets.

Under Option 2, company ABC will likely have more appetite for return-seeking investments in their portfolio since asset losses would be smoothed over 5 years (5-year smoothed market value) and deficits are funded over a longer period of time (15 years vs. 5 years).

(b) Propose countercyclical strategies to remedy procyclical funding tendencies.

Commentary on Question:
Candidates overall did well on this question

- During periods of economic expansion, funding requirements could be more aggressive
    - More aggressive funding targets (targets above 100%)
    - Shorten amortization periods for unfunded piece of obligation so that funding is accelerated
    - Restrict the sponsor's access to plan surplus; normally under procyclical conditions, a surplus could be used as a buffer so that the sponsor could take a "contribution holiday"; restricting access to the surplus would limit this
- During periods of economic contraction, funding requirements could be relaxed
    - Relax the funding target (100% or less)
    - Extend amortization periods, which will both lower annual required contributions and reduce volatility of contributions
    - Greater use of smoothing to reduce funding volatility

1. Continued

(c) Describe considerations when developing a funding policy unique to multi-employer pension plans.

Commentary on Question:
Candidates struggled on this question. Many candidates did not discuss the general idea that most multiemployer plans have fixed bargained contributions, and how that impacts the funding policy.

When developing a funding policy unique to multi-employer plans, the funding policy should include:

- The approach for setting benefit levels, including benefit policy about why, when, and how benefits can change. Multi-employer plan structure includes negotiations between the union and employers on benefit levels and funding policy should include descriptions on the objectives and process/standards around doing so.

- The risks associated with fixed contribution levels. In multi-employer plans, employers commit to fixed contributions to fund the benefit. One example of a risk would be the sustainability of benefits in the event that the plan's funded status drops, and fixed contributions stay the same.

- The roles and responsibilities of the trustee, union, and the employers who may have competing objectives. It's prudent to have their roles described in the funding policy.

- How to address intergenerational inequity. There is risk associated with how costs are shifted between generations in a multi-employer plan. The funding policy should describe the plan's approach to addressing these risks.

2. Learning Objectives:

3. The candidate will understand how to perform valuations and prepare disclosure information for retirement income plans under applicable accounting standards.

Learning Outcomes:

(3a) Perform calculations in accordance with applicable accounting standards, including:

- Annual accounting valuations
- Plan curtailment and termination/windup
- Plan mergers, acquisitions and spinoffs

(3b) Advise plan sponsors on common accounting methods, costs and disclosures for retirement plans under various standards and interpretations.

Sources:

RET201-108-25: Alternative Approaches to Calculating Service and Interest Cost under FASB ASC Topic 715

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Explain why a plan sponsor might prefer to use the Spot Rate Approach rather than the Traditional Approach for the purposes of liability measurement and pension expense.

Commentary on Question:

Candidates generally did well on this question in terms of identifying the differences between the two approaches, but many didn't explain why the plan sponsor might prefer the use of the Spot Rate Approach, which was required to receive full credit.

In a standard interest rate environment with an upward sloping yield curve, the spot rate approach is less likely to overstate the interest cost and service cost than the traditional approach due to its more refined methodology of discounting later duration cashflows, which tend to be larger, at a higher discount rate. This may be preferable to plan sponsors because it lowers expense.

(b) Justify the use of the Traditional Approach rather than the Spot Rate Approach for the calculation of the service cost and interest cost, assuming an upward sloping yield curve, for each of the following scenarios:

(i) Plan pays out large lump sums each year

(ii) Closed plan

2. Continued

(iii) Plan uses hypothetical bond matching in the measurement of the plan liability

(iv) Large unrecognized losses

Commentary on Question:
Generally, candidates performed well on at least 2 of the scenarios. Few candidates were able to recall that using hypothetical bond matching means there is no yield curve available that would produce the same interest cost. Additionally, candidate responses were more varied for the closed plan scenario.

To receive full credit, candidates were required to connect the differences in using the traditional and spot rate approach in the specific scenario described.

i) In an upward sloping yield curve environment, the Spot Rate approach generally produces a lower service cost and interest cost, lowering the settlement threshold resulting in an increased likelihood of triggering remeasurements than under the traditional approach. For plan sponsors sensitive to this, they may prefer the traditional approach.

ii) Closed plans may have a larger interest cost and service cost under the spot rate approach than may be calculated under the traditional approach. This is due to closed plans having diminishing service cost cashflows, so greater weight is given to the shorter-term spot rates under the spot rate method.

iii) The spot rate approach requires the use of the exact same yield curve as used to determine the benefit obligation. A yield curve is unavailable that would produce the same interest cost as the bond matching model, so the traditional approach is generally required.

iv) The spot rate approach results in a lower interest cost which will produce increased unrecognized losses, and subsequently larger amortization effects in the future for amounts outside of the corridor. The larger amortization effects will build each year and eventually offset all of the effects of the reduced interest costs. A plan sponsor may wish to continue to use the traditional approach to avoid having additional losses to report.

2. Continued

(c) Calculate the interest cost under the Traditional and Spot Rate approaches using the benefit payment cashflows and yield curve provided below:

Commentary on Question:
Most of the candidates performed very well on this question. Candidates were not penalized for assuming mid-year or end-of-year cashflow timing. Additionally, candidates were not penalized for taking the traditional single equivalent discount rate multiplied by the liability, rather than multiplying by each present value cashflow, in the determination of the traditional interest cost.

Refer to Excel file.

3. Learning Objectives:

3. The candidate will understand how to perform valuations and prepare disclosure information for retirement income plans under applicable accounting standards.

Learning Outcomes:

(3a) Perform calculations in accordance with applicable accounting standards, including:

- Annual accounting valuations
- Plan curtailment and termination/windup
- Plan mergers, acquisitions and spinoffs
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(3b) Advise plan sponsors on common accounting methods, costs and disclosures for retirement plans under various standards and interpretations.

Sources:

RET201-105-25: IFRS and US GAAP: Similarities and Differences, Ch. 5 only

RET201-110-25: Plan Curtailments & Settlements Under FASB ASC Topic 715 Relating to Plan Terminations, Part 2

RET201-111-25: FASB Accounting Standards Codification Topic 715 (excluding all subsections ending in 00, 20, 60 & 65, and 20-S00, 20-S50, 20-S55, 20-S99, 30-55, 60-55, 70-55 & 80-55)

Commentary on Question:

The question focused on pension expense and balance sheet disclosure. The concepts of settlement accounting were tested as well as differentiation between IAS 19 and ASC 715 accounting.

Solution:

(a) Compare and contrast the accounting treatment of the lump sum payment between ASC 715 and International Accounting Standard IAS 19, Rev. 2011 (IAS 19).

Justify your response. No calculations required.

Commentary on Question:

Many candidates were able to differentiate the accounting treatment for lump sum payments under ASC 715 from IAS 19

3. Continued

ASC 715

- Lump sum payments are considered a form of settlement
- Recognition is required if the cost of all settlements within a plan year exceeds the sum of service and interest cost for that period
- A settlement gain/loss reflects the pro-rata recognition of previously unamortized gains or losses on the entire plan

IAS 19

- Settlement accounting does not apply if it is due to lump sum elections as part of the normal operating procedures of the plan
- Gains/losses from the lump sum payment(s) as part of the normal operating procedures are recognized in OCI

(b) Calculate the following under ASC 715 reflecting the lump sum payment:

(i) Revised 2026 Net Periodic Pension Cost

(ii) Accumulated Other Comprehensive Income at December 31, 2026

Show all work.

Commentary on Question:
Most candidates were able to compute the net periodic pension cost prior to the settlement event. A check whether settlement accounting was needed was also part of the solution. Some candidates struggled with the AOCI calculation which involved reflecting the PBO and asset gain/loss and also the post-settlement unrecognized loss computations.

See Excel for Model solution to part (b).

(c) Describe how the accounting treatment would be different under ASC 715 if the lump sum was paid on September 30, 2026.

Justify your response. No calculations required.

Commentary on Question:
The answer needed to discuss the remeasurement at 9/30/2026 and the net periodic pension cost calculation. Most candidates handled this subpart well.

3. Continued

The settlement must be recognized on the date the settlement occurs, i.e. September 30, 2026. The Projected Benefit Obligation (PBO) and assets must be remeasured as of September 30, 2026, before determining the settlement impact.

The net periodic pension cost (NPPC) needs to be revised for the remainder of the year following the settlement date.

4. Learning Objectives:

2. The candidate will understand how to analyze/synthesize the factors that go into selection of actuarial assumptions used in pension valuations.

Learning Outcomes:

(2a) Evaluate appropriateness of current assumptions.

(2b) Describe and explain the different perspectives on the selection and development of assumptions, including financial economics.

(2c) Recommend appropriate assumptions and defend the selection.

Sources:

Selecting and Documenting Mortality Assumptions for Measuring Pension Obligations, AAA, Jan 2023

CIA Educational Note: Selection of Mortality Assumptions for Pension Plan Actuarial Valuations, Dec 2017

Credibility Educational Resource for Pension Actuaries, Society of Actuaries, Aug 2017

Forecasting Investment Returns and Expected Return Assumptions for Pension Actuaries, AAA, Feb 2019

Selecting and Documenting Pension Assumptions Other Than Discount Rate, Investment Return, and Mortality, AAA, Jun 2023

Commentary on Question:

This question tests the concepts of the selection of economic and demographic assumptions. Candidates generally did well on part (a) and more poorly in part (b). In order to receive full credit for each part, the candidate had to discuss each assumption and evaluate the appropriateness of the specific assumptions provided in the question. Candidates who described general requirements for setting the assumptions without forming an opinion about the specific assumptions provided did not receive full credit.

Solution:

(a) Evaluate the appropriateness of the assumptions for use under U.S. Accounting Standard ASC 715 (ASC 715).

Justify your response.

4. Continued

Expected Return on Assets (EROA)

- The current expected return on assets seems unreasonably high given the current asset allocation. 50% of the assets are currently invested in bonds, which provide a much lower return than 12%. Even if the allocation was 100% invested in equities, 12% may be seen as a very aggressive expected return and could indicate that the investment allocation is not prudent.

Mortality

- The current mortality assumption uses a blue-collar mortality table, which is appropriate for a manufacturing company.
- However, the mortality table is outdated, with a base year in 2005. There have been more recent standard mortality tables published since then, which would likely be a more accurate representation of current base mortality rates.
- Credibility procedures should be followed when determining whether the plan has enough credible experience to apply plan-specific adjustments, and if so how much weight should be applied to plan experience versus relevant experience. For a medium-sized plan with more active than retired employees (younger population), there may not be enough credible experience to apply plan-specific adjustments.
- Mortality improvement is reflected in the mortality assumption for accounting purposes. Any improvement scale should be applied from the mortality base year, and a generational scale is recommended.
- In addition, the use of different mortality rates for pre- and post-retirement should be considered.

Termination rates

- Currently assuming no termination rates.
- Inappropriate given manufacturing industry more susceptible to higher turnover, and the fact that Company ABC offers lump sums at termination, which would likely drive higher turnover.
- Should be updated to include termination scale based on age and/or service split between male and females and based on actual experience (over last 3-5 years) if possible.

Salary Increase

- Using a flat rate of 3% per year may not be reasonable, as merit salary increases typically vary depending on length of service. Given that this is a final average pay plan, the salary assumption will have a significant impact on costs. A flat 3% annual increase may vastly underestimate the final projected benefits for employees that are early in their careers.
- The salary increase assumption should also consider any impact of collective bargaining agreements, which would especially be relevant for this blue collar manufacturing company.

4. Continued

- It should also consider any volatility in different components that are included in pay, such as bonuses or overtime. There may be highly volatile hours worked under a manufacturing company as demand may peak at different times.

Retirement Age

- This plan has an early retirement option that offers a significantly subsidized benefit. The current retirement assumption is a single point estimate which may not accurately represent the experience of plan members. It would be more appropriate to have a table of rates based on age and/or service that would reflect the anticipated rate of employees retiring early.
- As a manufacturing company, the physical demands of the job may be an additional factor triggering employees to retire earlier than normal retirement age.

(b) Evaluate the assumptions above for valuing the SERP liability under ASC 715.

Justify your response.

Commentary on Question:
Most candidates correctly indicated that the mortality assumption should utilize a white-collar base table rather than blue-collar. In order to receive full credit, each of the following points needed to be made about the remaining assumptions, with partial credit given if some of these points were made:

- *EROA assumption is not applicable since SERPs are typically unfunded.*
- *Excluding a termination rate assumption is appropriate given the small population.*
- *The salary increase rate is too low and should be higher than the assumption for the DB plan.*
- *A single point retirement age is appropriate given the small population, but an earlier age should be considered.*

EROA

- Typically, SERPs are unfunded and benefits are instead paid out of the company assets. Therefore, the expected return on assets is not applicable.

Mortality

- The same considerations that apply to the currently sponsored DB plan apply to the SERP as well.
- In addition, the actuary should consider using white collar mortality for SERP instead of blue collar, as the executives are higher paid and likely have demographic characteristics that more closely align with the white collar population.

4. Continued

Termination Rates

- Given the size of the population, it is appropriate to exclude a termination assumption. The actuary must consider the cost of refinement versus materiality when determining whether to develop this assumption.

Salary increase rate

- 3.00% is likely based on plan experience as a whole. This should be reevaluated for using just executive experience and may increase significantly.
- Bonuses in particular may be extremely volatile so a separate bonus assumption may be warranted.

Retirement Age

- Given the size of the plan, a single point assumption may be appropriate.
- Given the early retirement subsidy and experience of the population (for example, executives may not need to or want to work past normal retirement age and may be more likely to afford retirement), an earlier single-point retirement assumption (such as age 60 or age 62) may be more appropriate.

5. Learning Objectives:

4. The candidate will recognize and appropriately reflect the role of retirement plan investments in managing plan sponsor risk and make recommendations.

5. The candidate will understand the general principles applicable to the funding of retirement income plans and recommend a funding policy.

Learning Outcomes:

(4a) Evaluate the interaction of plan investments with various valuation methods and assumptions.

(4b) Evaluate how factors including cash flow requirements, various plan designs and various economic environments affect setting investment strategy.

(4c) Describe strategies and techniques for asset/liability management.

(4d) Provide advice and analysis to plan sponsors regarding the mitigation of investment risks.

(5a) Describe the options available to plan sponsors for funding their retirement plans.

(5b) Given a context, such as regulatory environment, plan asset composition, stakeholders' interests, sponsor goals, the candidate will be able to analyze and defend an appropriate funding policy for various types of retirement income plans, including:

- Single-employer plans
- Multi-employer plans
- Government-sponsored plans

Sources:

RET201-113-25: Pensions in the Public Sector, Ch. 9

RET201-121-25: Introduction to Retirement Plan Funding

Risk Management and Public Plan Retirement Systems, AAA, Oct 2010 (Appendices only; pp. 1-33 background)

Commentary on Question:

Candidates generally performed well on parts a and b, and less strong on parts c and d.

Solution:

(a) Compare and contrast the objectives of taxpayers to the objectives of elected officials with respect to the funding of public sector pension plans.

5. Continued

Commentary on Question:
In general candidates did very well demonstrating the various objectives of elected officials and taxpayers. Candidates had to both compare and contrast the objectives of taxpayers and elected officials to receive full credit. The sample solution does not include an exhaustive list of responses that received credit.

Compare

- Both taxpayers and elected officials want to have public sector employees be satisfied with their benefits and able to retire so as to make their jobs run smoothly. Avoiding large turnover is in everyone's best interest.
- Both taxpayers and elected officials may have short-term focus (e.g. immediate taxes for taxpayers and annual budget for elected officials)
- Both are involved in funding public pension plans (taxes from taxpayers and funding policy/tax decisions from elected officials)

Contrast

- Taxpayer objective is to pay fewer taxes towards the public pension plan to the extent possible
- The taxpayers desire stable taxes each year, which is helped by more stable contributions, and ideally would like their taxes to be used efficiently across the public sector. The elected officials primarily desire re-election, but that ties to balancing the desires of other stakeholders as well so they can be re-elected.
- Elected officials have a much shorter-term view of funding since they have brief tenures in office and may be more concerned with optics than with ensuring benefits can be paid or that contribution volatility is low. As a result, the competing priorities (e.g. re-election) of elected officials can lead to variation in funding for the public pension plan.

(b) Explain why public sector pension plans have a tendency to be underfunded.

Commentary on Question:
Most candidates only hit on 2 reasons why public plans tend to be underfunded. Many commented on lack of governance, budgetary constraints, and multiple parties involved.

Candidates that accurately explained at least 4 reasons a public plan may be underfunded received full credit.

Credit was given for valid responses that illustrated the candidate understood the topic, even if not exactly matching the sample responses included below.

Candidates were required to provide an explanation, not simply list a contributing factor, to receive full credit.

5. Continued

- Surplus assets tend to be used to increase benefits, which in turn leads to increased costs and long run underfunding.
- Budgets tend to be sticky, and once contributions are reduced, it is difficult to get them increased, which can lead to long term underfunding.
- The burden of appropriate funding tends to fall mainly on the plan actuary, who is usually a hired consultant and not in a position to influence public sector policy or budgets.
- Funding is usually based on using a discount rate equal to the market value of assets, which can understate the true economic value of the liability.
- Taxpayers would prefer taxes to be spent on other priorities than pension contributions.
- Elected officials have competing budget priorities and may not adequately fund the plan.
- Public plans tend to have costly benefit features that may not be fully recognized in the liability used to determined the contribution requirements – e.g., COLAs
- Public plans are not required to contribute the actuarially determined amount because they are not subject to the same funding rules as private sector plans.

(c) Explain why the author believes investing in long duration bonds is optimal for a public sector pension plan.

Commentary on Question:
In general, candidates could not recall the views of this study note and did not do well on this question. Many candidates commented on a better synchronization between assets and liabilities but not the other points listed below.

Long duration bonds are optimal for public sector plans because:

1. Better synchronizes assets and liabilities
2. Reduces interest rate sensitivity of funded status
3. Benefits are often indexed, and sensitivity to real interest rates increases as the degree of indexation rises.
4. Very few liabilities are insensitive to nominal interest rates.
5. Provides for a higher expected return from moving up the yield curve (based on embedded illiquidity premium assuming an upward slowing yield curve).

5. Continued

(d) Explain why the author believes the optimal amount of equity exposure held within a public sector pension plan can vary based on the following factors:

(i) The amount of "noise" in the liabilities

(ii) The "weight" attached to the surplus value

(iii) The funded status of the plan

Commentary on Question:
Most candidates did fairly well on this question, particularly for (i) and (ii). However, for (iii), the author's view was that higher funded status would lead to higher equity exposure, which was not the view provided by many of the candidates. To receive full credit, candidates had to accurately describe each of the three factors from the author's point of view and exhibit a strong understanding of what each factor entails, tying it out to higher optimal equity exposure.

(i)

There are many sources of noise. For example: uncertainty in future demographics in the plan, benefit formulas and design (COLA), future pay, and future hiring patterns. The greater the "noise" the greater the optimal equity exposure. To the extent liabilities don't look exactly like bonds, a residual risk remains even with the best matched portfolio. In this case, adding equity increases returns more than it increases risk.

(ii)

The surplus in a pension plan may have value over and above the reduction in future contributions. Surplus may be recaptured by taxpayers (very rare) or be used to reduce cost elsewhere. The larger the weight attached to surplus, the greater the value of the surplus generated by extraordinary equity returns and the larger the optimal equity exposure.

(iii)

Poorly funded plans generally lead to higher optimal equity exposures – high equity exposures are necessary because the asymmetry (opportunity to increase benefits when plan is in surplus) disappears and may even reverse with little to lose and much to gain, causing all of the upside to be valuable.

Well-funded plans generally lead to higher optimal equity exposures because there is a large cushion protecting the plan from future contributions. The large cushion limits the downside risk to the extent that it makes the upside of a large equity exposure (a very happy workforce) an attractive trade-off.

5. Continued

Plans that are neither poorly nor well-funded will usually find that for a given liability noise level, higher equity exposures are economically unattractive.

6. Learning Objectives:

1. The candidate will understand how to apply/synthesize the methods and models used to value pension benefits for various purposes.

Learning Outcomes:

(1b) Perform periodic valuations of ongoing plans, calculating normal cost and actuarial accrued liability, using a variety of cost methods.

(1c) Analyze and communicate the pattern of cost recognition that arises under a variety of cost methods.

(1d) Analyze and communicate the impact on cost stability of a variety of asset valuation methods.

Sources:

Pension Mathematics for Actuaries, Anderson, Arthur W., 3rd Edition, 2006 Ch 1, 2, 3, 4, 7

ASOP 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Compare and contrast the appropriateness of using the following cost methods for the actuarial valuation for the purpose of funding the pension plan:

(i) Entry Age Normal

(ii) Unit Credit

Justify your response.

Commentary on Question:

This question was testing candidates' knowledge of the listed cost methods. Complete answers should have described each method, pointed out that entry age normal projects salary while unit credit does not, and commented on the pattern of cost recognition over time under each method. Successful candidates pointed out that the flatter pattern of cost recognition under the entry age normal method compared to unit credit is better suited to the plan described in this question, given it is a final average earnings plan with an assumption of salary growth over time and the sponsor is prioritizing cost stability.

Candidates generally did well describing the main characteristics of each cost method. Some candidates failed to differentiate the flatter cost structure under entry age normal and connect this with the sponsor preference for cost stability.

6. Continued

If cost stability is a priority, then entry age normal is the more appropriate cost method for this plan. Entry age normal method projects members' total future benefit, including their salary, from entry age to assumed retirement age and spreads the cost of funding this benefit evenly over their projected years of service (either as a flat $ amount or level % of pay). The result is that there should be limited year-to-year normal cost variability if plan experience follows the assumptions reasonably closely.

The unit credit method does not project salary and instead calculates normal cost based on a one year accrual of future benefits based on current salary. Under this method, each member's normal cost becomes larger as the member gets closer to retirement due to less discounting prior to retirement age. Also, since employees typically experience salary increases as they age, this also contributes to the upwardly sloping pattern of unit credit normal cost over time for plans with salary-based benefits. Since the company priority is cost stability, the unit credit method would not be appropriate.

(b) Calculate the normal cost as at January 1, 2026 for the member using the following cost methods:

(i) Entry Age Normal

(ii) Unit Credit

Show all work.

Commentary on Question:
This question tested candidates' technical knowledge of the listed cost methods. Most candidates did well calculating the normal cost under the unit credit cost method. Some candidates had difficulty correctly projecting salary under the entry age normal cost method and allocating the cost correctly among the members' working years.

Given that the plan uses a final average earnings benefit formula with salaries assumed to increase over time, the most appropriate method of determining normal cost under the entry age normal method is to allocate as a level percentage of salary. However, credit was also granted to those who used the level dollar method, since this was not explicit in the question.

See spreadsheet for model solution.

6. Continued

(c) Recommend a cost method for the new final average earnings defined benefit pension plan.

Justify your response. No calculations required.

Commentary on Question:
The intent of this question was to test candidates' knowledge of cost methods. Candidates generally did well recognizing cost methods that had the desired characteristic of cost stability, but some candidates failed to identify the wide salary dispersion among the members and address that in their selection of a cost method. The individual level premium cost method is recommended as the best fit. Other methods that did not directly address the salary dispersion but did address cost stability, such as entry age normal, may have earned partial credit if justified well.

Due to the non-homogenous nature of the group, with one member having much higher earnings, the chosen cost method should aim to fund losses attributable to salary experience at an individual level, spread over each individual's remaining working life. The plan sponsor preference for cost stability should also be considered.

Cost methods that aggregate normal cost are generally not appropriate here, as they make the plan open to the possibility of the high earning member retiring from the plan and leaving an unfunded liability behind. The individual level premium cost method is recommended as the best fit, as it addresses all of the above issues; normal costs are determined on an individual basis based on projected future benefits, and salary gains/losses are rolled into future normal costs at an individual level.

7. Learning Objectives:

1. The candidate will understand how to apply/synthesize the methods and models used to value pension benefits for various purposes.

Learning Outcomes:

(1d) Analyze and communicate the impact on cost stability of a variety of asset valuation methods.

Sources:

Guidance on Asset Valuation Methods, CIA Revised Educational Note, Feb 2024

Asset Valuation Methods under ERISA, Pension Forum, Sep 2002, Ch. 1, 3, 4 and 5 (regulations will not be tested)

Survey of Asset Valuation Methods for Defined Benefit Pension Plans (pp. 5-6 only)

Commentary on Question:

Most candidates struggled with the book value asset methodology. In order to receive full credit, the candidate had to compare and contrast the funding stability of each method and correctly rank the level of funding stability that the three methods provide.

Solution:

Compare and contrast the impact on funding stability of the following asset valuation methods in a long-term declining equities market:

(i) Book value

(ii) 3-year smoothed market value

(iii) Fair market value

Book Value

- Book value is typically used for assets that do not have a readily ascertainable fair market value or where the fair market value is not relevant. For example, illiquid assets. Book value is not typically used for equities.
- If the plan sponsor had equity investments that were valued at book value, then the value would be equal to the price at which the asset was purchased or contract value. In either case, the book value would not change as long as the plan sponsor continued to hold the assets (remains invested), leading to the most stable asset value and therefore most stable funded status out of all three methods (also acceptable for the candidate to say that a one-time book value adjustment could lead to large one-time instability).

7. Continued

- In a long-term declining equities market, the cost of the asset on date of purchase could be much higher than the current value of the asset, which would lead to an over-stated funded position, less asset value volatility, and high funding stability

3-year Smoothed Market Value

- The smoothed market value would allow for more stability in the funding of the plan than using the fair market value
- Any gains or losses in the asset value year over year would be smoothed, so there would be less volatility in the contributions required to fund the deficit each year as compared to the fair market value

Fair Market Value

- This would lead to the most volatility in the asset value since assets would be valued as reported at the current fair market value
- Would lead to higher payments required to amortize the deficit and more volatile contributions
- Generally the least funding stability of all methods