

FCIA SYLLABUS: READING LIST

Retirement benefits track

Exam F1RET: Pension Funding and Regulation

The aim of this exam is for candidates to develop the following skills:

1. Understand the main provisions, principles, regulation, professional standards, governance, and techniques of funding and administration applicable to retirement benefits.
2. Apply these principles and techniques within the context of pension plans.
3. Evaluate hypothetical scenarios, including using judgment to assess the implications of possible actions and to develop appropriate proposals or recommendations relating to the funding and administration of pension plans.

1. Principal terms	
1. Define principal terms used in the funding and regulatory environment of retirement benefits. (A1).	
Reading reference	Source
Willis Towers Watson. 2017. <i>Canadian Pensions and Retirement Income Planning</i> . 6th ed. Toronto (ON): LexisNexis. Chapter 2.	https://store.lexisnexis.ca/en/categories/shop-by-jurisdiction/promo-8/canadian-pensions-and-retirement-income-planning-6th-edition-skusku-cad-6330/details

2. Retirement benefits and pension mathematics (30%)
<ol style="list-style-type: none">1. Describe and analyze the features of traditional defined benefit plans and defined contribution plans. (C4)2. Describe and analyze the structure of the following plan types: (C4)<ol style="list-style-type: none">a. Traditional defined benefit plans.b. Defined contribution and savings plans.c. Hybrid plans.d. Multi-employer pension plans.e. Other alternative retirement plans such as shared-risk plans, target-benefit plans, and jointly sponsored pension plans.3. Perform periodic valuations of ongoing plans, calculating normal cost, actuarial liability, and gains and losses, using a variety of cost methods: (C3)<ol style="list-style-type: none">a. Unit credit and projected unit credit.b. Entry age normal.c. Individual level premium.d. Aggregate.e. Attained age normal.4. Compare and contrast methods described in 2. and determine their appropriateness factoring in the plan sponsor's objectives and regulatory requirements. (D5)5. Calculate actuarially equivalent benefits, subsidized benefits, and other ancillary benefits. (C3)

Reading reference	Source
Willis Towers Watson. 2017. <i>Canadian Pensions and Retirement Income Planning</i> . 6th ed. Toronto (ON): LexisNexis. Chapter 2.	https://store.lexisnexis.ca/en/categories/shop-by-jurisdiction/promo-8/canadian-pensions-and-retirement-income-planning-6th-edition-skusku-cad-6330/details
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapter 1.	https://store.lexisnexis.ca/en/products/morneau-shepell-handbook-of-canadian-pension-and-benefit-plans-17th-edition-lexisnexis-canada-skusku-cad-6426/details
Anderson AW. 2006. <i>Pension Mathematics for Actuaries</i> . 3rd ed. Greenland (NH): ACTEX. Chapters 1, 2, 3, 4, 7.	https://www.actexamdriver.com/orderselection.aspx?id=453142266

3. Pension legislation (30%)

1. Describe and apply federal and provincial pension benefit acts and regulations. (B3)
2. Describe and apply the various retirement benefit arrangements available to a plan sponsor. (B3)
3. Describe and apply applicable agreements respecting multi-jurisdictional pension plans between provincial regulators. (C5)
4. Recognize, define, interpret, apply, calculate, and evaluate minimum standards in respect of the following provisions of registered pension plans: (C5)
 - a. Eligibility requirements.
 - b. Retirement benefit formula (uniform accrual and integration with government benefits).
 - c. Employer cost (50 percent cost rule).
 - d. Interest credited on member contributions.
 - e. Termination benefits such as commuted values.
 - f. Death benefits.
 - g. Spousal protection.
 - h. Vesting and locking-in provisions.
 - i. Portability (LIFs, RIFs).
 - j. Pension credit splitting upon marriage breakdown.
 - k. Retirement age.
 - l. Disclosure requirements/privacy/rights to information.
 - m. Statement for members (annual or at retirement/termination).
 - n. Indexation of pensions.
 - o. Decumulation.
 - p. Pension fund investment requirements.
 - q. Remittance of contributions.
 - r. Statutory required benefits (such as grow-in benefits in Ontario).
5. Produce funding requirements under applicable provincial and federal minimum standard legislation considering: (C6)
 - a. Going-concern basis.
 - b. Solvency/hypothetical wind-up.
 - c. Plan termination.
 - d. Plan mergers and asset transfers.
 - e. Plan conversion.
 - f. Temporary funding relief measures.
 - g. Use of letters of credit.
 - h. Additional mandated liabilities.
 - i. Solvency reserve accounts.
 - j. Stabilization provisions and smoothing techniques.
 - k. Plan amendments.

- l. Restrictions on benefit payouts.
- 6. Apply, analyze, and evaluate the following: (C5)
 - a. Partial/full plan termination.
 - b. Plan mergers and asset transfers.
 - c. Plan conversion.
 - d. Plan amendments.
 - e. Surplus ownership/contribution holiday.
 - f. Funding relief measures.
 - g. Frequency of valuation.
 - h. Use of letters of credit.
 - i. Use of solvency reserves account.
- 7. Outline the following different filing requirements and reports, including: (B2)
 - a. Annual Information Return (AIR).
 - b. Actuarial Valuation Report and Actuarial Information Summary (AIS).
 - c. Pension Benefits Guarantee Fund (PBGF) Assessment.
 - d. Other provincially legislated forms (e.g., Financial Statement and Form 8 – Investment Information Summary/Form 7 – Summary or Revised Summary of Contributions).
 - e. Relevant policies and guidance from pension regulators.
 - f. Member communications, including annual benefit statements, termination, and retirement election forms.

Reading reference	Source
Willis Towers Watson. 2017. <i>Canadian Pensions and Retirement Income Planning</i> . 6th ed. Toronto (ON): LexisNexis. Chapters 13, 15.	Canadian Pensions and Retirement Income Planning, 6th Edition LexisNexis Canada LexisNexis Canada Store
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapters 3, 9, 11, 15.	https://store.lexisnexis.ca/fr/categories/product/morneau-shepell-handbook-of-canadian-pension-and-benefit-plans-17th-edition-skusku-cad-6426/details
<i>Pension Benefits Act</i> , RSO 1990, c. P.8. <i>Pension Benefits Act</i> , RRO 1990, Reg. 909. <i>Pension Benefits Act</i> . O Reg. 310/13.	https://www.ontario.ca/laws/statute/90p08 https://www.ontario.ca/laws/regulation/900909 https://www.ontario.ca/laws/regulation/r13310
Association of Canadian Pension Management (ACPM). 2014. <i>ACPM Target Benefit Plan Supplemental Paper</i> . Toronto (ON): ACPM.	https://www.acpm.com/ACPM/media/media/resources/7/media/AGR/Publication/ACPM-Target-Benefit-Plan-Supplemental-Report-(Sept8-14).pdf
Canadian Association of Pension Supervisory Authorities (CAPSA). <i>2020 Agreement Respecting Multi-Jurisdictional Pension Plans</i> . Toronto (ON): CAPSA.	https://www.capsa-acor.org/Documents/View/1786
Financial Services Regulatory Authority of Ontario (FSRAO) [last modified 2019 Jan 24]. Toronto (ON): FSRAO. "Questions and answers on 2016 agreement respecting multi-jurisdictional pension plans."	https://www.fsrao.ca/media/21911/download
Bill 64, <i>An Act to modernize legislative provisions as regards the protection of personal information</i> , 1st Sess, 42nd Leg, Quebec, 2020, [assented to 2021 Sep 22; coming into force 2023 Sep 22], SQ 2021, c. 25.	https://www.assnat.qc.ca/en/travaux-parlementaires/projets-loi/projet-loi-64-42-1.html
Macdonald B-J, Jones B, Morrison RJ, Brown RL, Hardy M. 2013. "Research and reality – a literature review on drawing down retirement financial savings." <i>N Am Actuar J</i> . 17(3): 181-215.	https://www.soa.org/493888/globalassets/assets/files/research/projects/research-literature-review-report.pdf

Financial Services Regulatory Authority of Ontario (FSRA). 2014. <i>Filing Requirements and Procedure on Full or Partial Wind Up of a Pension Plan</i> . Toronto (ON): FSRAO.	https://www.fsrao.ca/filing-requirements-and-procedure-full-or-partial-wind-pension-plan
Financial Services Regulatory Authority of Ontario (FSRA). 2021. Toronto (ON): FSRA. "Asset transfer webinar: Questions and answers."	https://www.fsrao.ca/industry/pensions/webinars/asset-transfer-webinar
Office of the Superintendent of Financial Institutions (OSFI). 2001. <i>Guideline for Converting Plans from Defined Benefit to Defined Contribution</i> . Ottawa (ON): OSFI.	https://www.osfi-bsif.gc.ca/en/supervision/pensions/administering-pension-plans/guidance-topic/guideline-converting-plans-defined-benefit-defined-contribution
Financial Services Regulatory Authority of Ontario (FSRA). [last modified 2014 Nov 19]. Toronto (ON): FSRAO. "Questions and answers on letters of credit."	https://www.fsrao.ca/media/7011/download
Government of Alberta. 2015. Interpretive Guideline No. 07: <i>Solvency Reserve Account</i> . Edmonton (AB): Government of Alberta.	https://open.alberta.ca/dataset/623fa691-3296-4bf4-ae01-ebd3cd657f99/resource/df63ea14-3bb8-4813-9bb2-68b54f7085ef/download/iq-07-solvency-reserve-account.pdf
Financial Services Regulatory Authority of Ontario (FSRA). 2013. <i>Actuarial Filing for Plan Amendments</i> . Toronto (ON): FSRAO.	https://www.fsrao.ca/media/9141/download
<i>Pension Benefits Act</i> , O. Reg. 250/18.	https://www.ontario.ca/laws/regulation/r18250
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "The 2022 HSP Annual Information Return (AIR)." 2022.	https://www.fsrao.ca/industry/health-service-providers/2023-hsp-annual-information-return-air
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "AIR and annual regulatory fee FAQ." 2022.	https://www.fsrao.ca/industry/health-service-providers/2023-hsp-annual-information-return-air/air-and-annual-regulatory-fee-faq
Canada Revenue Agency (CRA). [updated 2022 Mar 17]. <i>T1200 Actuarial Information Summary</i> . Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/forms-publications/forms/t1200.html
Office of the Superintendent of Financial Institutions (OSFI). 2021. <i>Actuarial Information Summary</i> [instruction guide]. Ottawa (ON): OSFI.	https://www.osfi-bsif.gc.ca/en/supervision/pensions/administering-pension-plans/guidance-topic/actuarial-information-summary
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "Pension Benefits Guarantee Fund (PBGF)."	https://www.fsrao.ca/consumers/pensions/pension-benefits-guarantee-fund-pbgf
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "FAQs – Pension Benefits Guarantee Fund (PBGF)."	https://www.fsrao.ca/print/pdf/node/10256
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "Pensions – all forms" [searchable database].	https://www.fsrao.ca/industry/pensions/pensions-all-forms
Financial Services Regulatory Authority of Ontario (FSRA). 2023. Toronto (ON): FSRA. "News" [searchable database]. Sector: Pensions.	https://www.fsrao.ca/newsroom
Retraite Québec. <i>Newsletter</i> [archive]. Québec City (QC): Government of Québec.	https://www.retraitequebec.gouv.qc.ca/en/publications/nos-programmes/rcr/la-lettre/Pages/la-lettre.aspx
Financial Services Regulatory Authority of Ontario (FSRA). 2013 [effective 2012 Jul 1]. <i>Members' Annual Statements and Termination Statements</i> . Toronto (ON): FSRAO.	https://www.fsrao.ca/media/9131/download
Retraite Québec. 2023. Québec City (QC): Government of Québec. "Supplemental pension plans."	https://www.rqgouv.qc.ca/en/programmes/rcr/Pages/regimes_complementaires.aspx
Manulife. 2023. Toronto (ON): Manulife. "Summary of pension legislation" [searchable database].	https://www.manulife.ca/business/news/legislative-updates/pension-legislation.html

4. Income tax legislation and regulation (30%)

1. Apply and analyze rules and provisions outlined in the following: (C3)
 - a. *Income Tax Act* and Regulations (pension/retirement savings sections only).
 - b. Information circulars, FAQs, and interpretation bulletins (pension-related only).
 - c. Canada Revenue Agency (CRA) Registered Plans Directorate bulletins, newsletters, and technical manuals.
 - d. CRA pension-related forms and guides.
 - e. Types of registered retirement savings plan (RRSP)/pension plans (defined benefit/defined contribution/hybrid/combo), and overall individual/plan-specific limits.
 - f. Permissible funding arrangements.
 - g. Permissible benefits.
 - h. Retiring allowance.
 - i. Pension adjustment (PA), past-service pension adjustment (PSPA), and pension adjustment reversal (PAR).
 - j. Plan registration rules.
 - k. Limits on registered defined benefit plan benefits.
 - l. Permissible distributions and transfers.
 - m. Deductibility of contributions.
 - n. Allowable surplus.
 - o. Phased retirement.
 - p. Shared-risk plans.
 - q. Jointly sponsored pension plans (JSPPs).
 - r. Multi-employer pension plans (MEPPs) and specified multi-employer plans (SMEPs).
 - s. Flexible pension plans.
 - t. Group RRSP/deferred profit-sharing plan (DPSP)/employee profit-sharing plan (EPSP)/tax-free savings account (TFSA)/supplemental executive retirement plan (SERP)/retirement compensation arrangement (RCA).
 - u. Reporting and filing requirements.
2. Outline the filing process of T244 (or part of Joint AIR), trust filings (T3D/T3P/T3-RCA). (C3)
3. Outline the reporting and calculation process of PAs, PSPAs, and PARs (C3)
4. Analyze and recommend plan-design features compliant with tax legislation. (D5)
5. Apply, analyze, and evaluate features and rules governing maximum funding valuation/specified individuals/designated plans/individual pension plans. (C5)

Reading reference	Source
<i>Income Tax Act</i> , RSC, 1985, c. 1 (5th Supp.). Section 147.1.	https://laws-lois.justice.gc.ca/eng/acts/i-3.3/page-139.html#h-307331
Income Tax Regulations, CRC, c. 945. Sections 8301, 8406-8410, 8500.	https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.%2C%20c.%20945/page-75.html
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapters 8, 13, 14.	Morneau Shepell Handbook of Canadian Pension and Benefit Plans, 17th Edition LexisNexis Canada LexisNexis Canada Store
British Columbia Securities Commission (BCSC). 2015. Form 51-102F6: <i>Statement of Executive Compensation</i> . Vancouver (BC): BCSC.	https://www.bcsc.bc.ca/-/media/PWS/Resources/Securities_Law/Policies/Policy5/51102F6-F-June-30-2015pdf.pdf

Willis Towers Watson. 2017. <i>Canadian Pensions and Retirement Income Planning</i> . 6th ed. Toronto (ON): LexisNexis. Chapters 5-12, 15-23.	Canadian Pensions and Retirement Income Planning, 6th Edition LexisNexis Canada LexisNexis Canada Store
Canada Revenue Agency (CRA). [last updated 2021 Dec 9]. T4084 <i>Pension Adjustment Guide</i> . Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/t4084.html
Canada Revenue Agency (CRA). [last updated 2018 Dec 17]. RC4137 <i>Pension Adjustment Reversal Guide</i> . Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/rc4137/pension-adjustment-reversal-guide.html
Canada Revenue Agency (CRA). [last updated 2016 Dec 29]. T244 <i>Registered Pension Plan Annual Information Return</i> . Ottawa (ON): Government of Canada.	https://www.canada.ca/en/revenue-agency/services/forms-publications/forms/t244.html
"Chapter 19 – 8515 and 8516 – Special rules for designated plans and eligible contributions." [last updated 2019 Nov 22]. Canada Revenue Agency (CRA). 2023. Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/registered-plans-directorate-technical-manual-18.html
CIA Revised Educational Note: <i>Reflecting Increasing Maximum Pensions Under the Income Tax Act in Solvency, Hypothetical Wind-Up and Wind-Up Valuations</i> .	https://www.cia-ica.ca/publications/223186e/
"Newsletter no. 96-3R1, Flexible pension plans." 1996 Nov 25. Canada Revenue Agency (CRA). 2023. Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/newsletters-technical-manual/no-96-3r1.html
"Newsletter no. 16-3, Transfers from underfunded individual pension plans." 2016 May 4. Canada Revenue Agency (CRA). 2023. Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/newsletters-technical-manual/no-16-3.html
"Newsletter no. 14-2. IPP minimum amount." 2014 Nov 18. Canada Revenue Agency (CRA). 2023. Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/newsletters-technical-manual/no-14-2.html
Canada Revenue Agency (CRA). 2015. <i>Actuarial Bulletin No. 1R1</i> . Ottawa (ON): CRA.	https://www.canada.ca/content/dam/cra-arc/migration/cra-arc/tx/rqstrd/bltn/dcmnt-eng.pdf
Canada Revenue Agency (CRA). 2010. <i>Actuarial Bulletin No. 2</i> . Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/bulletins/actuarial-bulletin-2.html
Canada Revenue Agency (CRA). 2020. <i>Actuarial Bulletin No. 3</i> . Ottawa (ON): CRA.	https://www.canada.ca/en/revenue-agency/services/tax/registered-plans-administrators/bulletins/actuarial-bulletin-3.html

<p>5. Professionalism and standards of practice relative to plan funding (10%)</p>
<ol style="list-style-type: none"> 1. Apply the standards related to communications to plan sponsors and others with an interest in an actuary's results (i.e., participants, auditors, etc.). (C3) 2. Explain and apply the professional conduct guidelines. (B3) 3. Explain and apply relevant qualification standards. (B3) 4. Demonstrate compliance with requirements regarding the actuary's responsibilities to participants, plan sponsors, etc. (B2) 5. Explain and apply all of the applicable standards of practice related to valuing pension benefits. (C3) 6. Recognize situations and actions that violate or compromise standards or professional conduct guidelines. (B2) 7. Recommend a course of action to repair a violation of standards or professional conduct guidelines. (D6)

8. Outline differences between pension commuted values and capitalized value for marriage-breakdown purposes. (B2)
9. Consider, assess, and decide on provisions for adverse deviations (PfADs) or statutory margins in going-concern valuations. (C5)
10. Describe and apply the techniques used in the development of going-concern economic and demographic assumptions. (C5)
11. Calculate and develop incremental cost on a hypothetical wind-up or solvency basis, sensitivity analysis, and plausible adverse scenarios. (C3)
12. Outline and apply CIA *Guidance on Asset Valuation Methods*. (C3)
13. Interpret and apply CIA *Consolidated Standards of Practice*, educational notes, and guidance provided by relevant CIA committees. (C3)

Reading reference	Source
CIA Standards of Practice. Sections 1000-1700, 3100-3500.	https://www.cia-ica.ca/being-a-member/standards-of-practice/
CIA Educational Note: <i>Assumptions for Hypothetical Wind-Up and Solvency Valuations with Effective Dates on or After December 31, 2022, and no later than June 29, 2024.</i>	https://www.cia-ica.ca/publications/223053e/
CIA Educational Note: <i>Section 3500 of the Practice-Specific Standards for Pension Plans – Pension Commuted Values (Subsection 3570).</i>	https://www.cia-ica.ca/publications/223083e/
CIA Qualification Standard.	https://www.cia-ica.ca/publications/223166e/
CIA Rules of Professional Conduct.	https://www.cia-ica.ca/publications/223164e/
CIA Guidance Document: <i>General Advice on the Application of Rule 13.</i>	https://www.cia-ica.ca/publications/223028e/
CIA Revised Educational Note: <i>Events Occurring After the Calculation Date of an Actuarial Opinion for a Pension Plan.</i>	https://www.cia-ica.ca/publications/215004e/
CIA Educational Note – Second Revision: <i>Selection of Mortality Assumptions for Pension Plan Actuarial Valuations.</i>	https://www.cia-ica.ca/publications/217128e/
CIA/SOA Research Paper: <i>Provisions for Adverse Deviations in Going Concern Actuarial Valuations.</i>	https://www.cia-ica.ca/publications/217035e/
CIA Revised Educational Note: <i>Expenses in Funding Valuations for Pension Plans.</i>	https://www.cia-ica.ca/publications/223110e/
CIA Educational Note: <i>Calculation of Incremental Cost on a Hypothetical Wind-Up or Solvency Basis.</i>	https://www.cia-ica.ca/publications/223065e/
CIA Revised Educational Note: <i>Guidance on Asset Valuation Methods.</i>	https://www.cia-ica.ca/publications/214100e/

Exam F2RET: Pension Financial Reporting

The aim of this exam is for candidates to develop the following skills:

1. Understand the main principles and techniques of financial reporting relevant to retirement benefits.
2. Apply these principles and techniques within the context of pension plans.
3. Evaluate hypothetical scenarios, including using judgment to assess the implications of possible actions and to develop appropriate proposals or recommendations relating to financial reporting of pension plans.

1. Principal terms	
1. Define principal terms used in the financial reporting environment of retirement benefits. (A1).	
Reading reference	Source
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapter 6.	Morneau Shepell Handbook of Canadian Pension and Benefit Plans, 17th Edition LexisNexis Canada LexisNexis Canada Store

2. Accounting standards (30%)	
<ol style="list-style-type: none"> 1. Recognize, define, calculate, and interpret financial-statement components: balance sheet/profit-and-loss statement/changes in other comprehensive income/notes to financial statements. (B3) 2. Compare and contrast applicable accounting standards. (B4) 3. Evaluate recognition of liability/accounting expense. (C5) 4. Apply actuarial cost methods. (C3) 5. Analyze and decide on actuarial assumptions relative to pension and other post-employment benefits. (C4) 6. Consider and apply allocation, attribution, and vesting. (B4) 7. Recognize and evaluate benefit changes. (B5) 8. Recognize and evaluate assumption changes. (B5) 9. Evaluate recognition and amortization of past service costs. (C5) 10. Evaluate recognition and amortization of actuarial gains and losses. (C5) 11. Recognize and appraise curtailment, settlement, and annuity purchase. (C5) 12. Recognize and calculate termination benefits, business discontinuance, and a combination of both. (C5) 13. Differentiate and distinguish the accounting treatment applicable to shared-risk or multi-employer pension and benefit plans. (C4) 14. Recognize and apply IAS 19 disclosure requirements. (C3) 15. Recognize and apply FASB disclosure requirements. (C3) 16. Recognize and apply IFRIC 14 adjustments and asset ceiling. (C3) 17. Outline and apply the CIA/CICA <i>Joint Policy Statement</i>. (C3) 18. Analyze and evaluate accounting impacts of transactions such as mergers, acquisitions, and purchase price adjustment. (C5) 	
Reading reference	Source
Actuarial Standards Board. 2010. <i>Final Standards – General Standards – CIA/CICA Joint Policy Statement, Subsection 1630</i> . Ottawa (ON): Actuarial Standards Board.	https://www.cia-ica.ca/publications/210008e/
Second Revision Educational Note: <i>Setting the Accounting Discount Rate Assumption for Pension and Post-employment Benefit Plans</i> .	https://www.cia-ica.ca/publications/220174e/

Chartered Professional Accountants (CPA) Canada. 2023. <i>CPA Canada Handbook – Accounting</i> . Toronto (ON): CPA Canada. Preface; Part I (Introduction to Part I), Part II (Section 3462).	https://www.cpastore.ca/Catalogue/ShowSampleToc.aspx?productID=137&spID=63
International Financial Reporting Standards (IFRS) Foundation. 2022. IAS 19 <i>Employee Benefits</i> . London (UK): IFRS. International Financial Reporting Standards (IFRS) Foundation. 2022. IFRIC 14 <i>IAS 19—The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction</i> . London (UK): IFRS.	Available online at http://www.ifrs.org/Pages/default.aspx . You must first register for a free user account at https://www.ifrs.org/registration/ to obtain access. You will need to access both: IAS 19 at http://eifrs.ifrs.org/eifrs/PdfAlone?id=19298&sidebarOption=Unaccompaniedlas (you must first login, then paste the link into your browser) IFRIC 14 at http://eifrs.ifrs.org/eifrs/PdfAlone?id=19323&sidebarOption=IfricInterpretations (you must first login, then paste the link into your browser) https://www.ifrs.org/issued-standards/list-of-standards/ifric-14-ias-19-the-limit-on-a-defined-benefit-asset-minimum-funding-requirements/#standard
McGill D, Brown KN, Haley JJ, Schieber S, Warshawsky MJ. 2010. <i>Fundamentals of Private Pensions</i> . 9th ed. Oxford (UK): Oxford University Press. Chapters 22-25.	https://global.oup.com/academic/product/fundamentals-of-private-pensions-9780199544516?cc=ca&lang=en&#

3. Reporting of pension, post-employment benefits, and post-retirement benefits for financial statement and proxy circular purposes (25%)

1. Describe, explain, and understand the different components of executive compensation, such as: (B3)
 - a. Salary.
 - b. Short- and long-term compensation incentives (performance share units, stock options, stock appreciation rights, deferral plans), pensions, group benefits, share purchase plan, perquisites, and severance/change-in-control agreements.
2. Define the purpose of executive compensation and explain its governance practices, including proxy circulars. (B2)
3. Interpret and apply the *CPA Canada Handbook*. (B3)
4. Interpret and apply IAS 19 and IFRIC 14. (C3)
5. Understand the concept of accrual versus cash basis for pension plan assets. (B2)
6. Differentiate audited financial reports and audited financial statements. (C4)
7. Understand and use audited financial statements and reports: (C3)
 - a. versus financial reports from custodians.
 - b. concerning how residual benefits are treated.

Reading reference	Source
Chartered Professional Accountants (CPA) Canada. <i>CPA Canada Handbook – Accounting</i> . Toronto (ON): CPA Canada. Preface; Part I (Introduction to Part I), Part II (Section 3462), Part III (Section 3463).	https://www.cpastore.ca/Catalogue/ShowSampleToc.aspx?productID=137&spID=63
Novick B. 2019. "Executive compensation: the role of public company shareholders." <i>Harvard Law School Forum on Corporate Governance</i> . Cambridge (MA): Harvard Law School.	https://corpgov.law.harvard.edu/2019/07/31/executive-compensation-the-role-of-public-company-shareholders/
British Columbia Securities Commission (BCSC). 2015. Form 51-102F6: <i>Statement of Executive Compensation</i> . Vancouver (BC): BCSC.	https://www.bcsc.bc.ca/-/media/PWS/Resources/Securities_Law/Policies/Policy5/51102F6-F-June-30-2015pdf.pdf

Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapters 13, 14.	Morneau Shepell Handbook of Canadian Pension and Benefit Plans, 17th Edition LexisNexis Canada LexisNexis Canada Store
CIA Report: <i>CICA – CIA Guide: Audits of Financial Statements That Contain Amounts That Have Been Determined Using Actuarial Calculations</i> .	https://www.cpacanada.ca/business-and-accounting-resources/audit-and-assurance/canadian-auditing-standards-cas/publications/auditors-actuaries-updated-guide

4. Investments and asset allocation (20%)

1. Assess the different types and combinations of investment vehicles for providing retirement benefits given the particulars of a stakeholder's financial circumstances, philosophy, industry, workforce, and benefit package. (C5)
2. Distinguish the various strategies, approaches, and techniques used to manage retirement fund assets. (C5)
3. Assess a statement of investment policy including how environmental, social, and governance (ESG) factors should be integrated in the investment process. (C5)
4. Assess the potential effects of various investments and investment policies on stakeholders, including tax implications. (C5)
5. Describe the regulatory restrictions on, and guidelines for, retirement plan assets. (B2)
6. Solve for a measure of investment performance relevant to a given benchmark. (C5)

Reading reference	Source
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapter 7.	https://store.lexisnexis.ca/en/categories/shop-by-jurisdiction/promo-8/morneau-shepell-handbook-of-canadian-pension-and-benefit-plans-17th-edition-skusku-cad-6426/details
McGill D, Brown KN, Haley JJ, Schieber S, Warshawsky MJ. 2010. <i>Fundamentals of Private Pensions</i> . 9th ed. Oxford (UK): Oxford University Press. Chapters 26, 27, 28.	https://global.oup.com/academic/product/fundamentals-of-private-pensions-9780199544516?cc=ca&lang=en&#
Litterman B, Quantitative Resources Group. 2003. <i>Modern Investment Management: An Equilibrium Approach</i> . Hoboken (NJ): Wiley. Chapters 2, 17, 22, 23, 24, 27 (p. 501-505), 28 (p. 516-520).	https://www.wiley.com/en-us/Modern+Investment+Management:+An+Equilibrium+Approach-p-9780471124108
The Association of Canadian Pension Management (ACPM). 2022. <i>Fiduciary Considerations Relating to Environmental, Social and Governance Issues for Canadian Retirement Arrangements</i> . Toronto (ON): ACPM.	https://www.acpm.com/getmedia/1b2c29d7-be93-400a-beaa-a2ab0081d58e/ACPM-ESG-White-Paper-June-1-2022.pdf
Canadian Association of Pension Supervisory Authorities (CAPSA). 2022. <i>Environmental, Social and Governance Considerations in Pension Plan Management</i> . Toronto (ON): CAPSA.	https://www.capsa-acor.org/Documents/View/1914
ACPM- Fiduciary Considerations Relating to Environmental, Social & Governance Issues for Canadian Retirement Arrangements	https://www.acpm.com/getmedia/1b2c29d7-be93-400a-beaa-a2ab0081d58e/ACPM-ESG-White-Paper-June-1-2022.pdf

5. Pension governance and fiduciary duties (15%)

1. Describe the roles of plan administrator, board of trustees, and pension committee. (B2)
2. Describe the role of pension advisory authorities. (B2)
3. Define, describe, and interpret benefit rights. (B2)
4. Identify, assess, and evaluate funding obligations/responsibility for deficits. (C5)
5. Interpret, analyze, and assess the right to surplus. (D5)
6. Recognize and apply family law and marriage-breakdown requirements. (C3)

<p>7. Recognize and interpret basic principles of trust law. (C3)</p> <p>8. Consider and apply bankruptcy and insolvency legislation. (C3)</p> <p>9. Consider and apply employment standards legislation. (C3)</p> <p>10. Consider and apply human-rights legislation. (C3)</p> <p>11. Consider and apply key pension case law, jurisprudence, and legal opinions such as Monsanto, Indalex, McCarthy Tétrault legal opinion on implications of climate-related risks for Canadian pension plan fiduciaries and policymakers, etc. (C3)</p> <p>12. Demonstrate an understanding of regulator guidance and context for different approaches to responsible investment and, specifically, the integration of ESG factors in the investment process. (C3)</p> <p>13. Demonstrate an understanding of the underlying issues that constitute factors within each of the ESG areas. (C3)</p> <p>14. Demonstrate an understanding of the ESG market: relevance, size, scope, key drivers and challenges, and risks and opportunities. (C3)</p>	
Reading reference	Source
<p>Canadian Association of Pension Supervisory Authorities (CAPSA). 2016. Guideline No. 4: <i>Pension Plan Governance Guideline</i>. Toronto (ON): CAPSA.</p> <p>Canadian Association of Pension Supervisory Authorities (CAPSA). 2016. Guideline No. 4: <i>Pension Plan Governance: Frequently Asked Questions</i>. Toronto (ON): CAPSA.</p> <p>Canadian Association of Pension Supervisory Authorities (CAPSA). 2011. Guideline No. 6: <i>Pension Plan Prudent Investment Practices Guideline</i>. Toronto (ON): CAPSA.</p>	<p>https://www.capsa-acor.org/Documents/View/52</p> <p>https://www.capsa-acor.org/Documents/View/54</p> <p>https://www.capsa-acor.org/Documents/View/59</p>
<p>International Actuarial Association (IAA), Resource and Environment Working Group. 2020. <i>Pension Fund Environmental, Social and Governance Risk Disclosures: Developing Global Practice</i>. Ottawa (ON): IAA.</p>	<p>https://actuaries.org/IAA/Documents/Publications/Papers/REWG_Pension_Fund_ESG_Risk_Disclosures.pdf</p>
<p>International Actuarial Association (IAA), Climate Risk Task Force. 2021. <i>Climate-Related Scenarios Applied to Insurers and Other Financial Institutions</i>. Ottawa (ON): IAA.</p>	<p>https://actuaries.org/IAA/Documents/Publications/Papers/CRTF_Application_Climate_Scenarios.pdf</p>
<p>Monahan K, Islam A. 2022. <i>Building Climate Resilience in Canada's Pension Funds</i>. Ottawa (ON): Smart Prosperity Institute.</p>	<p>https://institute.smartprosperity.ca/sites/default/files/Building%20Climate%20Resilience%20in%20Canada%E2%80%99s%20Pension%20Funds.pdf</p>
<p>Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i>. 17th ed. Toronto (ON): LexisNexis. Chapter 10.</p>	<p>https://store.lexisnexis.ca/en/categories/shop-by-jurisdiction/promo-%208/morneau-shepell-handbook-of-canadian-pension-and-benefit-%20plans-17th-edition-skusku-cad-6426/details</p>
<p>Retraite Québec. 2023. Québec City (QC): Government of Québec. "Funding policy."</p>	<p>https://www.rq.gouv.qc.ca/en/administrateur/gouvernance_regime/Pages/politique-de-financement.aspx</p>
<p>Retraite Québec. 2023. <i>Our Publication: Administering a Pension Plan Well</i>. Québec City (QC): Government of Québec. "Sound pension plan administration."</p>	<p>https://www.retraitequebec.gouv.qc.ca/en/publications/nos-programmes/rcr/numeriques/bien-administrer-regime-retraite/Pages/index.aspx</p>

Retraite Québec. 2021. <i>Checklist to Improve Supplemental Pension Plan Governance</i> . Québec City (QC): Government of Québec.	https://www.retraitequebec.gouv.qc.ca/SiteCollectionDocuments/RetraiteQuebec/en/publications/nos-programmes/rcr/2005a-Aide-memoire-gouvernance.pdf
<i>Pension Benefits Act</i> . RRO 1990, Reg. 909. Section 78(3).	https://www.ontario.ca/laws/regulation/900909#BK158
McCarthy Tétrault. 2021. <i>Climate Change: Legal Implications for Canadian Pension Plan Fiduciaries and Policy-Makers</i> . Toronto (ON): McCarthy Tétrault.	https://www.mccarthy.ca/sites/default/files/2021-06/Canada%20Climate%20Law%20Initiative%20Opinion%20-%20FINAL%2841726929.1%29.pdf

6. Professionalism and standards of practice relative to plan accounting (10%)

1. Apply the standards related to communications to plan sponsors and others with an interest in an actuary's results. (C3)
2. Explain the professional conduct guidelines. (B3)
3. Explain relevant qualification standards. (B3)
4. Demonstrate compliance with requirements regarding an actuary's responsibilities to plan sponsors, plan members, etc. (D5)
5. Explain and apply all relevant standards of practice related to valuing retirement and other benefit obligations. (C3)
6. Recognize situations and actions that violate or compromise standards of professional conduct guidelines. (B2)
7. Recommend a course of action to repair a violation of the standards or professional conduct guidelines. (D5)

Reading reference	Source
CIA Standards of Practice. Sections 3100-3570, 6000-6420.	https://www.cia-ica.ca/being-a-member/standards-of-practice/
CIA Qualification Standard.	https://www.cia-ica.ca/publications/223166e/
CIA Rules of Professional Conduct.	https://www.cia-ica.ca/publications/223164e/
CIA Guidance Document: <i>General Advice on the Application of Rule 13</i> .	https://www.cia-ica.ca/publications/223028e/
CIA Revised Educational Note: <i>Setting the Accounting Discount Rate Assumption for Pension and Post-employment Benefit Plans</i> .	https://www.cia-ica.ca/publications/218086e/
CIA Educational Note Supplement: <i>Accounting Discount Rate Assumption – Calculating Spread Above Provincial Yields</i> .	https://www.cia-ica.ca/publications/213063e/
CIA Second Revision Educational Note: <i>Setting the Accounting Discount Rate Assumption for Pension and Post-employment Benefit Plans</i> .	https://www.cia-ica.ca/publications/220174e/
CIA Revised Educational Note: <i>Events Occurring After the Calculation Date of an Actuarial Opinion for a Pension Plan</i> .	https://www.cia-ica.ca/publications/215004e/

Exam F3RET: Pension Risk Management

The aim of this exam is for candidates to develop the following skills:

1. Understand the main principles and techniques of enterprise risk management (ERM) and investment risk management that are relevant to retirement benefits.
2. Apply these principles and techniques within the context of pension plans.
3. Evaluate and propose recommendations related to the risk management of pension plans.
4. Evaluate hypothetical scenarios, including using judgment to assess the implications of possible actions.

1. Principal terms	
1. Define principal terms used in ERM. (A1)	
Reading reference	Source
Sweeting P. 2017. <i>Financial Enterprise Risk Management</i> . 2nd ed. Cambridge (UK): Cambridge University Press. Chapter 1.	https://www.cambridge.org/core/books/financial-enterprise-risk-management/44B188F39F61A714C2788BACFBC6F931

2. ERM concept, framework, and process (15%)	
<ol style="list-style-type: none"> 1. Apply the concept of ERM. (D3) 2. Describe and understand the framework for risk management and control. (C2) 3. Describe the perspectives of credit-rating agencies. (B2) 4. Reflect data issues in general and special considerations with respect to ERM. (C3) 5. Demonstrate how to determine and articulate: (C3) <ol style="list-style-type: none"> a. Risk appetite. b. Risk identification. c. Risk assessment. d. Risk monitoring. e. Risk limits. f. Risk mitigation. g. Risk capacity. h. Risk tolerances. i. Desired risk profile. j. Risk objectives. k. Risk reporting. 6. Assess the implications of financial and other risks and opportunities for strategic planning. (C4) 7. Describe the risk management control cycle, including the relevance of external influences and emerging risks. (C2) 8. Utilize methods to identify risks and their causes and implications. (D4) 	
Reading reference	Source
Lam J. 2014. <i>Enterprise Risk Management: From Incentives to Controls</i> . 2nd ed. Hoboken (NJ): Wiley. Chapters 3, 4.	https://www.wiley.com/en-ca/Enterprise+Risk+Management%3A+From+Incentives+to+Controls%2C+2nd+Edition-p-9781118413616

Sweeting P. 2017. <i>Financial Enterprise Risk Management</i> . 2nd ed. Cambridge (UK): Cambridge University Press. Chapters 2, 3, 8, 15, 19.	https://www.cambridge.org/core/books/financial-enterprise-risk-management/44B188F39F61A714C2788BACFBC6F931
Herzog TN, Scheuren FJ, Winkler WE. 2007. <i>Data Quality and Record Linkage Techniques</i> . New York (NY): Springer. Chapters 2, 5.	Data Quality and Record Linkage Techniques SpringerLink
Rating Canadian Public Pension Funds & Related Exclusive Asset Managers	This link will be confirmed shortly.
CAS/CIA/SOA Research Report: <i>Risk Appetite: Linkage with Strategic Planning</i> .	https://www.soa.org/globalassets/assets/Files/Research/Projects/research-risk-app-link-report.pdf
CIA Practice Resource Document: <i>Actuarial Aspects of Enterprise Risk Management</i> .	https://www.cia-ica.ca/publications/221035e/

3. Risk categories and risk identification (15%)	
<ol style="list-style-type: none"> 1. Explain what is meant by risk and uncertainty, including different definitions and concepts of risk. (B2) 2. Describe risk taxonomy, including an awareness of how individual risks might be categorized in different ways. (B1) 3. Describe common risks faced by pension plans insurers, including: (B2) <ol style="list-style-type: none"> a. Interest rate risk. b. Credit risk. c. Market risk. d. Liquidity risk. e. Mortality risk. f. Operational risk. g. ESG and climate-related risks. h. Foreign-exchange risk. i. Regulatory risk. j. Political risk. k. Demographic risk. l. Strategic risk. m. Asset/liability duration mismatch risk. 4. Analyze the relationship between systemic risk vs. non-systemic and specific risk vs. concentration of risk. 	
Reading reference	Source
Jorion P. 2007. <i>Value at Risk: The New Benchmark for Managing Financial Risk</i> . 3rd ed. New York (NY): McGraw Hill. Chapter 1, 4.	https://www.mheducation.com/highered/custom/product/value-risk-3rd-ed/9780071464956.html
Hardy MR, Saunders D. 2022. <i>Quantitative Enterprise Risk Management</i> . Cambridge (UK): Cambridge University Press. Chapters 2, 8, 12, 13.	https://www.cambridge.org/highereducation/books/quantitative-enterprise-risk-management/C861F6558943791EBF7DC55AD9B554B5#overview
Litterman B, Quantitative Resources Group. 2003. <i>Modern Investment Management: An Equilibrium Approach</i> . Hoboken (NJ): Wiley. p. 392-395.	https://www.wiley.com/en-ca/Modern+Investment+Management%3A+An+Equilibrium+Approach-p-9780471124108

CIA Practice Resource Document: <i>Actuarial Aspects of Enterprise Risk Management</i> .	https://www.cia-ica.ca/publications/221035e/
CIA Practice Resource Document: <i>Climate Change Scenario</i> .	https://www.cia-ica.ca/publications/221036e/
International Actuarial Association (IAA), Climate Risk Task Force. 2020. <i>Importance of Climate-Related Risks for Actuaries</i> . Ottawa (ON): IAA.	https://www.actuaries.org/IAA/Documents/Publications/Papers/CR/TF_ImportanceClimateRelatedRisksActuaries_FINAL.pdf

4. Investment risk management (25%)

1. Identify and assess the sources of investment risk applicable to retirement fund assets. (C3)
2. Evaluate the interaction of plan investments with plan design, valuation, accounting, and funding. (C5)
3. Evaluate the interaction and relationship between plan investments and valuation assumptions/methods. (C5)
4. Evaluate how factors including cash-flow requirements, various plan designs, and various economic environments affect setting investment strategy. (B5)
5. Apply and evaluate strategies and techniques for asset/liability management. (D5)
6. Provide advice and analysis to plan sponsors regarding the mitigation of pension plan risks. (D6)
7. Given a context, interpret a statement of investment policy and evaluate if changes are required. (C5)
8. Given a context, interpret a statement of funding policy and evaluate if changes are required. (C5)

Reading reference	Source
McGill D, Brown KN, Haley JJ, Schieber S, Warshawsky MJ. 2010. <i>Fundamentals of Private Pensions</i> . 9th ed. Oxford (UK): Oxford University Press. Chapters 9, 26, 27, 28.	https://global.oup.com/academic/product/fundamentals-of-private-pensions-9780199544516?cc=ca&lang=en#
Shepell M. 2020. <i>Handbook of Canadian Pension and Benefits Plans</i> . 17th ed. Toronto (ON): LexisNexis. Chapter 7.	Moreau Shepell Handbook of Canadian Pension and Benefit Plans, 17th Edition LexisNexis Canada LexisNexis Canada Store
SOA Research Report: <i>Pension Risk Transfer: Evaluating Impact and Barriers for De-Risking Strategies</i> .	https://www.soa.org/globalassets/assets/files/resources/research-report/2021/2021-pension-risk-transfer.pdf
Office of the Superintendent of Financial Institutions (OSFI). [modified 2014 Jun 9]. Policy Advisory No. 2014-002: <i>Longevity Insurance and Longevity Swaps</i> . Ottawa (ON): OSFI.	https://www.osfi-https://www.osfi-bsif.gc.ca/en/supervision/pensions/administering-pension-plans/guidance-topic/longevity-insurance-longevity-swaps
Financial Services Regulatory Authority of Ontario (FSRA). 2015. <i>Buy-In Annuities for Defined Benefit Plans</i> . Toronto (ON)	https://www.fsrao.ca/media/7586/download
Financial Services Regulatory Authority of Ontario (FSRA). 2015. <i>Prudent Investment Practices for Derivatives</i> . Toronto (ON)	https://www.fsrao.ca/media/8296/download
Financial Services Regulatory Authority (FSRA). 2021. <i>Alternative Assets and Risk management: Insights into Practices Observed from FSRA's Review of Six Large Public Sector Pension Plans in Ontario</i> . Toronto (ON).	https://www.fsrao.ca/media/4946/download
Canadian Association of Pension Supervisory Authorities (CAPSA). 2011. Guideline No. 6: <i>Pension Plan Prudent Investment Practices Guideline</i> . Toronto (ON): CAPSA.	https://www.capsa-acor.org/Documents/View/59
Canadian Association of Pension Supervisory Authorities (CAPSA). 2021. Guideline No. 7: <i>Pension Plan Funding Policy Guideline</i> . Toronto (ON): CAPSA.	https://www.capsa-acor.org/Documents/View/1846

5. Risk management and financial economics (10%)

1. Compare and analyze the interests of plan sponsors, employees, shareholders, taxpayers, and other stakeholders related to the financial management of a retirement plan. (C4)
2. Analyze how the retirement plan's financial and design risks integrate with the sponsor's risk management strategy. (C4)
3. Analyze how the retirement plan integrates with the sponsor's overall financial position. (C4)

4. Understand and apply the principles of financial economics with respect to pension plan investing. (C3)	
5. Provide advice and analysis to stakeholders regarding the economic assumptions used in the valuation of their retirement plans. (B6)	
6. Provide advice and analysis to various stakeholders regarding the mitigation of pension plan risks. (B6)	
Reading reference	Source
McGill D, Brown KN, Haley JJ, Schieber S, Warshawsky MJ. 2010. <i>Fundamentals of Private Pensions</i> . 9th ed. Oxford (UK): Oxford University Press. Chapters 5, 9.	https://global.oup.com/academic/product/fundamentals-of-private-pensions-9780199544516?cc=ca&lang=en#
Blommestein H, Janssen P, Kortleve N, Yermo J. 2009. OECD <i>Evaluating the Design of Private Pension Plans: Costs and Benefits of Risk-Sharing</i> . Paris (FR): Organisation for Economic Co-operation and Development (OECD) Publishing. (Working Papers on Insurance and Private Pensions; No. 34).	https://www.oecd.org/pensions/private-pensions/42469395.pdf
CIA Report: <i>Report of the Task Force on Target Benefit Plans</i> .	https://www.cia-ica.ca/publications/215043e/
SOA Research Report: <i>Hybrid Pensions: Risk Sharing Arrangements for Pension Plan Sponsors and Participants</i> .	https://www.soa.org/globalassets/assets/Files/Research/Projects/research-2014-hybrid-risk-sharing.pdf
SOA Research Report: <i>Corporate Pension Risk Management and Corporate Finance: Bridging the Gap between Theory and Practice in Pension Risk Management</i> .	https://www.soa.org/globalassets/assets/Files/Research/Projects/research-2015-corporate-pension-risk-management.pdf
Joint AAA/SOA Task Force on Financial Economics and the Actuarial Model. 2006. <i>Pension Actuary's Guide to Financial Economics</i> . Schaumburg (IL): Society of Actuaries.	https://www.soa.org/globalassets/assets/Files/Sections/actuary-journal-final.pdf

6. Mathematics of financial risks (10%)	
1. Understand how predictive analytics are used in retirement applications. (C3)	
2. Understand and analyze properties of financial time series. (C4)	
3. Understand and analyze stochastic models. (C4)	
4. Analyze stochastic modelling from a regulatory requirement perspective. (C4)	
5. Calculate and describe the concept of duration, convexity, and immunization. (B4)	
6. Understand and apply plausible adverse scenarios. (C3)	
Reading reference	Source
SOA Report: <i>Economic Scenario Generators: A Practical Guide</i> .	https://www.soa.org/globalassets/assets/Files/Research/Projects/research-2016-economic-scenario-generators.pdf
Jain R, Kerr D, Zhang M. 2019. "Economic scenario generators, part I: Motivation for stochastic modeling." <i>The Modeling Platform</i> . (10): 28-30. Schaumburg (IL): Society of Actuaries.	https://sections.soa.org/publication/?i=629391&article_id=3514497&view=articleBrowser&ver=html5
Jain R, Kerr D, Zhang M. 2020. "Economic scenario generators, part II: Understanding economic scenario generators." <i>The Modeling Platform</i> . 4-9. Schaumburg (IL): Society of Actuaries.	https://global.oup.com/academic/product/fundamentals-of-private-pensions-9780199544516?cc=ca&lang=en#h
CIA Educational Note: <i>Guidance on Selection and Disclosure of Plausible Adverse Scenarios</i> .	https://www.cia-ica.ca/publications/223063e/

7. Pension plan de-risking (25%)	
<ol style="list-style-type: none"> 1. Design and construct replication portfolios using available assets or products to defray risk. (C6) 2. Apply immunization strategies using duration and convexity. (C3) 3. Identify, evaluate, and manage longevity risk. (B5) 4. Analyze, evaluate, and construct glide paths in order to de-risk a pension plan. (C6) 5. Analyze, evaluate, and create margins in assumptions in order to de-risk a pension plan. (C6) 6. Evaluate and apply change in plan provisions in order to de-risk a pension plan. (C6) 7. Consider, assess, and design target-benefit pension plans and shared risk pension plans. (C6) 8. Apply the process relative to annuity purchases: (D5) <ol style="list-style-type: none"> a. Annuities buy-ins versus buyouts. b. Legal requirements. c. Contribution requirements. d. Transfers in kind. e. Legal contract reviews. f. Coordination among annuity providers. g. Conversion from annuity buy-in to buyout. h. Discharge of liabilities under applicable legislation. 9. Describe how Assuris protection can be optimized. (B2) <ol style="list-style-type: none"> a. Calculate and consider the impact of ancillary benefits (e.g., indexation, survivor benefits, etc.). (C4) 10. Apply legislative requirements to plan provisions allowing annuity purchases. (C4) 	
Reading reference	Source
SOA Research Report. <i>Pension Risk Transfer: Evaluating Impact and Barriers for De-risking Strategies</i> .	https://www.soa.org/globalassets/assets/Files/Research/Projects/2014-pension-risk-transfer-study.pdf
SOA Research Report: <i>De-risking Strategies of Defined Benefit Plans: Empirical Evidence from the United States</i> .	https://www.soa.org/4ad599/globalassets/assets/files/resources/research-report/2020/de-risking-strategies.pdf
McSweeney I. 2013. "Pension plan de-risking in Canada." <i>Financier Worldwide</i> . Lichfield (UK): Financier Worldwide.	https://www.financierworldwide.com/pension-plan-de-risking-in-canada
Bicho-Vachon L. 2019. "What options are available for de-risking DB pension plans?" <i>Benefits Canada</i> . Montréal (QC): Contex Group.	https://www.benefitscanada.com/news/bencan/what-options-are-available-for-de-risking-db-pension-plans/
CIA Educational Note: <i>Alternative Settlement Methods for Hypothetical Wind-Up and Solvency Valuations</i> .	https://www.cia-ica.ca/publications/220054e/
Lapierre S, Kibrité F. [date unknown]. "Building better retirement plans with liability-driven investing." Manulife. 2021. Toronto (ON): Manulife.	https://www.manulifeim.com/institutional/global/en/viewpoints/multi-asset-solutions/Building-better-retirement-plans-with-liability-driven-investing
Coughlan G. 2013. "Longevity risk management, corporate finance, and sustainable pensions." Philadelphia (PA): University of Pennsylvania. (Wharton Pension Research Council Working Papers; No. 126).	https://pensionresearchcouncil.wharton.upenn.edu/wp-content/uploads/2015/10/Session-2B-Coughlan.pdf
Barbash J, Jaugietis M, Chandragiri R. 2019 Oct 25. "De-risking glide paths: One size does not fit all." BlackRock. 2023. New York (NY): BlackRock.	This link will be confirmed shortly.
Stokoe V. 2019 Apr 15. "Statutory discharge – a step forward in pension risk transfer." Brookfield Annuity. 2023. Toronto (ON): Brookfield Annuity.	https://www.brookfieldannuity.com/en/proven-team/thought-leadership/2019/04/stat-discharge.html

Mercer. 2014. *Briefing on Buy-In Annuity Contracts*. New York (NY): Mercer

https://www.mercer.com/content/dam/mercer/attachments/north-america/us/pensionrisk/13304-MG_BuyIn_SEC.pdf