
SOCIETY OF ACTUARIES
Retirement Benefits Canada – Company/Sponsor Perspective

Exam CSP-RC

MORNING SESSION

Date: Friday, May 3, 2013
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 120 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 60 points).
 - a) The morning session consists of 7 questions numbered 1 through 7.
 - b) The afternoon session consists of 7 questions numbered 8 through 14.

The points for each question are indicated at the beginning of the question. Questions 2, 5, 7, 8, 9, and 10 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.
3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.
2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.
3. The answer should be confined to the question as set.
4. When you are asked to calculate, show all your work including any applicable formulas.
5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets since they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam CSP-RC.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

Tournez le cahier d'examen pour la version française.

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

****BEGINNING OF EXAMINATION****
Morning Session

- 1.** (6 points) A country has an insurance program that protects members of defined benefit pension plans against plan sponsor insolvency with provisions similar to the Pension Benefit Guaranty Corporation (PBGC) in the U.S. The program is significantly underfunded.
- (a) (3 points) Explain why the program may be significantly underfunded.
- (b) (3 points) Recommend changes that may improve the program's funded status. Justify your response.

Question 2 pertains to the Case Study.

- 2.** (8 points) The CFO of NOC has mandated that NOC must reduce the size of all of its pension plans. The CFO has proposed the following:
- Option 1: Add a permanent lump sum option for active members who retire
- Option 2: Add a lump sum window for existing retirees and beneficiaries
- Analyze these options from the perspectives of both NOC and NOC's employees.

3. (8 points) A country with no funding regulations is concerned that many corporate defined benefit pension plans within the country are poorly funded on a plan wind-up basis. The Government has proposed implementing new defined benefit funding regulations that would include the following:

- (i) Funding liability interest rates to be based on corporate bond yields.
- (ii) Plan sponsors to be permitted to use a three-year smoothed actuarial value of assets for funding purposes.

The regulations would be effective for plan years beginning in 2013.

- (a) (4 points) Describe the advantages and disadvantages of using corporate bond yields to determine the funding liabilities versus the expected rate of return on plan assets.
- (b) (2 points) Describe the advantages and disadvantages of using a smoothed actuarial value of assets versus the market value of assets for funding purposes.
- (c) (2 points) Recommend additional regulations that would help the Government meet its goal of increasing the funded status of pension plans within the country.

4. (10 points) You are given the following information with respect to two companies:

	Company A	Company B
Company balance sheet		
Liabilities	\$60,000,000	\$900,000,000
Assets	\$160,000,000	\$950,000,000
Defined benefit pension plan		
Defined benefit obligation	\$11,000,000	\$850,000,000
Market value of assets	\$10,000,000	\$800,000,000
Pension fund asset allocation		
Equities	\$6,500,000	\$550,000,000
Fixed income	\$3,500,000	\$250,000,000
Company net income	\$5,000,000	\$20,000,000
Pension expense	\$3,000,000	\$10,000,000

- (a) (6 points) Compare and contrast the financial risks to the following stakeholders of both companies:
- (i) Plan sponsor
 - (ii) Plan members
 - (iii) Shareholders
- (b) (4 points) A consultant has recommended that both companies invest 100% of pension fund assets in fixed income. Evaluate this recommendation.

Question 5 pertains to the Case Study.

- 5.** (11 points) NOC is considering changing the Full-Time Salaried Pension Plan to an employer-paid defined contribution pension plan with a 5% employer contribution for future service only.
- (a) (3 points) Describe the impact of the proposed design on the current employees, considering:
- (i) Benefit accrual pattern
 - (ii) Vesting
 - (iii) Retirement income replacement ratio
- (b) (8 points) The proposed program is implemented on July 1, 2013. Final average earnings are frozen as of the implementation date. Using the following information, calculate the impact on the 2013 pension expense:
- There are no gains or losses during the first half of the year.
 - The change in plan design results in a decrease in the defined benefit obligation of \$200 million as of July 1, 2013.
 - The service cost is \$20 million for the second half of the year.
 - Benefit payments expected to be made during the second half of the year are \$1.5 million in monthly pension payments and \$115 million in lump sums.
 - Total benefit payments expected to be paid during the year are \$133 million.

6. (7 points)

- (a) (4 points) Describe the process for performing a stochastic projection.
- (b) (3 points) Your client sponsors a non-registered pension plan that restores benefits lost due to regulatory limits. The plan is financed through taxable securities.

Describe the issues that need to be considered when performing a stochastic projection for this plan versus a registered pension plan.

Question 7 pertains to the Case Study.

7. (10 points)

- (a) (3 points) Describe the risks associated with the current asset mix of NOC's Full-Time Hourly Union Pension Plan.
- (b) (7 points) The CFO of NOC proposes to move 45% of the current allocation to the following asset classes:
- Equities: 15%
 - NOC shares: 15%
 - Real estate: 15%

Describe the implications of this proposal as it relates to:

- (i) Pension funding
- (ii) Fiduciary considerations

****END OF EXAMINATION****
Morning Session

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