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**SOCIETY OF ACTUARIES**  
**Retirement Benefits Canada – Company/Sponsor Perspective**

# Exam CSP-RC

## MORNING SESSION

**Date:** Friday, April 27, 2012

**Time:** 8:30 a.m. – 11:45 a.m.

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### 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 8 questions numbered 1 through 8.
  - b) The afternoon session consists of 7 questions numbered 9 through 15.

The points for each question are indicated at the beginning of the question. Questions 3 - 4, 6, 8, 9, and 11 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.** (7 points) ABC Company's pension fund has recently experienced negative asset returns due to equity exposure. As a result, ABC's management has been criticized, but feels that this criticism is unjustified.

Describe specific plan governance practices that would defend ABC's position.

2. (8 points) The following email is to be sent to a client.

*“April 27, 2012*

*Dear Ms. Smith,*

*We understand that a potential benefit improvement may be granted to members of the XYZ Retirement Plan (Retirement Plan). The purpose of this email is to provide the estimated financial impact of the benefit improvement as of July 1, 2012.*

*The potential benefit improvement effective July 1, 2012 is such that each Member of the Retirement Plan whose age plus Continuous Service totals 90 or more years at the Member’s Early Retirement Date shall have no early retirement reduction apply to his pension.*

*Plan Provisions & Membership Data*

*These estimates are based on the plan provisions in the Collective Bargaining Agreement we have on file and the membership data we last received from you.*

*Actuarial Assumptions & Methods*

*The liabilities were determined using the same actuarial assumptions and methods as in the most recent actuarial valuation of the Retirement Plan. In determining the financial position as of July 1, 2012 prior to reflecting the benefit improvement, assets and liabilities were projected using actual normal cost and benefit payments assuming no gains and losses during the projection period.*

*Results*

*The estimated increase in liabilities as of July 1, 2012 is \$700,000 and the estimated increase in normal cost as of July 1, 2012 for the following year is \$21,500.*

*Regards,*

*John Actuary, FCIA”*

Describe areas of non-compliance with Canadian professional standards.

***Question 3 pertains to the Case Study.***

- 3.** (7 points) NOC is reviewing the National Oil Part-Time Defined Contribution Pension Plan's investment options because some retirees have recently outlived their savings.

As a result, NOC is considering adding target date funds to the investment options and expanding the retiree payment options.

- (a) (1 point) Describe target date funds.
- (b) (4 points) Describe the risks of target date funds to the plan participants.
- (c) (2 points) Describe retiree payment options that would mitigate longevity risk.

***Question 4 pertains to the Case Study.***

- 4.** (6 points) Gevrey is considering implementing a risk-based pension regulatory framework.

- (a) (3 points) Describe the specific risks that Gevrey should consider when developing this framework.
- (b) (3 points) Describe approaches other countries have taken in implementing a risk-based pension regulatory framework. References to specific countries are not required.

- 5.** (8 points) XYZ Company participates in five separate multiemployer defined benefit plans for its unionized employees working in various trades. XYZ is considering withdrawing its participation from the multiemployer defined benefit plans and establishing its own defined contribution plan for its unionized employees.
- (a) (5 points) Describe the considerations that XYZ should address before making a final decision.
- (b) (3 points) Recommend approaches that XYZ could take in order to encourage employee participation in a new defined contribution plan.

**Question 6 pertains to the Case Study.**

**6.** (10 points) NOC is considering the following freezes to the NOC Full-Time Salaried Pension Plan (Salaried Plan):

- Hard freeze (i.e., service accruals and pay increases are frozen)
- Soft freeze (i.e., only service accruals are frozen)

- (a) (2 points) Describe the advantages and disadvantages of both freezes from the perspective of NOC.
- (b) (3 points) Describe the impact of a hard freeze on the selection of assumptions for an accounting valuation.

Assume NOC implemented a hard freeze of the Salaried Plan effective April 1, 2012.

You are given the following:

- The discount rate at April 1, 2012 is 5.25%. The change in the discount rate at that date changed the obligation by \$53,000,000 and the service cost by \$3,000,000.
  - There were no other actuarial gains or losses on the obligation or the assets.
  - The obligation as of April 1, 2012 for active members without salary projection is \$415,000,000 lower than the projected benefit obligation.
  - The change in the benefit payments for 2012 due to the freeze is negligible.
- (c) (5 points) Calculate the 2012 pension expense for the Salaried Plan assuming no other changes in the actuarial assumptions. Show all work.



7. (6 points)

- (a) (3 points) Describe the arguments that support the assertion that investing pension plan assets in equities destroys shareholder value.
- (b) (3 points) Explain why plan sponsors continue to invest pension plan assets in equities.

***Question 8 pertains to the Case Study.***

8. (8 points) You are meeting with the CFO of NOC to discuss the asset allocation of the NOC Full-Time Hourly Union Pension Plan (Hourly Plan). The CFO believes that the plan currently follows a liability driven investment approach because a high proportion of the pension fund is invested in bonds.

- (a) (1 point) Explain why the current asset allocation does not necessarily mean that the Hourly Plan follows a liability driven investment approach.
- (b) (3 points) Describe the risks posed by the provisions of the Hourly Plan that are difficult to mitigate using the current asset allocation.
- (c) (4 points) Describe how the following asset classes may be used to mitigate the risks identified in (b):
  - (i) Foreign fixed income
  - (ii) High-yield fixed income
  - (iii) Foreign equities
  - (iv) Hedge funds

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

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