SOCIETY OF ACTUARIES
Retirement Benefits Canada – Company/Sponsor Perspective

Exam CSP-RC

MORNING SESSION

Date: Friday, November 4, 2011
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 1, 3 - 5, and 7 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.

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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

Question 1 pertains to the Case Study.

1. (*8 points*) NOC's management is concerned about the cost of the National Oil Full-Time Salaried Pension Plan (the "Salaried Plan") and is considering closing the Salaried Plan to all new entrants.

Under this proposal, all new salaried employees and hourly employees who are promoted to managerial positions will participate under a new defined contribution pension plan to be established by NOC.

Evaluate this proposal.

2. (*9 points*) Your client sponsors a final average pay defined benefit plan and is invested passively in broad market indices. The asset mix for the pension fund is 60% in a broad equity market index and 40% in a short duration fixed income index. Your client is concerned with the amount of duration mismatch between the pension plan liabilities and assets.

(a) (*1 point*) Describe duration mismatch.

(b) (*3 points*) Describe alternative investment strategies to reduce duration mismatch and the advantages and disadvantages of these strategies.

(c) (*5 points*) Describe the risks and rewards of investing in equities in the following three situations:

(i) the pension plan is overfunded and benefits are frozen (no more future benefit accruals);

(ii) the pension plan is fully funded and closed to new entrants; and

(iii) the pension plan is ongoing and open to new entrants but underfunded.

Questions 3 – 5 pertain to the Case Study.

3. (*8 points*) The government of Gevrey is proposing new legislation mandating pension plan governance and oversight. You have been asked by a government official to prepare a report recommending four critical requirements of good pension governance.

Describe your four recommended requirements.

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4. (*10 points*) Fiscal year 2010 accounting information in respect of the XYZ defined benefit plans, prepared under CICA 3461 is as follows:

	Pension Plans	**Retiree Medical Plan**
Reconciliation of Assets		
Market Value at 1/1/2010	288,546,300	10,000,000
Actual Employer Contributions	14,350,000	5,000,000
Actual Employee Contributions	2,000,000	0
Actual Investment Return	21,900,200	0
Actual Benefit Payments	(8,303,400)	(5,000,000)
Market Value at 12/31/2010	318,493,100	10,000,000
Reconciliation of Obligation		
ABO at 1/1/2010	356,012,000	302,457,800
Plan Improvement at 1/1/2010	-	18,000,000
Total Service Cost	14,600,000	10,000,000
Interest Cost	23,819,900	20,147,300
Change in Obligation Due to Curtailment	8,400,000	0
Actuarial Loss Due to the Decrease in Discount Rate	23,870,000	21,152,000
Actual Benefit Payments	(8,303,400)	(5,000,000)
ABO at 12/31/2010	418,398,500	366,757,100
Expense for the year		
Service Cost	14,600,000	10,000,000
Interest Cost	23,819,900	20,147,300
Expected Return on Assets	(24,130,700)	(700,000)
Amortization of Actuarial Losses (Gains)	449,800	(1,096,800)
Amortization of Past Service Cost	0	1,000,000
Amortization of Transitional Obligation (Asset)	0	0
Impact of Curtailment	0	0
Impact of Settlement	0	0
Expense for the Year	14,739,000	29,350,500
Unamortized Actuarial Losses (Gains) at 1/1/2010	21,000,000	10,502,500
Unamortized Past Service Cost at 1/1/2010	0	0
Assumptions		
Discount Rate for the Obligation at 1/1/2010	6.5%	6.5%
Discount Rate for the Obligation at 12/31/2010	6.0%	6.0%
Discount Rate for the Expense for the Year	6.0%	6.0%
Expected Return on Assets	7.0%	7.0%
Retirement Age	65	65
Mortality Table	RP 2000	RP 2000
Turnover Table	Age Related Table	Age and Service Related Table
Expected Working Lifetime	20	18

4. **Continued**

NOC is acquiring XYZ Oil Company ("XYZ"). In Gevrey, XYZ sponsors two pension plans both of which are DB ERPs, and a retiree medical plan. Fiscal 2010 pension expense directly reduces NOC's purchase price.

NOC is concerned about the information they have been provided by XYZ in respect of these plans. In addition to the table above, the following information was provided by XYZ:

- The active membership in the retiree medical plan is identical to the membership in the pension plans.
- The average age, service, salary and accrued pension of the employees and retirees of XYZ is comparable to that of NOC's employees and retirees.
- For financial reporting purposes, XYZ has adopted the same accounting policies as NOC with the exception that XYZ uses a market-related value of assets.
- XYZ's asset mix and investment strategies are also comparable to those of NOC.
- The XYZ plan provisions are similar to those of the National Oil Full-Time Salaried Pension Plan and the National Oil Full-Time Salaried and Union Retiree Health Benefit Program.

You have been hired by NOC to perform a due diligence review. Critique the accounting information provided and outline the additional information required to finalize your review.

Questions 3 – 5 pertain to the Case Study.

5. (*9 points*) NOC's goals with respect to the National Oil Full-Time Salaried Pension Plan (the "Salaried Plan") are to:

(i) minimize the long-term contributions to the Salaried Plan; and

(ii) minimize the deficit on an accounting basis for the Salaried Plan.

For purposes of this question, ignore all other retirement arrangements sponsored by NOC.

NOC is considering implementing one of the following funding policies:

Policy #1: annual contributions equal to the amount required to fully fund the plan on an accounting basis each year
Policy #2: annual contributions equal to the normal cost plus the payment required to amortize any funding deficit over a 10 year period

The market capitalization of NOC is $0.5 billion.

(a) (*5 points*) Compare and contrast these funding policies in light of NOC's goals.

(b) (*4 points*) Evaluate the current asset mix in light of the proposed funding policies.

6. (*8 points*) A public sector entity sponsors a defined benefit plan that is based on a final average pay formula and has 5-year cliff vesting. It currently discloses its pension liabilities in its financial statements. In measuring the liability, it uses an expected rate of return on assets as the discount rate and uses the projected unit credit method as the actuarial cost method.

(a) (*2 points*) Explain the drawbacks of using the projected unit credit method for financial reporting purposes for this public sector entity.

(b) (*3 points*) Vested Benefit Obligation (VBO) and Accumulated Benefit Obligation (ABO) are examples of other measures of liability. Describe the merits of using VBO and ABO for financial reporting purposes.

(c) (*3 points*) Describe the disadvantages of using an expected rate of return on assets as the discount rate and recommend an alternative method for selecting the discount rate. Justify your recommendation.

Question 7 pertains to the Case Study.

7. (*8 points*) NOC's CFO is considering revising the pension fund asset mix under the National Oil Full-Time Salaried Pension Plan (the "Salaried Plan").

(a) (*4 points*) Describe influencing factors a plan sponsor should consider when developing an asset allocation strategy for an ERP.

(b) (*4 points*) NOC's CFO is proposing the following changes to the pension fund asset allocation for the Salaried Plan:

- Add Treasury Inflation-Protected Securities ("TIPS")
- Increase real estate investments
- Add private equity investments

Analyze these proposed changes and provide supporting arguments for the CFO's proposal.

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

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