****BEGINNING OF EXAMINATION 8 – CANADA****
COMPREHENSIVE SEGMENT
Morning Session

Questions 1 – 5 pertain to the Case Study

1. *(10 points)* The Chief Financial Officer of NOC has obtained an asset liability modeling report from another actuary. The report for the Full-Time Salaried Pension Plan shows:

- The mean annual investment return on assets is 9% over the next 10 years, yet
- There is a 20% chance that there will be a funding deficit in the plan after 10 years.

The study assumed annual contributions equal the normal cost for each of the next 10 years.

The CFO does not understand how the plan could be in a deficit position given the funding policy and the mean investment return.

(a) Given the assumptions in the report are reasonable, explain the apparent discrepancy to the CFO.

(b) Describe the considerations for setting stochastic assumptions for an asset liability modeling study.

Questions 1 – 5 pertain to the Case Study

2. *(9 points)* Beginning January 1, 2005, Gevrey allows company-sponsored Personal Pension Accounts (PPAs) with 100% matching contributions into a DC ERP.

In response to this change, NOC decides to:

- offer a new company-sponsored PPA for employee contributions, in addition to the current plans;
- permit Salaried employees to contribute up to 10% of their income to the PPA;
- allow participant-directed accounts in the PPA;
- have the Chief Financial Officer actively manage the DC ERP assets; and
- promise employees a positive annual return in the DC ERP.

(a) Which asset classes should the CFO consider for DC ERP investments to provide adequate retirement income and protect principal? Support your answer.

(b) How might the asset classes differ for the participant-directed accounts in the PPA?

(c) Identify the fiduciary risks inherent in the new plans.

3. *(8 points)* You have been appointed the new actuary for the NOC Full-Time Salaried Pension Plan. Your first task is to prepare a funding valuation as of January 1, 2006.

(a) Explain how you would test the census and asset data to assure it is appropriate for the valuation.

(b) Evaluate the existing demographic assumptions.

Questions 1 – 5 pertain to the Case Study

4. *(11 points)* NOC has offered an early retirement window to active participants of the Full-Time Hourly Union Pension Plan who are at least age 50 with 10 or more years of service. Employees who accept the window will receive:

- 5 extra years of service, for purposes of determining their accrued benefit; and
- 5 extra years of age, for purposes of determining their early retirement reduction factor.

Five hundred employees accept the early retirement window offer and retire on January 1, 2005.

For the 500 employees accepting the window, you are given:

• ABO (prior to window)	$140,000,000
• 2005 Service Cost (prior to window)	$ 10,000,000
• 2005 Expected Benefit Payments (prior to window)	$ 0
• ABO (with immediate retirement)	$150,000,000
• ABO (with immediate retirement and enhanced window benefits)	$225,000,000
• 2005 Expected Benefit Payments (with immediate retirement and enhanced window benefits)	$ 17,000,000

The expected future working years for various groups are as follows:

• All plan participants:	67,000
• All plan participants who accepted the early retirement window:	7,000

Calculate the revised 2005 pension expense assuming no change in 2005 expected contributions to the plan.

Questions 1 – 5 pertain to the Case Study

5. *(11 points)* NOC's Chief Financial Officer is proposing selling bonds at an annual yield of 4% and contributing the proceeds to the Full-Time Hourly Union Pension Plan. Analyze the advantages and disadvantages of this proposal from the perspective of management, employees, owners, and other stakeholders.

6. *(11 points)* A country with no social security or private pension system is considering adopting one of the following:

- A mandatory social security retirement program; or
- Government incentives to employers for sponsoring their own retirement programs.

Compare and contrast these two proposals from the perspective of employees, employers, and the government.

****END OF EXAMINATION****
MORNING SESSION

****BEGINNING OF EXAMINATION 8 – CANADA****
COMPREHENSIVE SEGMENT
Afternoon Session
(Beginning with question 7)

Questions 7 – 9 pertain to the Case Study

7. *(11 points)* NOC would like to amend the Full-Time Hourly Union Pension Plan to encourage members to retire later. The union has proposed a voluntary phased retirement program that would allow employees to:

- work 50% of full-time at current hourly rates;
- receive 50% of early retirement pension benefits based on accrued service;
- earn 50% of regular pension credit for future service; and
- retain full-time eligibility and cost-sharing for other employee benefits.

(a) Critique the union proposal from the perspective of the employer.

(b) Describe how a Deferred Retirement Option Plan (DROP) could be used instead of the union's proposal.

(c) Outline the considerations in preparing the next accounting valuation if a DROP is implemented.

Questions 7 – 9 pertain to the Case Study

8. *(10 points)* On January 1, 2005, NOC purchased non-participating annuity contracts for all inactive participants in the Full-Time Hourly Union Pension Plan for $95,000,000. The Normal Retirement Benefit rate was subsequently increased from $75 to $80 effective January 1, 2005.

You are given:

ABO as of December 31, 2004:

• Inactive participants:	$ 105,600,000
• Active participants:	$ 500,433,000
ABO as of December 31, 2005:	$ 476,500,000
Contribution on July 1, 2005:	$ 100,000,000
Benefit payments in 2005:	$ 225,000
Market Value of Assets as of December 31, 2005:	$ 295,000,000

(a) Determine the 2005 pension expense.

(b) Develop the change in benefit obligation, change in plan assets, and a reconciliation of the ABO to the accrued benefit asset/liability as required by CICA 3461 for NOC's financial statements as of December 31, 2005.

9. *(9 points)* In Gevrey, multiemployer retiree medical plan benefits may be prefunded at the discretion of the board of trustees. The contributions to the fund are tax deductible.

You are the actuary for a multiemployer retiree medical plan in Gevrey. The plan provisions are identical to the NOC plan. The plan is contracted to be funded on a cents per hour basis.

A recent medical breakthrough will increase life expectancy by 10 years. As a result, the plan is no longer fully funded.

Analyze the impact on the plan as it relates to funding, design and participation.

****END OF EXAMINATION****
AFTERNOON SESSION