SOCIETY OF ACTUARIES

Retirement Benefits United States – Company/Sponsor Perspective

Exam CSP-RU

Date: Friday, May 1, 2009
Time: 8:30 a.m. – 1:15 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 90 points.

   This exam consists of 9 questions, numbered 1 through 9.

   The points for each question are indicated at the beginning of the question. Questions 3, 5, 6, 8, and 9 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 Exam CSP-RU.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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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****
Retirement Benefits United States – Company/Sponsor Perspective

1. (*10 points*) Critique the arguments for and against equity investments inside of defined benefit pension plans sponsored by government agencies for their employees.

2. (*10 points*) The Human Resources manager of a defined contribution pension plan sponsor is considering adding lifestyle funds with targeted maturity dates (Target Date Funds) to the plan's investment option line up.

Evaluate the following proposed Target Date Fund design:

Asset Class	**For expected retirement in 2010**	**For expected retirement in 2025**	**For expected retirement in 2040**
Long-only domestic equities strategy	0%	20%	40%
Long-short domestic equities strategy	0%	10%	10%
Domestic fixed income	90%	50%	20%
Company stock	10%	20%	30%

Question 3 pertains to the Case Study

3. (*10 points*) For new hires after January 1, 2009, NOC is considering whether to offer the current retiree medical program or, alternatively, to increase base pay by $4,000 per year.

Assess both NOC's and the employees' risks under each of these alternatives.

4. (*8 points*) Your firm has recently been hired by XYZ Company to provide actuarial services for its pension plan. The previous accounting valuation report contained only the following information with respect to plan provisions, assumptions, investments and census data:

XYZ Pension Plan Provisions:

Normal Retirement Age:	Age 65
Early Retirement Age:	Age 55
Normal Retirement Benefit:	2% of final three-year average earnings times years of service
Early Retirement Reduction:	3% per year from age 60
Normal Form:	Life only if single Joint and Survivor 60% if married, without reduction
Termination Benefit:	Lump sum value of the accrued benefit
Eligibility:	2-year waiting period

Assumptions:

Discount Rate:	5.5% per annum
Expected Return on Assets:	7% per annum
Salary Increase:	4% per annum
Retirement Age:	55
Mortality:	GAM83 Table (with mortality improvement projection to 2009)
Turnover Rate:	Experience data from 1990 to 1995
% married:	0%

Asset Mix:
Invested in Pooled Funds

Census Data:
Data used for the valuation was received from XYZ Company and XYZ Company has attested to its completeness and accuracy.

Based on the above information, evaluate areas where the prior actuary may not have complied with generally accepted actuarial practice.

Question 5 pertains to the Case Study

5. (*10 points*) NOC is proposing to the Union the following changes in respect of the retirement benefits for the National Oil Full-Time Hourly Union Pension Plan:

- Service will be frozen at December 31, 2008 for the purpose of determining the Normal Retirement Benefit;
- Service after December 31, 2008 will be recognized in the National Oil Full-Time Hourly Union Pension Plan only for the purpose of determining vesting and eligibility to early retirement and the subsidized Early Retirement Benefit; and
- Effective January 1, 2009, hourly union employees will accumulate pension benefits in a new DC ERP with an employer contribution equal to 6% of salary.

You are given the following:

- Employer contributions and benefit payments for 2008 are as expected;
- The actual return on assets for 2008 is -20%. The actual return on assets for 2009 is as expected;
- NOC expects an experience gain on the ABO of $10,000,000, measured at December 31, 2008;
- The 2009 expected return on assets (EROA) assumption is 6.5% per year;
- No change in the discount rate or other actuarial assumptions is expected at December 31, 2008;
- Employer contributions and benefit payments for 2009 would have been equal to those for 2008 if no plan changes were made; and
- The total payroll of the hourly union employees is expected to increase at 4.0% per year.

Estimate the 2008 and 2009 net periodic benefit cost and one-time charges in accordance with FAS87/FAS88 assuming the proposed changes are implemented. Show all work.

Question 6 pertains to the Case Study

6. (*12 points*) BIG Oil's defined benefit pension assets are invested 60% in equities and 40% in fixed income as of the most recent year-end date. NOC's CFO suggests that this same asset mix would also be appropriate for the National Oil Full-Time Salaried Pension Plan, given that NOC and BIG operate in the same industry.

(a) Describe the factors that NOC should consider in determining the appropriate target asset allocation for the Salaried Pension Plan.

(b) Describe the modeling technique that you would recommend and the assumptions that you would use in performing an asset/liability study to analyze the Salaried Pension Plan's asset allocation.

7. (*8 points*) The CFO of XYZ Industries wishes to:

- Increase the FAS 87 discount rate and expected return on asset assumptions to be used to determine pension expense for the year; and

- Significantly increase the equity allocation in the pension fund investment policy.

From a financial economics perspective, analyze, in respect of plan participants, the CFO and shareholders, the implications of following the CFO's recommendation.

Question 8 pertains to the Case Study

8. (*11 points*) The government of Vosne is introducing a new social security program effective January 1, 2009. The main provisions of the program are as follows:

- All workers must participate in the new program.
- Retirement benefits will be payable commencing at age 65.
- The retirement benefit will be calculated as 0.5% of a worker's best 5-year average covered earnings times years of covered service.
- Covered earnings will be limited to $50,000 per year.
- A year of covered service will be credited for each year in which a contribution is paid.
- Covered service will commence on January 1, 2009. A maximum of 40 years of service will be covered.
- The system will be funded by contributions of 8% of covered earnings, split equally between employers and employees. These contributions will be tax-deductible to the employer and the employee.

You have been provided with the following information on two newly hired NOC employees:

	Employee A	Employee B
Type of employee	Full time Salaried	Seasonal
Projected covered service at age 65	35	35
Projected earnings at age 65	$180,000	$40,000
Projected best average earnings at age 65	$170,000	$38,000
Projected DC account balance at age 65	$0	$100,000
a_{65}	11.0	11.0

(a) Describe the factors that would need to be considered in developing a target replacement ratio for a retirement program.

(b) Evaluate the adequacy of Employee A's retirement income benefit.

(c) Compare and contrast the risks to which Employee A and Employee B are exposed.

Question 9 pertains to the Case Study

9. (*11 points*) The government of Vosne is considering creating an insolvency insurance program that will guarantee the benefits provided by a defined benefit ERP in case of plan insolvency on employer bankruptcy.

(a) Based on existing insolvency insurance programs in place around the world, evaluate the key considerations in designing such a program for Vosne.

(b) Assess the impact of implementing a program similar to the PBGC in the United States on NOC, NOC's DB ERP's, DB ERP plan members and taxpayers.

****END OF EXAMINATION****