SOCIETY OF ACTUARIES

Retirement Benefits United States – Company/Sponsor Perspective

Exam CSP-RU

Date: Friday, Nov. 2, 2012
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 11 questions, numbered 1 through 11.

   The points for each question are indicated at the beginning of the question. Questions 2, 4, 5, 7, 8, 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 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****

1. (*8 points*)

(a) (*4 points*) Describe the advantages and disadvantages of stochastic projections versus deterministic projections.

(b) (*4 points*) Describe the differences in setting assumptions for a stochastic liability projection versus a funding valuation for each of the following:

(i) Discount rate
(ii) Expected Return on Assets
(iii) Mortality
(iv) Withdrawal

Question 2 pertains to the Case Study.

2. (*9 points*) NOC is considering changing the National Oil Full-Time Salaried and Union Retiree Health Benefit Program to one that provides each retiree with a $20,000 per year credit regardless of family status. The annual post-retirement credit may be spent on any health-related services. Any unused credits will be rolled-forward to the next year without interest and forfeited on the last death of the retiree and spouse. The life insurance provision of the current program will not change.

(a) (*6 points*) Compare and contrast the risks associated with the current and proposed retiree health programs from the perspective of NOC.

(b) (*3 points*) Describe the advantages and disadvantages of the proposed retiree health program from the perspective of the active employees.

3. (*8 points*) A country is considering creating an insurance program to protect private sector defined benefit pension plans against the insolvency of plan sponsors. The program would be funded by premiums, paid by both the plan sponsor and participants, determined based on the funded status of the plan.

(a) (*3 points*) Describe the potential shortcomings of the proposed program.

(b) (*5 points*) Assess the impact of implementing the proposed program on plan sponsors and participants.

Question 4 pertains to the Case Study.

4. (*8 points*) The CFO of NOC has proposed adopting a passive investment strategy for the National Oil Full-Time Salaried Pension Plan based on his belief in the Efficient Market Hypothesis.

(a) (*1 point*) Define the Efficient Market Hypothesis.

(b) (*4 points*) Assess the CFO's proposal.

(c) (*3 points*) Describe how the manager selection process would change under a passive investment strategy.

Question 5 pertains to the Case Study.

5. (*9 points*) NOC is interested in purchasing a small company with the following demographic characteristics:

Number of employees:	50
Average age:	30 years
Average service:	5 years

The small company sponsors a cash balance plan that covers all of its employees. NOC has hired you, the consulting actuary, to perform a due diligence review prior to finalizing the sale.

(a) (*4 points*) Discuss the issues you should address when conducting a due diligence review of the small company's plan.

(b) (*5 points*) Discuss the financial considerations to NOC assuming they choose to bring the new employees into its existing plans.

6. (*8 points*) A government is considering introducing a contributory defined benefit pension plan for employees of all governmental institutions.

Compare and contrast the risks associated with public sector defined benefit plans from the perspectives of the following stakeholders:

(i) The government ("legislature")
(ii) Society/taxpayers
(iii) Employees
(iv) Unions
(v) Public sector employers

Question 7 pertains to the Case Study.

7. (*10 points*) On July 1, 2012 NOC purchased a non-participating buy-out annuity to settle the obligations of all of the retirees in the Full-Time Hourly Union Pension Plan (Hourly Plan).

You, as the consulting actuary, are given the following (all amounts in $000's):

- The annuity cost was $275,000.
- As of June 30, 2012, NOC has recorded half of its 2012 pension expense and contributed half of its 2012 contributions. Also, actual benefits payments have been as expected.
- The appropriate discount rate on June 30, 2012 was 4.75% per year.
- There was a loss of $20,000 on the Hourly Plan assets from January 1, 2012 to June 30, 2012. The plan did not experience any other gains or losses during that time.
- The average future working service lifetime as of June 30, 2012 was the same as at the beginning of the year.
- Valuation results as of June 30, 2012, immediately before the annuity purchase, were as follows:

($000's)	Using a 4.75% Discount Rate
Obligation	
Active participants	$ 850,000
Retirees	250,000
Total	$1,100,000
Annual service cost	$ 44,000

(a) (*7 points*) Calculate the 2012 expense reflecting the settlement. Show all work.

(b) (*3 points*) Compare and contrast a buy-in contract to a buy-out contract from the perspectives of the plan sponsor and the plan participants.

Question 8 pertains to the Case Study.

8. (*9 points*) NOC is considering adding the following phased retirement provisions to the National Oil Full-Time Salaried Pension Plan (Salaried Plan):

- An employee electing phased retirement may begin to receive his pension while continuing to work.
- The pension payable at age 60 is calculated according to the Salaried Plan formula and is not re-calculated at the end of the phased retirement period.
- Medical benefits are not provided during the phased retirement period.
- Post-retiree medical benefits are not payable until the end of the phased retirement period.

(a) (*2 points*) Describe two key advantages and two key disadvantages of the proposed phased retirement program from the perspective of NOC.

(b) (*7 points*) A full-time salaried employee is considering the phased retirement program.

You are given the following as of January 1, 2012:

Employee Data	
Age:	60 years
Service:	30 years
Final Average Earnings:	$50,000
2011 Medical Benefits Cost:	$15,600
Estimated 2012 Phased Retirement Salary:	$20,800

Assume no future changes in salary or medical benefits costs.

Compare and contrast the following options from the perspective of the employee:

(i) Phased retirement
(ii) Immediate retirement
(iii) Continue to work full-time until normal retirement at age 65

Show all work.

9. (*7 points*) At the beginning of the year, XYZ Company's pension plan was fully funded on an accounting basis and XYZ implemented a liability-driven investment (LDI) strategy. Since that time, the pension plan has experienced a reduction in its funded ratio. The CFO has asked you to explain why this has happened. You do not know the specific LDI strategy that was implemented.

(a) (*3 points*) Describe three LDI strategies that may have been implemented.

(b) (*4 points*) For each of the LDI strategies listed in (a), explain possible reasons for the reduction in the funded ratio.

10. (*7 points*) A country is considering legislation that requires that defined benefit plans:

- Determine their funding valuation liabilities using a discount rate linked to long-term government bond yields; and
- Maintain a fully funded status.

Assess this legislative proposal from the perspectives of all stakeholders.

Question 11 pertains to the Case Study.

11. (*7 points*) XYZ Company's executives are concerned that their defined benefit Supplemental Retirement Plan (DB SRP) benefits may not be honored in a future change of ownership.

XYZ's CEO has asked you to assess the following options to address this concern:

Option 1: Add change in control provisions to the DB SRP
Option 2: Pre-fund the DB SRP

(a) (*5 points*) Assess both options from the perspective of XYZ.

(b) (*2 points*) Describe two U.S. funding vehicles that may be utilized to address the concerns of XYZ's executives.

****END OF EXAMINATION****

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