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**SOCIETY OF ACTUARIES**  
**Design & Accounting Exam – U.S.**

**Exam RETDAU**

**AFTERNOON SESSION**

**Date:** Thurs, Oct 31, 2013

**Time:** 1:30 p.m. – 3:45 p.m.

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**INSTRUCTIONS TO CANDIDATES**

**General Instructions**

1. This afternoon session consists of 4 questions numbered 7 through 10 for a total of 40 points. The points for each question are indicated at the beginning of the question. Question 9 pertains 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 RETDAU.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.



## **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\*\***

**Afternoon Session**  
***Beginning with Question 7***

- 7.** (8 points) You have taken over a client from an actuary who recently left your firm. After you review the January 1, 2013 funding valuation report that the prior actuary signed, you discover the following:
- The prior actuary used January 1, 2012 valuation data with adjustments. The valuation report stated that the data used was provided by the plan sponsor as of January 1, 2013 without further explanation.
  - A plan amendment that substantially increased the early retirement benefits was adopted July 1, 2012 and was effective January 1, 2013. The valuation report does not refer to the plan amendment.
  - There have been significant retirement gains in the past five consecutive years.
- (a) (3 points) List the reporting requirements that must be included in actuarial communications under the applicable professional standards.
- (b) (5 points) Describe potential violations of the applicable professional standards and the steps that should be taken to remedy the violations.

**8.** (8 points) A large portion of XYZ Company's key salaried employees will retire in the next ten years and XYZ wants to establish a phased retirement plan to retain them. The Human Resources Manager has heard about Deferred Retirement Option Plans (DROPs) and has asked you how a DROP could be added to XYZ's salaried pension plan.

- (a) (1 point) List the basic features of a DROP.
- (b) (3 points) Describe the advantages and disadvantages of a DROP from an employee's perspective.
- (c) (4 points) The Human Resources Manager claims that implementing the DROP will be a cost-neutral change to the pension plan.

Critique this conclusion and describe the actuarial and operational risks associated with a DROP.

**Question 9 pertains to the Case Study.**

- 9.** (15 points) NOC is recruiting an executive who is within three years of retirement.

NOC's Board of Directors is considering offering the executive a three-year contract effective January 1, 2014 with one of the following arrangements:

Option 1: Base Salary of \$700,000 with 50% target annual bonus in each year.

Option 2: Base salary of \$500,000 with 50% target annual bonus plus \$300,000 paid in restricted company shares in each year.

Option 3: Base salary of \$300,000 plus a SERP that provides the following benefit:

- A lump sum of \$2,500,000 payable at retirement on January 1, 2017;
- The lump sum does not vest until retirement.

- (a) (5 points) Compare and contrast the arrangements from the perspectives of both NOC and the executive.

On January 1, 2014, NOC enters a contract with the executive with the arrangement outlined in Option 3. You are given the following information:

- Discount rate of 3% as of January 1, 2014.
- Assume no decrements over the contract period.

- (b) (4 points) Calculate the 2014 pension expense and impact on Other Comprehensive Income (OCI). Show all work.

On January 1, 2015, NOC changes the agreement to pay the lump sum in two guaranteed installments of 25% on January 1, 2017 and 75% on January 1, 2018. You are given the following information:

- Discount rate of 4% as of January 1, 2015.
- Assume no decrements over the contract period.

- (c) (6 points) Calculate the 2015 pension expense and impact on Other Comprehensive Income (OCI). Show all work.

**10.** (9 points)

- (a) (4 points) Compare and contrast the following types of defined contributions (DC) plans:
  - (i) 401(k);
  - (ii) Money purchase; and
  - (iii) Leveraged ESOP.
- (b) (2 points) Explain in detail the 401(k) ADP and ACP testing process.
- (c) (3 points) Describe three ways in which an employer can increase the likelihood of its 401(k) plan passing ADP and ACP testing.

**\*\*END OF EXAMINATION\*\***  
**Afternoon Session**

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