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

Exam RETDAU

MORNING SESSION

Date: Friday, May 2, 2014
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).
 - a) The morning session consists of 7 questions numbered 1 through 7.
 - b) The afternoon session consists of 6 questions numbered 8 through 13.

The points for each question are indicated at the beginning of the question. Questions 1, 3 – 5, 9, and 10 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 because 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****
Morning Session

Question 1 pertains to the Case Study

1. (9 points) NOC is reviewing the NOC Full-Time Salaried Pension Plan (Salaried Plan) and NOC Part-Time DC Pension Plan (DC Plan).

(a) (3 points) Calculate the employer-provided retirement income replacement ratio at age 65 for an employee under both the Salaried Plan and DC Plan given the following information:

Age at hire	30 years
Salary at hire	\$50,000
Salary scale	3% per year
Assumed return on DC Plan investments	6% per year
Assumed age 65 annuitization factor	11.25

Show all work.

- (b) (2 points) Describe the reasons an employee may not require an income replacement ratio of 100% after retirement.
- (c) (4 points) NOC is considering opening the DC Plan to Salaried Plan members and providing future new hires with a choice between the Salaried Plan and DC Plan. Recommend changes that could be made to the DC Plan to make it more attractive to new hires.

2. (9 points) You have recently been appointed as the actuary for a new client who has requested that you perform an accounting valuation for their post-employment health program. You have been provided with the following information from last year's accounting report:

Year	December 31, 2012
Discount rate	8.5% per year
Return on assets	N/A
Medical trend	
- Initial	6.0% per year
- Annual decrease	0.5% per year
- Ultimate rate	2.5% per year
General inflation	2.5% per year
Per capita claims cost	\$20,000
Retirement assumption	Age 65
Mortality table	GAM 1994

You have also been provided with the following information:

- The medical experience in 2013 indicated costs increased by 20%
 - All members are also enrolled in a pension plan with an earliest unreduced retirement age of 60
- (a) (5 points) Describe the considerations when setting assumptions for the December 31, 2013 accounting valuation.
- (b) (4 points) Compare and contrast three assumptions that are common between accounting valuations for post-employment health programs and pension plans.

Question 3 pertains to the Case Study

3. (8 points) XYZ is one of NOC's largest competitors and is acquiring NOC. The following benefits are available to XYZ employees in Gevrey:

- All executive and non-executive employees participate in a defined contribution plan with an employer contribution equal to 5% of pay.
- In addition, executives receive an annual lump sum cash payment based on profitability in lieu of other retirement benefits. The 2013 payment was 25% of pay.

Prepare a due diligence report for XYZ management in respect of the pension and compensation issues.

Question 4 pertains to the Case Study

- 4.** (12 points) NOC has decided to freeze future benefit accruals, including final average earnings, for the NOC Full-Time Salaried Pension Plan (Salaried Plan) effective June 30, 2014. Future retirement benefits will be provided to the salaried workforce via a new defined contribution plan starting July 1, 2014.
- (a) (4 points) Given the changes to the Salaried Plan, changes must be made to the NOC Full-Time Salaried Supplemental Retirement Plan (SRP). Describe two changes that could be made to the SRP to continue to provide some form of future benefits to NOC executives.
- (b) (8 points) There are no other gains or losses in 2014. You are given the following information:

	January 1, 2014 – June 30, 2014	July 1, 2014 – December 31, 2014
Service cost	35,000,000	0
Employer contributions	21,196,000	0
Benefit payments	16,500,000	16,500,000

Calculate the revised 2014 Net Periodic Benefit Cost and the Accumulated Other Comprehensive Income recognized in the statement of financial position at December 31, 2014 for the Salaried Plan.

Show all work.

Question 5 pertains to the Case Study

5. (8 points)

- (a) (3 points) Describe duration and its importance for pension plan sponsors.

You have been provided the following information for the NOC Full-Time Salaried Pension Plan (Salaried Plan):

	Benefit Obligation at January 1, 2014	Duration
Assets	N/A	6
Active Participants	949,265,000	18
Inactive Participants	316,421,000	10

- (b) (2 points) Calculate the impact on the accounting funded status of a 1% increase in interest rates.

Show all work.

- (c) (3 points) Recommend changes to the plan design that would lower the duration of the Salaried Plan.

- 6.** (10 points)
- (a) (2 points) Describe the characteristics of a cash balance pension plan.
 - (b) (3 points) Describe the risks of a cash balance plan from the perspective of the plan sponsor.
 - (c) (3 points) Describe the ways a company could manage the risks of its cash balance pension plan.
 - (d) (2 points) Describe the effects of the Pension Protection Act of 2006 on cash balance pension plans.
- 7.** (4 points) The average funded status of public sector pension plans is lower than the average funded status of company-sponsored pension plans. Explain why public sector pension plans may be poorly funded.

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

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