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

Exam RETDAU

MORNING SESSION

Date: Thursday, October 29, 2015

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 2 and 3 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

1. (8 points) ABC Company sponsors a 401(k) plan and is concerned that retirees are doing a poor job of managing post-retirement risks. ABC wants to implement a retirement income program to help retirees with the payout of their 401(k) account balances.
 - (a) (4 points) Describe retirement income program options for 401(k) plans and describe how they mitigate the risk of retirees outliving their account balances.
 - (b) (4 points) Describe the advantages and disadvantages of introducing a retirement income program from the perspective of the plan sponsor.

Question 2 pertains to the Case Study.

2. (12 points) Effective July 1, 2015, NOC has amended the National Oil Full-Time Salaried and Union Retiree Health Benefit Program. Active employees who have already met the early retirement eligibility requirements will remain eligible for retiree health and life insurance benefits when they retire. All other active employees will no longer be eligible for these benefits.

(a) (2 points) Compare and contrast the accounting treatment for the plan change under U.S. accounting standard ASC 715 and international accounting standard IAS 19, Rev. 2011.

You are given:

- Benefit payments have been as expected for 2015 and will not change for the remainder of 2015 as a result of the change.
- Benefit payments for 2016 are expected to be the same as 2015.
- The discount rate at July 1, 2015 is 4.25%. The decrease in the discount rate at that date changed the Accumulated Post-Retirement Benefit Obligation by \$152,334,000.
- There were no other actuarial gains or losses on the obligation in 2015.
- The new obligation at a discount rate of 4.25% after the plan amendment is \$2,310,000,000.
- The estimated discount rate at December 31, 2015 is also 4.25%.
- After the amendment the Average Future Working Lifetime to Retirement is 4 years.

(b) (7 points) Calculate the impact of the plan changes on NOC's 2015 Net Periodic Benefit Cost and Accumulated Other Comprehensive Income (AOCI) under U.S. accounting standard ASC 715.

Show all work.

(c) (3 points) Calculate NOC's 2016 Net Periodic Benefit Cost under U.S. accounting standard ASC 715.

Show all work.

Question 3 pertains to the Case Study.

- 3.** (9 points) NOC's CEO is concerned with the risks inherent in the Full-Time Salaried Pension Plan (Salaried Plan) but wants to continue offering employees a defined benefit pension plan.
- (a) (2 points) Describe four risks the plan provisions of the Salaried Plan present to NOC.
- (b) (1 point) Describe how a traditional final average pay defined benefit pension plan provides unequal benefit accruals to different employees.
- (c) (6 points) Describe four changes to the Salaried Plan, excluding changes to the normal retirement benefit formula, that could reduce the risks in part (a) by considering the following for each recommended change:
- how the change would reduce NOC's risk;
 - a potential disadvantage of the change from the perspective of the employees; and
 - the potential impact of the change on the retirement/termination pattern of employees.

4. (7 points) A multinational corporation is expanding its countries of operation and is reviewing the need to introduce company-sponsored retirement plans over and above social security programs in the new countries.
- (a) (2 points) Describe issues to consider when introducing a company-sponsored retirement plan in a country with a social security program.
- (b) (3 points) Describe general approaches of integrating social security programs with company-sponsored retirement plans.
- (c) (2 points) A plan sponsor is transferring an employee on January 1, 2016 from Country A which does not have a social security program to Country B which has a social security program.

You are given the following at January 1, 2016:

Employee Information

Annual Earnings:	\$75,500
Service:	10 years
Current company-sponsored defined benefit pension plan formula:	2% of earnings multiplied by service

Additional Information

	Country B
Social security benefit:	\$280 per month
Maximum earnings under social security program:	\$52,500

Calculate the integration formula for the company-sponsored plan in Country B that would provide an equivalent benefit to the employee at the date of transfer.

Show all work.

5. (14 points) Executive A was hired at age 59 on December 31, 2011 and participates in a Supplemental Executive Retirement Program (SERP) which pays a lump sum immediately on retirement equal to \$500,000 per year of service.

You are given the following information with respect to the SERP at December 31, 2014:

Retirement	Age 65 with no other decrements
Discount rate	4%
Assets	\$0
Projected Benefit Obligation	\$2,000,000
Service cost (beginning of year)	\$600,000
Unrecognized actuarial gains/(losses)	(\$50,000)
Unrecognized prior service (costs)/credits	\$0
Average Future Working Lifetime – Total Plan	15 years
Average Future Working Lifetime – Executive A	3 years

- (a) (2 points) Calculate the Projected Benefit Obligation and service cost attributable to Executive A at December 31, 2014.

Show all work.

- (b) (6 points) Calculate the 2015 SERP Net Periodic Benefit Cost and impact on Accumulated Other Comprehensive Income (AOCI) under U.S. accounting standard ASC 715 if Executive A retired on January 1, 2015.

Show all work.

- (c) (4 points) Effective December 31, 2014, the Company increased the lump sum for Executive A from \$500,000 to \$750,000 per year for all years of service.

Calculate the 2015 SERP Net Periodic Benefit Cost and the impact on AOCI under U.S. accounting standard ASC 715 assuming Executive A does not retire on December 31, 2014.

Show all work.

- (d) (2 points) Describe how the accounting treatment of the plan change in part (c) would be different under international accounting standard IAS 19, Rev. 2011. No calculations are required.

6. (6 points)

- (a) (2 points) Describe the principle features of a Retirement Shares Plan.
- (b) (4 points) Describe four risks associated with a Retirement Shares Plan from both the plan sponsor's and plan participants' perspectives.

7. (4 points) Describe the advantages and disadvantages of advance funding the following types of defined benefit pension plans:

- (i) Company-sponsored pension plan; and
- (ii) Public sector pension plan.

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

USE THIS PAGE FOR YOUR SCRATCH WORK