

Exam RETDAU

AFTERNOON SESSION

Date: Thursday, November 1, 2018

Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 5 questions numbered 9 through 13 for a total of 40 points. The points for each question are indicated at the beginning of the question. Question 11 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 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.

Canadian version of this exam is recognized by the Canadian Institute of Actuaries.

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 9

9. (5 points) Company ABC sponsors a defined contribution (DC) plan with the following plan provisions:

Employee Contributions	Voluntary up to 8% of salary
Employer Contributions	Base contribution of 4% plus 100% employee contribution match, up to 4% maximum match
Timing of Contributions	Remitted once a year at the end of the year

Employee X was hired at Company ABC. You are given the following information regarding Employee X:

Age at Hire	50
Salary at Hire	\$100,000
Voluntary Annual Contribution from Hire	8% of salary
Amount Transferred to DC Plan at Date of Hire from Previous Employer	\$900,000

The country within which Employee X resides has the following Social Security Plan provisions:

Annual Benefit at Normal Retirement Age	\$30,000
Normal Retirement Age	65
Earliest Retirement Age	55
Early Retirement Reduction	6% per year

Employee X has a goal of retiring at age 55 with an income replacement ratio of 70%.

You are given the following assumptions:

Gross DC Annual Return	5%
DC Annual Expenses	1%
Annual Salary Scale	3%
Present Value Conversion Factor at Age 55	20.0

- (a) (3 points) Calculate the additional savings Employee X will need as of age 55 to meet his retirement goal.

Show all work.

- (b) (2 points) Describe the advantages and disadvantages of Employee X buying an annuity with his DC balance at retirement.

- 10.** (8 points) Company ABC sponsors a defined benefit pension plan for its salaried employees. You are given the following information about the pension plan:

Eligibility	Immediate
Vesting	Immediate
Normal Retirement Age	65
Early Retirement Age	55
Earnings	Base pay and bonuses
Normal Retirement Benefit	2% of final annual earnings times years of service, subject to tax system maximum
Early Retirement Benefit	Accrued benefit reduced by 0.25% per month that early retirement precedes age 60
Termination Benefit	Accrued benefit reduced by 0.25% per month that pension commencement date precedes age 60. Pension commencement cannot begin before age 55.
Indexing	After pension commencement, pension benefits are indexed annually to inflation, subject to a maximum increase of 3% per year
Portability	Employees have the option to take a lump sum at both termination and retirement

- (a) (3 points) Propose six changes to the plan provisions described above that would reduce the plan's balance sheet volatility.

Justify your response.

Company ABC is considering moving to a defined contribution pension plan.

- (b) (2 points) Describe the risks of a defined contribution plan from the perspective of plan participants.
- (c) (3 points) Describe three ways that Company ABC could transition from its defined benefit plan to a defined contribution plan.

Question 11 pertains to the Case Study.

11. (12 points) NOC is implementing a voluntary severance initiative this year. As part of this initiative, NOC is considering the following options to be offered to certain retirement-eligible employees participating in the National Oil Full-Time Salaried Supplemental Retirement Plan (SRP):

Option 1: Enhanced retirement benefit calculated as if the employee were 3 years older with 3 additional years of service, or

Option 2: One-time cash severance payment equal to 125% of current salary, paid outside of the SRP.

(a) (2 points) Evaluate each option from the perspectives of the employee and employer.

No calculations required. Justify your response.

You are given:

- NOC decided to implement Option 1.
- 10 employees accepted the voluntary offer and retired on July 1, 2018.
- All 10 employees are currently age 55 with 20 years of service.
- Best average earnings for each employee as of July 1, 2018 are \$460,000.
- Average future service at July 1, 2018 reduces to 3.8 years following the 10 retirements.
- The discount rate decreases 25 basis points from January 1, 2018 to July 1, 2018.
- Age 55 annuity factor based on July 1, 2018 discount rate is 17.0.
- There are no other assumption changes for fiscal 2018.
- There are no other gains or losses for fiscal 2018.
- Benefit payments from January 1, 2018 to June 30, 2018 were \$333,000.
- Expected benefit payments from July 1, 2018 to December 31, 2018 are \$1,000,000.
- The change in the Projected Benefit Obligation (PBO) and Service Cost (SC) as of July 1, 2018 is as follows:

	PBO	SC
Due to early retirements (before enhancement)	\$1,230,000	(\$400,000)
Due to discount rate change	\$3,595,000	\$59,000

(b) (10 points) Calculate the revised fiscal 2018 Net Periodic Pension Cost under U.S. Accounting Standard ASC 715 reflecting Option 1.

Show all work.

12. (7 points)

- (a) (4 points) Describe the following design features of a Canadian target benefit plan:
- (i) Contribution rate.
 - (ii) Target benefit level.
 - (iii) Investment policy.
 - (iv) Benefit/funding policy.
- (b) (3 points) Describe three advantages of a Canadian target benefit pension plan versus a traditional defined contribution pension plan.

13. (8 points)

- (a) (5 points) Describe the opportunities and barriers to pension risk transfer existing in the U.S. regulatory environment.
- (b) (3 points) Describe the components of the pension plan “economic liability” used in evaluating the relative cost of a pension risk transfer strategy.

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

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