Exam RETDAC

Design & Accounting Exam – Canada

Date: Friday, October 25, 2024

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 10 questions numbered 1 through 10 with a total of 80 points.

   The points for each question are indicated at the beginning of the question. Questions 4, 9 and 10 (b) pertain to the Case Study.

2. 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 provided in this document.

Written-Answer Instructions

1. Each question part or subpart should be answered either in the Word document or the Excel file as directed. Graders will only look at work in the indicated file.

   a) In the Word document, answers should be entered in the box marked ANSWER. The box will expand as lines of text are added. There is no need to use special characters or subscripts (though they may be used). For example, β_1 can be typed as beta_1 (and ^ used to indicate a superscript).

   b) In the Excel document formulas should be entered. Performing calculations on scratch paper or with a calculator and then entering the answer in the cell will not earn full credit. Formatting of cells or rounding is not required for credit.

   c) Individual exams may provide additional directions that apply throughout the exam or to individual items.

2. The answer should be confined to the question as set.

3. Prior to uploading your Word and Excel files, each file should be saved and renamed with your unique candidate number in the filename. To maintain anonymity, please refrain from using your name and instead use your candidate number.

4. The Word and Excel files that contain your answers must be uploaded before time expires.

Navigation Instructions

Open the Navigation Pane to jump to questions.

Press Ctrl+F, or click View > Navigation Pane:
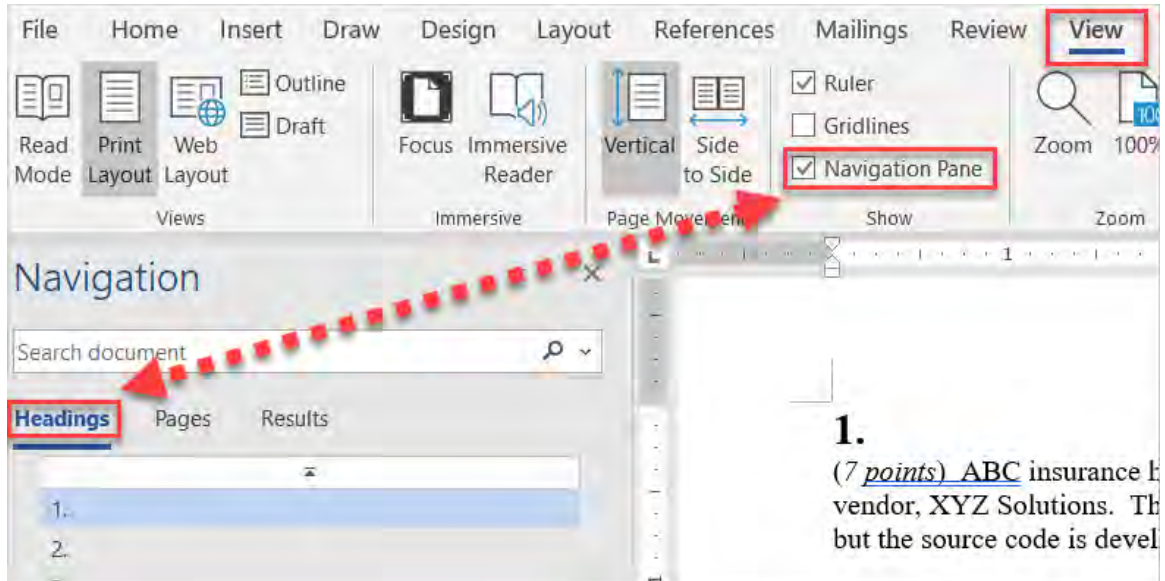
GENERAL INSTRUCTIONS

- All questions indicate whether the response is to be answered in Word or Excel. Only the Word document will be graded for parts of a question with Word answer boxes; only the Excel spreadsheet will be graded for parts of a question with Excel instructions.
- When answering in Excel, "show your work" means
  - o Calculation formulas must be used in the answer cells containing the work.
  - o All work should be labeled.

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.

1.

(*8 points*)

(a)   (*5 points*) Describe how assumption setting differs between pension plans and retiree health plans for the following assumptions:

(i)   Retirement

(ii)   Termination

(iii)   Mortality

(iv)   Discount rate

(v)   Marital assumption

> ANSWER:

(b)   (*2 points*) Describe considerations for setting the retiree health plan per capita claims cost assumption.

> ANSWER:

(c)   (*1 point*) Describe considerations for use of roll-forward techniques for retiree health plan valuations under Actuarial Standard of Practice No. 6, Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions.

> ANSWER:

2.

(*5 points*)

(a)   (*3 points*) Compare and contrast the features of the following saving arrangements:

      (i)   Tax-Free First Home Savings Account (FHSA)

      (ii)   Registered Retirement Savings Plan (RRSP)

      (iii)   Tax-Free Savings Account (TFSA)

ANSWER:

Two individuals are looking to buy a home in the next 5 years.

You are given the following information:

	Individual A	Individual B
Age	35	45
Income level	Low income	High income
Home ownership	Owns a home	Currently rents, but owned a home 5 years ago

(b)   (*2 points*) Recommend the saving arrangement from part (a) that is best suited for:

      (i)   Individual A

      (ii)   Individual B

Justify your response.

ANSWER:

3.

(*7 points*) An employer is negotiating a defined benefit pension arrangement for the first time with the union representing its employees.

The union workforce has the following characteristics:
- Mix of full-time and part-time members
- High turnover in low service employees

The employer has the following objectives for the arrangement:
- Encourage workforce to stay to age 65
- Minimize administrative burden
- Share cost with employees
- Limit the employer's inflation risk

The union has the following objectives for the arrangement:
- Cover all employees and be easy to understand
- Provide protection if a retiree dies shortly after retirement
- Preserve benefit value for members who terminate or die before retirement
- Minimize investment risk for employees
- Allow employees to retire starting at age 55

Recommend plan features that will balance the employer's and union's objectives.

Justify your response.

ANSWER:

4.

(*9 points*) NOC has decided to convert its defined benefit pension plan into a target benefit plan.

(a)   (*4 points*) Describe the advantages and disadvantages of a target benefit plan from the following perspectives:

   (i)   NOC

   (ii)   NOC employees

   ANSWER:

(b)   (*3 points*) Recommend changes to NOC's defined benefit plan provisions to qualify it as a target benefit plan.

   ANSWER:

(c)   (*2 points*) Describe the potential uses of stochastic modeling when analyzing a target benefit plan.

   ANSWER:

5.

(*8 points*)

(a) (*4 points*) You are calculating the Net Periodic Pension Cost (NPPC) under U.S. Accounting Standard ASC 715 (ASC 715).

Compare and contrast the following approaches:

(i) Bond Matching

(ii) Traditional Yield Curve

(iii) Spot Rate

No calculations required.

ANSWER:

(b) (*4 points*) Compare and contrast the Traditional Yield Curve approach versus the Spot Rate approach in a downward sloping yield curve environment on the following under ASC 715:

(i) NPPC

(ii) Funded Status

ANSWER:

6.

(*8 points*)

(a)   (*4 points*) Explain how public sector defined benefit pension plans are exposed to risk by the following sources:

   (i)   Contribution policy

   (ii)   Governance

   (iii)   Long time horizon

ANSWER:

(b)   (*4 points*) Describe the advantages and disadvantages of the pooling of the following risks inherent in public sector defined benefit pension plans:

   (i)   Longevity

   (ii)   Investments

ANSWER:

7.

(*10 points*) Company ABC sponsors a defined benefit pension plan. Company ABC prepares its financial disclosures under U.S. Accounting Standard ASC 715.

The following information has been provided.

	12/31/2023	12/31/2024
Fair Value of Plan Assets	225,780,000	245,970,000
Projected Benefit Obligation	250,650,000	270,450,000
Unrecognized Loss/(Gain)	(40,150,000)	
Retiree % of Liabilities		48.2%
Discount Rate	4.5%	4.5%
Expected Return on Plan Assets	6.0%	6.0%
Average Future Working Lifetime	12.5	13.1
Gain/Loss Amortization Method	10% corridor; amortized over average future working lifetime	

	2024	2025
Service Cost	19,870,000	20,480,000
Expected Benefit Payments paid mid-year	9,251,000	8,624,000
Expected Contributions paid mid-year	21,550,000	21,550,000

(a)   (*3 points*) Calculate the 2024 Net Periodic Pension Cost.

Show all work.

> *The response for this part is to be provided in the Excel spreadsheet.*

Company ABC wants to reduce its risk exposure under the defined benefit pension plan by purchasing annuities for its retirees through an annuity buy-out contract. The annuity buy-out contract is effective March 31, 2025.

The following information has been provided for the first 3 months of 2025.

Fair Value of Assets as of March 31, 2025	252,597,000
Benefit Payments (retirees)	2,156,000
Contributions	5,952,000
Annuity Buy-out Premium	142,150,000

7. Continued

- There were no other benefit payments paid during the first 3 months of 2025.
- The discount rate remained unchanged at March 31, 2025.
- There were no experience gains or losses on the Projected Benefit Obligation.
- The expected benefit payments are $0 for the remainder of 2025.
- No additional contributions are expected to be made as a result of the annuity purchase.

(b)   (7 *points*) Calculate the 2025 Net Periodic Pension Cost.

Show all work.

The response for this part is to be provided in the Excel spreadsheet.

8.

(*8 points*) Company ABC is acquiring a division of Company XYZ through an asset-purchase transaction. Both companies sponsor defined benefit pension plans.

(a)   (*2 points*) Identify the information Company ABC should obtain about Company XYZ's pension plan as part of the due diligence process before entering into an asset purchase transaction.

> ANSWER:

The plan provisions for both companies' defined benefit pension plans are as follows:

Plan Provisions	Company ABC	Company XYZ
Benefit	2.0% Final Average Earnings x Service	2.0% Career Average Earnings x Service
Unreduced Retirement Age	Age 65 or 85 points (points = age + service)	Age 65
Funded Status	70% Funded	120% Funded

(b)   (*2 points*) Evaluate an arrangement where Company XYZ retains the past service liability from the following perspectives:

(i)   Company ABC

(ii)   Transferring employees of Company XYZ

> ANSWER:

(c)   (*2 points*) Evaluate a wraparound arrangement from the following perspectives:

(i)   Company ABC

(ii)   Transferring employees of Company XYZ

> ANSWER:

8. **Continued**

  (d) (*2 points*) Evaluate a carve-out arrangement from the following perspectives:

    (i)   Company ABC

    (ii) Transferring employees of Company XYZ

> ANSWER:

9.

(*7 points*)

(a)   (*2 points*) Describe considerations when selecting an amortization method under Actuarial Standard of Practice No. 4 Measuring Pension Obligations and Determining Pension Plan Costs or Contributions (ASOP 4).

> ANSWER:

NOC is considering amending the National Oil Pension Plan.

(b)   (*5 points*) Explain the implications of each of the following changes on the 2025 Net Periodic Benefit Cost under U.S. Accounting Standard ASC 715:

   (i)   Freezing the defined benefit pension plan and implementing a new defined contribution plan for all members after January 1, 2025.

   (ii)   Implementing post-retirement indexation of 50% of inflation per year for all years of service.

   (iii)   Reducing the normal retirement benefit by 0.25% per month that early retirement precedes age 60 for service earned after January 1, 2025.

   No calculations required.

> ANSWER:

10.

(*10 points*)

(a)   (*4 points*) Compare and contrast assumption setting for the following types of pension plans:

(i)   Defined benefit plan

(ii)   Variable Annuity Plan

ANSWER:

Question 10b pertains to the Case Study.

(b)   (*6 points*) Propose a process for assessing and potentially updating the following assumptions for the National Oil Pension Plan:

(i)   Retirement

(ii)   Mortality

(iii)   Turnover

(iv)   Salary scale

ANSWER:

END OF EXAMINATION