

Exam RET 101

Date: Monday, March 23, 2026

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 6 questions numbered 1 through 6 with a total of 50 points.

The points for each question are indicated at the beginning of the question.

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.

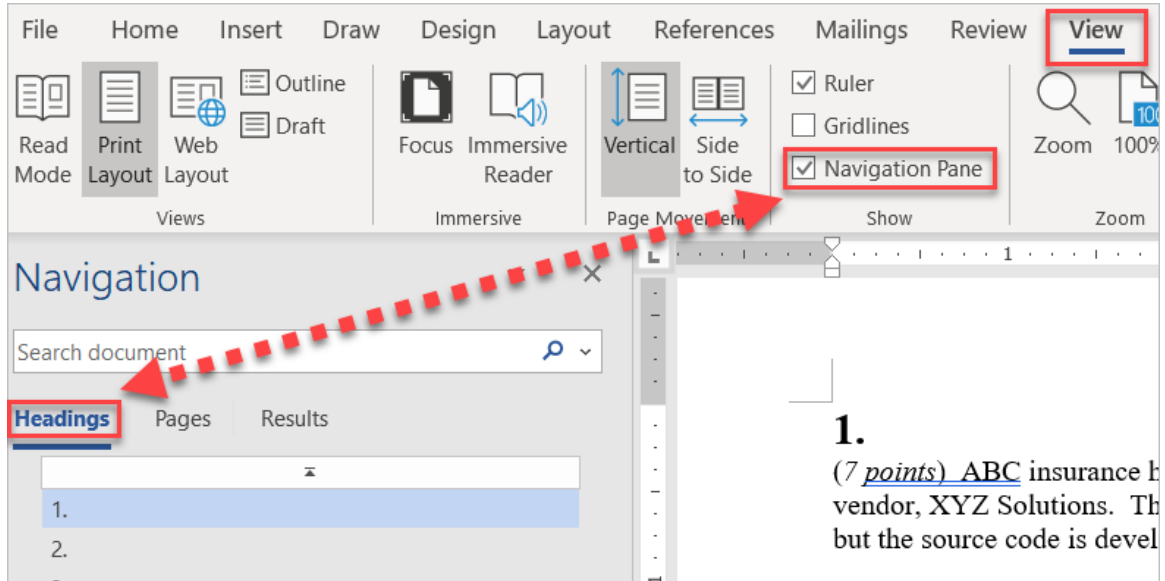
Written-Answer Instructions

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
 - Calculation formulas must be used in the answer cells containing the work.
 - All work should be labeled.

1.

(5 points) Company ABC is considering adding a target date fund option to its defined contribution (DC) pension plan.

(a) (3 points) Compare and contrast a “to-retirement” glide path with a “through-retirement” (dynamic) glide path from the following perspectives:

(i) Plan participants

(ii) Plan sponsor

ANSWER:

(b) (2 points) Explain how incorporating the following into target date fund design could improve outcomes for DC plan participants:

(i) Personalization

(ii) Segmentation

ANSWER:

2.

(9 points) Company XYZ sponsors a defined benefit pension plan that is closed to new entrants. You are provided with cash flows for Company XYZ's plan and a yield curve in Excel.

- (a) (3 points) Calculate the modified duration of the plan assuming mid-year timing of cash flows.

Show all work.

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

- (b) (2 points) Recommend a target portfolio allocation that minimizes Company XYZ's interest rate risk using only the following asset classes:

Asset Class	Duration
Corporate Bonds	11 years
Treasury Bonds	18 years

Show all work.

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

Company XYZ has an 80% fixed income and 20% equity investment portfolio allocation.

- (c) (2 points) Propose changes to the investment portfolio if Company XYZ were to consider the following plan changes:
- (i) Reopen pension plan to new entrants
 - (ii) Freeze pension benefits and replace with a defined contribution plan

No calculations are required.

ANSWER:

2. Continued

Company XYZ decides to freeze the defined benefit pension plan and replace it with a defined contribution plan.

- (d) (2 points) Explain the impact of this change on investment risk from the following perspectives:
- (i) Employer
 - (ii) Employee

ANSWER:

3.

(10 points)

- (a) (2 points) Describe three plan features that are more prevalent in public sector plans compared to private sector plans.

ANSWER:

- (b) (4 points) Describe the risks associated with public sector plans from the following perspectives:

- (i) Government
- (ii) Plan participants
- (iii) Taxpayers

ANSWER:

- (c) (2 points) Describe the issues that public plans face in developing contribution policies.

ANSWER:

- (d) (2 points) Describe how public sector pension plans are able to handle long-term risks better than private sector pension plans.

ANSWER:

4.
(7 points)

- (a) (2 points) Describe four benefit related challenges employers face in attracting and retaining mid-career executives.

ANSWER:

Company ABC offers a defined benefit pension plan with the following provisions:

Vesting	100% vesting after 5 years of service
Normal retirement age	65
Early retirement age	55 (with at least 15 years of service)
Early retirement reduction factor	Actuarial reduction for commencement of benefits prior to age 65
Eligible earnings	Base pay only (limited to statutory maximum)
Average earnings	Highest 5 years of earnings
Benefit service	Service from date of hire, limited to a maximum of 20 years
Benefit formula	1% of Average earning times Benefit service

- (b) (5 points) Recommend an executive retirement plan design that would achieve the following objectives assuming executives currently participate in Company ABC's defined benefit pension plan:
- (i) Attract mid-career hires
 - (ii) Retain executives

Justify your recommendations.

ANSWER:

5.

(10 points) Company ABC sponsors two pension plans with the following features:

	Plan A	Plan B
Formula	Final average salary	Career average
Membership	Open to new entrants	Closed to new entrants
Population	<ul style="list-style-type: none">• 1,200 actives• 800 inactive	<ul style="list-style-type: none">• 600 actives• 1,400 inactive
Indexing	Benefits indexed to inflation	No indexing
Early Retirement Subsidy	None	Unreduced early retirement at age 60
Employee Contributions	None	Mandatory, 5% of pay
Percent funded	80%	105%
Asset allocation	<ul style="list-style-type: none">• 75% equities• 25% fixed income	<ul style="list-style-type: none">• 40% equities• 60% fixed income

Company ABC wishes to merge the plans and use Plan A's design for future service while preserving the accrued benefits in Plan B.

- (a) (6 points) Describe how the risks faced by the following will change as a result of the plan merger:
- Company ABC
 - Plan participants

ANSWER:

- (b) (2 points) Describe two risk management strategies to address the intergenerational equity.

ANSWER:

- (c) (2 points) Explain what Company ABC should consider when evaluating their asset allocation post merger.

ANSWER:

6.

(9 points)

- (a) (2 points) List the risks faced by plan participants in a defined contribution (DC) plan.

ANSWER:

- (b) (3 points) Propose plan design features that mitigate three of the risks identified in part (a).

ANSWER:

- (c) (4 points) Compare and contrast a collective DC (CDC) plan to a traditional DC plan from the following perspectives:

- (i) Plan sponsor
- (ii) Plan participant

ANSWER:

****END OF EXAMINATION****