INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 40 points. This exam consists of 6 questions, numbered 1 through 6. The points for each question are indicated at the beginning of the question.

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 Exam RETRPIRM.

6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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Tournez le cahier d’examen pour la version française.
1. (6 points) Company XYZ sponsors a defined benefit pension plan. The CIO of Company XYZ has just started art dealing and has suggested that 50% of the plan’s assets be invested in artwork.

   (a) (2 points) List the fiduciary duties of a pension plan trustee.

   (b) (4 points) Describe the fiduciary duties that the CIO could be violating with this investment.
2. (7 points) You are the actuary for Company ABC, which sponsors several defined benefit pension plans. Company ABC’s new CFO would like to learn more about the following risk mitigation strategies:

- Buy-in annuity contracts;
- Longevity swap contracts; and
- “q-forward” contracts.

(a) (4 points) Describe each of the above strategies.

The CFO has asked you to provide advice on Company ABC’s objective of hedging the longevity risk in the plan. The CFO states that Company ABC is well positioned to assume investment risk.

(b) (3 points) Assess whether each of the above strategies align with Company ABC’s objective.
3. (6 points)

(a) (1 point) Explain how a liability driven investment (LDI) strategy reduces interest rate risk in a defined benefit pension plan.

Company DEF recently implemented an LDI strategy to reduce the accounting funded status volatility by investing 100% in fixed income. In the latest quarterly monitoring report, the accounting funded status decreased from 100% to 98%.

(b) (2 points) Explain why the funded status may have decreased.

(c) (3 points) Describe two other solutions available to Company DEF to reduce funded status volatility.
4. (8 points) Company GHI is considering increasing the fixed income allocation in their defined benefit pension plan. The CEO of Company GHI made the assertion that fixed income investments are always less risky than equity investments.

(a) (2 points) Critique the CEO’s assertion.

(b) (2 points) Describe how the following factors affect the return of a fixed income portfolio:
   - Change in credit quality;
   - Change in the yield curve.

(c) (4 points) The contribution of the management effect on the return of a fixed income portfolio can be decomposed into four components. Describe the four components.
5.  

   (6 points)

   (a)  (2 points) Explain how some current pension regulations can be damagingly pro-cyclical.

   (b)  (4 points) Identify and describe regulatory initiatives that would promote counter-cyclical funding rules for defined benefit plans.
6.  (7 points)

(a)  (3 points) Describe the objectives of the following stakeholders in the context of a public sector defined benefit pension plan:

(i)  Taxpayers;

(ii) Elected officials;

(iii) Public sector employees; and

(iv) Public sector employers.

(b)  (4 points) Describe how the following changes in the funded status of a public sector defined benefit pension plan would affect the stakeholders in part (a):

(i)  A decrease from 100% to 80%; and

(ii) An increase from 100% to 120%.

**END OF EXAMINATION**
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