INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

17 April 2013 (am)

Subject ST5 – Finance and Investment
Specialist Technical A

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

2. *You have 15 minutes before the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*

3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all eight questions, beginning your answer to each question on a separate sheet.*

6. *Candidates should show calculations where this is appropriate.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.

1 (i) Outline the two key investment objectives for a fund holding assets below 100% of its liabilities, and the conflict between them. [5]

(ii) Describe two measures of the risk of the portfolio in (i) relative to its benchmark, including details of the data used and any assumptions made. [6]

(iii) Suggest how the two measures in (ii) can be adapted to measure asset risks relative to liabilities. [3]

[Total 14]

2 An investment manager who previously managed property funds has decided to offer a guaranteed capital return type product which will offer the client the higher of the following returns each quarter:

1. fixed 4% per quarter

2. the rate of increase/decrease in the average value of football players in a certain Football league (Footy)

(i) Discuss the difficulties of calculating the Footy index return. [5]

(ii) Describe changes that could be made to the Footy index to reduce some of the difficulties highlighted. [4]

You have been given the following information in respect of the Footy index.

End of quarter	1	2	3	4	5	6	7	8
Footy value	105	108	106	112	117	119	124	127

The start value was 100.

At the beginning of period 4, one player valued at 4 was removed and one valued at 6 was added.

(iii) Calculate the overall return for the 2 year period:

(a) of the Footy
(b) of the fund

[4]

[Total 13]

3 M-Loans is a specialist firm offering finance to small companies. Prior to any funding being agreed the company must undergo a rating agency assessment.

(i) List the areas a rating agency would focus on in its analysis. [4]

(ii) Discuss the potential problems M-Loans may face during a recessionary period. [4]

(iii) Suggest how these problems could be mitigated. [3]
[Total 11]

4 (i) Describe the key characteristics of each of six bond-like assets which could be used as alternatives to government bonds. [8]

(ii) Describe the circumstances in which these asset classes might exhibit different returns to government bonds. [5]
[Total 13]

5 (i) Define what is meant by a "contango" market. [2]

(ii) Explain what is likely to happen to prices of the following commodities during a global recession:

(a) crude oil
(b) gold
(c) pork bellies

[6]

(iii) Explain the principal benefits of investing in alternative asset classes such as commodities. [3]

(iv) State the ways in which an investor could invest in commodities. [3]

(v) Outline the benefits and disadvantages of each method in (iv). [6]
[Total 20]

6 (i) State the formula for calculating a total return index, defining all the terms used. [3]

(ii) Given the following data, calculate the value of the total return index for Day 2. [2]

Day	*Capital index*	*Total return index*	*XD adjustment*
1	5857.52	4080.63	168.82
2	5774.20		170.85

(iii) Calculate the dividend yield over the day. [1]
[Total 6]

7 You are a new provider of an individual defined contribution pensions savings product with a simplified investment approach sold via the internet. The product charges a total management fee of 50bps p.a. (all assets are directly managed) and there are only two fund choices:

- a growth fund, and
- an inflation-linked annuity matching fund (at retirement it is mandatory to use pension savings to buy an inflation-linked annuity)

The growth fund invests in a diversified range of asset classes with a benchmark asset allocation of:

40% equity;
20% alternative asset classes (property, private equity, infrastructure);
20% investment grade bonds;
20% high yield bonds and asset backed credit.

Individual contributors can either select their chosen mix of growth fund and annuity fund units, or opt for a lifestyling approach that phases from the growth fund into the annuity fund based on the chosen retirement date. Individuals are permitted to transfer to another provider with no penalty.

You are confident that the low fee scale, the simplified approach and the attractions of diversified investment strategies will permit the rapid growth of market share and assets under management.

(i) Describe the advantages and disadvantages of such an approach from the investor's perspective. [8]

(ii) Describe the specific challenges for the provider in managing the underlying investments as assets under management grow. [8]
[Total 16]

8 (i) State the formula for calculating a forward interest rate, defining all terms used. [3]

Assume that the 3-month Libor rate is 5% p.a. and the six-month rate is 5.5% p.a. (with continuous compounding). A forward rate agreement has been set up where we will receive a rate of 7% p.a., measured with quarterly compounding, on a principal of $1m, between the end of months 3 and 6.

(ii) Calculate the value of the forward rate agreement. [4]
[Total 7]

END OF PAPER