Faculty of Actuaries **Institute of Actuaries**

EXAMINATION

30 March 2006 (pm)

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 at 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 7 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.

1 You are a trustee to a mature but underfunded retirement benefit scheme which has investments in a wide range of properties. Discuss the appropriateness of passive management of the property assets within the fund. [8]

2 In relation to portfolio construction:

(a) Define prospective and retrospective tracking errors.

(b) Discuss the use of prospective and retrospective tracking errors as measures of risk.

(c) State why the two measures of risk might differ.

[9]

3 You are advising the government of a country on how to set up a tax system. The chief minister wants to tax investment income at a higher rate than earned income, and to exempt capital gains from tax. His aims are to encourage entrepreneurial activity and investment and to redistribute wealth from the rich to the poor. Explain the flaws and unintended consequences of his proposed approach. [8]

4 (i) Outline the key principles underlying the relevant legislation relating to providers of financial services and their clients. [7]

(ii) Describe the points that should be covered by a "Statement of Investment Principles". [4]

[Total 11]

5 The following information is provided on a non-UK equity fund.

	Asset					
	US	*Japan*	*Europe*	*Asia*	*Cash*	*Total*
Value at 31.12.04 £m.	250	100	100	50	0	500
Value at 31.12.05 £m.	300	140	96	70	5	611
Income in period £m.	5	2	3	4	0	14
Net New Investment in period £m.	-10	-5	10	0	5	0
Local Index 31.12.04	100	325	200	210	100	—
Local Index 31.12.05	120	400	185	296	100	—
Currency Rate at 31.12.04 v £	1.90	190	1.40	1.90	1.00	—
Currency Rate at 31.12.05 v £	1.75	200	1.50	1.75	1.00	—
Index Yield at 31.12.05 (%)	2.5	1.0	2.0	3.0	4.0	—

The benchmark index is weighted 50% U.S., 30% Europe, 15% Japan and 5% Asia.

(i) Evaluate the performance of the fund through a full attribution analysis by market stating any assumptions that you make. [15]

(ii) (a) Comment on the returns and the results.

(b) Suggest any investigations that you might undertake to better understand the results.

[5]
[Total 20]

6 A fund manager operates an OEIC whose investment strategy is to identify pairs of shares in the same industry or market sector one of which is forecast to rise in value while the other is forecast to fall in value over a one-year time period. The manager buys the shares that he forecasts will rise in value. He borrows the shares that he expects will fall in value, sells them in the market hoping to buy them back later at a lower price, and then return the borrowed shares to the lender.

One of the current pairs of shares that the manager has in his portfolio is from the pharmaceutical sector. He expects PharmaUP to rise in value over the next year and he expects PharmaDOWN to fall in value over the next year.

(i) Discuss the risks in this strategy under the following headings:

(a) The pairing of two shares in the same industry or sector and identifying one as expected to rise in value while the other as expected to fall in value. [6]

(b) Borrowing shares and selling them in the market hoping to buy them back at a lower price. [5]

(c) The costs of implementing the investment strategy. [4]

(d) The impact of the majority of investors redeeming their holdings in the fund on the shareholders who do not wish to redeem their holdings at some point before the one-year investment time horizon has expired. [4]

(ii) Describe how the manager might implement his pairing strategy to eliminate some of the risks in (i) (a). [2]

(iii) How would the manager reduce the risk to the investors who do not redeem their holdings in (i) (d). [1]
[Total 22]

7 A mobile phone company requires additional financing and its treasury team has noticed that it has an asset in the form of future payments by subscribers who are required to make payments under their monthly contracts prior to the minimum period ending. The team has approached your bank in order to set up an asset backed security (ABS) issue via a special purpose vehicle (SPV). The company will transfer the asset to the SPV in return for a payment of £500m, and the SPV will then issue an ABS in 3 tranches as shown below, backed by these assets. The company will purchase the equity tranche from the SPV.

Tranche	*Credit rating*	*Tranche size*
Senior	AA	£400m
Mezzanine	BB	£50m
Equity	n/a	£50m

(i) Explain why the company might wish to use its asset in such a way. [6]

(ii) Describe the tranched structure, including why there is an equity tranche, and why the company might wish to purchase it. [6]

(iii) Explain the key risks to a purchaser of the mezzanine tranche, and describe situations when these risks might result in losses. [5]

(iv) Comment on how your answer to (iii) would change if the asset value was based on expected contract receipts for all existing contracts over the next 5 years, including payments after the minimum contract period expires. [5]

[Total 22]

END OF PAPER