INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

7 October 2016 (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 must not start writing your answers in the booklet until instructed to do so by the supervisor.*

3. *You have 15 minutes of planning and reading time before the start of this examination. You may make separate notes or write on the exam paper but not in your answer booklet. Calculators are not to be used during the reading time. You will then have three hours to complete the paper.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all seven questions, beginning your answer to each question on a new page.*

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 The directors of two life insurance companies are considering a possible merger.

Describe the possible motivation for such a merger. [6]

2 (i) List possible regulatory regimes for financial markets. [3]

The UK Financial Reporting Council's Corporate Governance Code is based on five main principles:

- Leadership – every company should be headed by an effective board.
- Effectiveness – The board and its committees should have the appropriate balance of skills, experience, independence and knowledge of the company to enable them to discharge their respective duties and responsibilities effectively.
- Accountability – The board should present a fair, balanced and understandable assessment of the company's position and prospects.
- Remuneration – Executive directors' remuneration should be designed to promote the long-term success of the company.
- Relations with shareholders – There should be a dialogue with shareholders based on a mutual understanding of objectives.

(ii) Identify with reasons the type of regulatory regime involved in this code. [5]
[Total 8]

3 The trustees of a pension fund are conducting their regular review of a fund manager's performance. The fund is invested in domestic equities.

Amongst other things they have been supplied with the following data:

Review period (years)	1	3	5
Fund return p.a. (net of fees)	−11.01%	2.06%	5.16%
Index return p.a.	−9.73%	2.30%	5.06%
Tracking Error	2.16%	1.15%	0.88%

(i) Describe the key features of these results. [2]

(ii) State what other information you would require in order to make a decision regarding whether the fund manager should be retained. [6]

A newly appointed trustee has proposed switching the funds to a fund manager who specialises in newly emerging stock markets as she has heard that these markets have shown strong growth recently.

(iii) Comment on this proposal. [3]

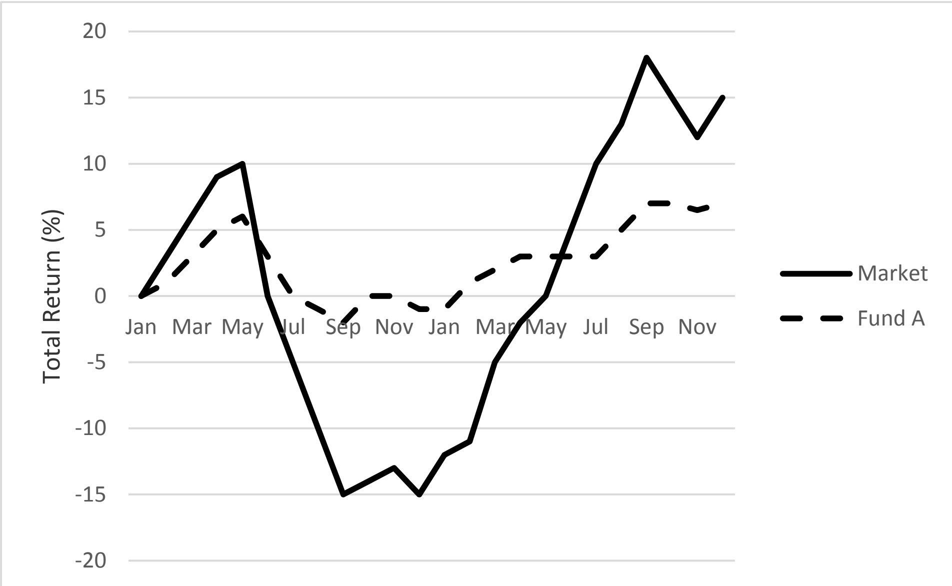
(iv) Suggest what problems might be encountered if it were adopted. [3]
[Total 14]

4 The following data are given on a collective investment vehicle (Fund A) which invests in government-sponsored schools in one country:

Extracts from the accounts

Non-current (fixed) assets	600,000
Current assets	19,000
Current liabilities (amounts falling due within one year)	40,000
Number of ordinary shares	80,000

Comparison of performance against a market index



(i) Calculate Net Asset Value (NAV) per share. [2]

(ii) Comment on:

(a) the Fund's performance relative to the market.
(b) the suitability of using the market index as a benchmark for the Fund.
[4]

(iii) Suggest reasons why the current share price might be at a premium to NAV. [3]

A new collective vehicle (Fund B) is considering investing in toll roads where contractors build roads and charge drivers for using them. The Fund, which will invest on a global basis, is looking to raise money. It has not yet made any investments.

(iv) Compare Funds A and B in terms of risks. [4]

When Fund B starts trading it trades at a discount to NAV.

(v) Suggest why this might be so. [2]
[Total 15]

5 (i) Define the terms:

(a) par swap.
(b) extendable swap.
(c) step-up swap.

[4]

(ii) Explain why a pension fund might want to purchase a par swap. [2]

XYZ pension scheme enters into a three year interest rate swap contract under which the pension scheme will receive a fixed rate payment stream. The pension scheme is required to pay a floating rate payment stream in return. The following information is available regarding the swap and likely payments:

- Term — 3 years
- Notional value of swap — £100m (the notional amount of the swap is not exchanged)
- Payments are made in arrears semi-annually.
- There are 360 days in a swap year.

Period	*No. of days in period*	*Semi-annual forward interest rate*
1	180	1.52%
2	180	1.63%
3	180	1.75%
4	180	1.91%
5	180	2.02%
6	180	2.14%

(iii) Calculate the following, showing all your workings, using the above information:

(a) present value of the floating rate payments [3]
(b) the annualised fixed rate of the swap [3]

The pension fund trustees agree to enter into the interest rate swap on these terms. The transaction costs on the swap have the impact of reducing the annualised fixed rate of the swap by 0.02%.

(iv) Calculate, showing all your workings, the impact on the value of the swap from transaction costs. [3]

(v) Explain the impact on the value of the swap if interest rates fall during the term of the swap contract. [2]

[Total 17]

6 (i) Define bond policy switching. [2]

(ii) Describe THREE techniques that could be used to identify bond policy switches. [5]

A pension scheme currently has 40% of its assets invested in government bonds. One of the trustees has asked about the potential of investing some of these assets in alternative bonds to government bonds, suggesting that this will provide additional returns for the pension scheme.

(iii) List EIGHT alternative bonds or bond-like investments which the pension scheme could consider. [4]

(iv) Explain the factors that should be taken into account when assessing the additional yield available from the alternative instruments identified in part (iii). [3]

(v) Explain the potential reasons why the investment in alternative bonds or bond-like investments may NOT be the most appropriate action for the pension scheme. [5]

[Total 19]

7 NSG Asset Management has suffered the withdrawal of significant volumes of assets under management in its flagship fund over the last three years due to perceived poor performance. The flagship fund is managed by three portfolio managers, one responsible for equities, one for fixed income and one for making asset allocation decisions.

The senior management of NSG Asset Management has brought in a consultant to identify where improvements could be made. NSG has provided the consultant with the following information:

		Year 1		*Year 2*	
	Start value ($m)	*Fund return*	*Sector return*	*Fund return*	*Sector return*
Emerging market equities	40	10%	11%	9%	9%
Small cap equities	55	12%	9%	14%	12%
Large cap equities	30	6%	6%	7%	7%
Corporate bonds	35	8%	8%	5%	7%
Government bonds	30	−3%	0%	4%	6%
Cash	10	0%	0%	1%	1%

Note: The overall benchmark is calculated as an equal fixed weight to all asset classes (excluding cash) within the fund. The benchmark is rebalanced annually.

A disinvestment of $60m was made at the end of the first year. The asset allocation portfolio manager decided $18m should be taken from bonds and $42m from equities. Assume equal disinvestment within the sub-classes of equities and bonds.

(i) Calculate for the total period, showing all your workings, the value added from:

- stock selection for equities. [5]
- stock selection for bonds. [5]
- sector asset allocation (between equities and bonds, but NOT the sub-classes within equities and bonds). [5]
- total performance of the fund relative to the benchmark. [2]

(ii) Explain, with reasons, the action the consultant is likely to recommend to the senior management of NSG. [4]

[Total 21]

END OF PAPER