INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

26 September 2017 (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 eight 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 (i) Describe why the study of behavioural finance is useful in making investment decisions. [2]

(ii) Describe the behaviours exhibited in each of the following scenarios:

(a) A pension fund actuary is considering what assumptions she should use for inflation and has decided to remain with her assumption from the previous valuation which was produced two years ago. This is despite a currency collapse resulting in the domestic inflation rate increasing substantially.

(b) A private investor is considering buying a particular equity and is researching information about that equity. A number of newspapers have written about the equity in question and the investor concentrates his research on those recommending buying the equity.

(c) A number of people were asked about the length of a sessional meeting at the Institute and Faculty of Actuaries. Half were asked how long it was and the other half how short it was. Those answering how long it was thought it was over two hours while those answering how short it was thought it was less than two hours.

(d) A fund management group is closing one of the funds in its range and has written to the investors in that fund offering them a free transfer to any of their other funds. When looking at the responses, the fund manager finds that most investors have chosen the first fund on the list despite there being a fund lower on the list which is more similar to the fund being closed.

[6]
[Total 8]

2 A small car manufacturer in the United States is the sponsor for a large defined benefit pension fund. It is a mature pension fund with the assets totalling $400 million, invested largely in equities. The fund is underfunded but it is hoped that investment returns will make good the deficit.

Benefit payments from the fund exceed the investment income currently being received and no contributions are being paid into the fund by the sponsor.

(i) Outline the key issues that the pension scheme faces in this scenario. [4]

(ii) Propose, with reasons, a new investment strategy that might mitigate some of the issues outlined in part (i). [6]
[Total 10]

3 An extract from Company X's latest accounts is shown below.

Income statement	*£'000s*	***Balance Sheet***	*£'000s*
Revenue	113,100	Non current assets	
Cost of sales	(65,200)	Property & equipment	15,400
		Intangible assets	2,700
Gross profit	47,900		18,100
		Current assets	
Selling / distribution costs	(20,000)	Inventories	47,300
Administrative expenses	(4,500)	Cash & cash equivalents	24,200
			71,500
Operating profit	23,400		
		Current liabilities	
Finance costs	(300)	Payables	24,000
		Tax liabilities	2,400
Profit before tax	23,100		26,400
Tax payable	(5,200)	Net current assets	45,100
Profit for the year	17,900	Non current liabilities	
		Pension obligations	8,400
Dividend	(6,500)		
		Net assets	54,800

There are 77 million shares in issue and the share price is £4.40.

(i) Calculate the following for Company X:

- Return on Capital Employed
- Price Earnings ratio
- Dividend Cover
- Gross Dividend Yield
- Working Capital

[5]

(ii) Describe how the metrics in part (i) can be used to compare possible investments and their potential limitations. [6]

(iii) Suggest, with reasons, the key additional factors that you would investigate in order to determine whether Company X is a worthwhile investment. [6]

[Total 17]

4 Delicious Snacks, a large multinational company manufacturing snack based products, has decided to launch a takeover of the Crispy Crisp Company. The Crispy Crisp Company was originally a crisp manufacturer selling crisps in its domestic market. However, recently it has extended its range into other snack products, but it still only sells in its home market.

(i) Describe the issues that the following people should consider in relation to the potential takeover:

(a) the competition authorities within Crispy Crisps' home market.

(b) the directors of the Crispy Crisp Company.

(c) the shareholders of the Crispy Crisp Company.

(d) the government of Crispy Crisps' home market.

[12]

(ii) Describe the actions that the bodies mentioned in part (i) could take to mitigate any of the issues mentioned in your answer. [3]

[Total 15]

5 An investment bank in the Eurozone has been asked to construct a global corporate bond index.

(i) Describe a suitable methodology for the construction of the index. [4]

(ii) Discuss some of the specific issues that would need to be considered and addressed in constructing the index. [6]

(iii) List the possible uses of the corporate bond index. [4]

[Total 14]

6 (i) Describe how risk budgeting can be used when constructing a portfolio. [1]

(ii) Describe how the process of risk budgeting is carried out. [6]

A portfolio consists of £0.7 million in asset X and £0.4 million in asset Y. The correlation between returns is 0.6 and returns are assumed to be normally distributed. Daily volatilities of both assets are assumed to be 0.5%.

(iii) Calculate the 1-day 95% Value at Risk (VaR) of the portfolio. [3]

(iv) Calculate the benefit of diversification of holding both assets in terms of VaR. [2]

(v) Explain the limitations of using VaR as a risk measure. [2]

[Total 14]

7 The performance figures, which are before fees, for two fund managers and their comparative index are as follows:

	Start	*End Y1*	*End Y2*	*End Y3*
Fund A	100	106	101	112
Fund B	100	108	99	113
Index	5,000	5,304	5,145	5,620

(i) Calculate the annual performance of the two funds relative to the index over each of the three years, and the relative performance against the index for the entire period. [2]

Fund manager A charges an annual management fee of 0.5% but no performance fee whereas fund manager B charges an annual management fee of 0.3% and a performance fee of 20% of any annual outperformance.

(ii) Calculate the annual performance of the two funds, net of fees, relative to the index over each of the three years, and the relative performance against the index for the entire period. You may assume that fees are paid at the end of each year. State any other assumptions you make. [8]

(iii) Comment on these results. [4]
[Total 14]

8 Two pension managers meet at their annual conference and start to discuss the investment performance produced by their equity fund managers. Pension manager A is very pleased with her fund manager's performance, however pension manager B is not pleased with his fund manager's performance.

(i) Suggest why the two fund managers may have produced different results. [5]

Two years later the pension managers meet again and they discuss the investment performance of their equity fund managers. Pension manager A is still happy with the performance of her fund, stating it has outperformed over the last two years. Pension manager B is still unhappy even though, following their previous meeting, his scheme switched fund manager to the same fund manager as pension manager A.

(ii) Suggest reasons why the two pension managers feel the way they do. [3]
[Total 8]

END OF PAPER