# INSTITUTE AND FACULTY OF ACTUARIES

# EXAMINATION

20 April 2017 (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 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.*

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**1** An individual is considering investment in a bond that pays no coupons but offers a guaranteed minimum payment on redemption after 5 years.

(i) Outline the financial planning that should be undertaken by the individual. [7]

The government wants to encourage long term investment and proposes to change the taxation system so that no capital gains tax is paid if a bond is held to redemption.

(ii) Describe how this change may impact the financial planning undertaken. [3]
[Total 10]

**2** Describe approaches which can be adopted by multinational companies to minimise corporation tax charges. [6]

**3** (i) State the main uses of financial futures. [4]

(ii) Describe the role of margin within a futures contract. [3]

A coffee producer has negotiated a contract to sell 1,000 tonnes of coffee in two months' time at the then current market price.

The current market information is:

| | |
|---|---|
| Current spot price of coffee | 100 per tonne |
| Futures price for delivery in 1 month | 95 per tonne |
| Futures price for delivery in 2 months | 92 per tonne |

Each futures contract is for delivery of 10 tonnes of coffee.

(iii) Calculate how the producer could hedge its exposure using these futures. [2]

The spot price in two months' time turns out to be 103 per tonne.

(iv) Determine the cashflows that the producer would experience if the futures contracts in part (iii) are held to expiry. [3]
[Total 12]

**4** (i) List the uses of investment indices. [3]

(ii) Describe the main components of the FTSE UK Index Series of indices. [8]

The trustees of a self-administered UK pension fund are considering the choice of an index against which the fund's UK equity performance could be benchmarked.

(iii) Propose, with reasons, indices that might be adopted for this purpose. [8]
[Total 19]

**5** A private investor has allocated a proportion of his wealth to an investment manager who specialises in running equity portfolios. Over the last two years the flagship equity fund in which the investor is invested has underperformed its benchmark by more than 10% each year. Overall, the fund has lost 70% of its funds under management due to investor withdrawals.

The major contributor to the underperformance is the portfolio manager's heavily overweight holding in the stock of a company which has had several profit warnings. The general market view is that the company will seek bankruptcy protection and is very unlikely to recover.

(i) Describe, for each of parts (a) and (b) below, TWO potential behaviours being exhibited by:

(a) the portfolio manager in continuing to hold an overweight position in the underperforming stock.

(b) the investor in continuing to hold units in the fund despite the underperformance of the fund.

[8]

To try and rebuild the asset base the investment manager has employed a new head of sales to try and attract new clients. When discussing the sales strategy the head of sales recommends that they must always be the first presenter in a competitive sales situation.

(ii) State the behaviour the head of sales believes consumers follow when presented with multiple options. [2]

(iii) Assess whether the head of sales' strategy is sensible, or whether alternatives to presenting first would be more effective. [4]

[Total 14]

**6** A risk averse charity has a small equity portfolio. The trustees are considering the award of a new mandate to an active equity manager to generate higher returns. The charity has short listed four managers as part of their selection process. They have been provided with the following information on performance over the last four quarters:

| *Manager* | *Q1* | *Q2* | *Q3* | *Q4* | *Covariance with index* |
|---|---|---|---|---|---|
| A | 2.5% | 1.5% | 4.5% | 6.0% | 0.5 |
| B | 1.5% | –2.5% | 5.0% | 4.5% | 0.3 |
| C | 6.0% | 3.5% | 2.5% | 10.5% | 0.74 |
| D | 3.5% | 4.0% | 4.0% | 6.0% | 0.35 |
| Index benchmark return | 2.0% | 2.0% | 3.0% | 3.0% | |
| Standard deviation of index | 0.7 | | | | |
| Risk-free rate | 4% p.a. | | | | |

(i)

- Calculate the outperformance over the last year of each investment manager relative to the benchmark.
- State the identity of the highest performing manager.
- List the managers who outperformed their benchmark over the period.

[6]

(ii)

- Calculate the risk adjusted performance of the four investment managers using the Jensen measure.
- State the identity of the highest performing manager.

[9]

(iii) Assess which manager is likely to be the most suitable for the investor. [3]

(iv) Explain the circumstances in which standard deviation is a more appropriate measure of risk for an investor than beta. [3]

[Total 21]

**7** (i) Describe the different types of financial risk faced by an institutional investor. [6]

An institutional investment manager has recently received a fine from the regulator for breaches in its risk monitoring processes and procedures. As a result the manager has hired a new risk manager to review how the firm operates.

The risk manager has identified the following products/funds which do not currently have any procedures around risk controls:

- a hedge fund of funds which focuses on illiquidity strategies
- a Liability Driven Investment fund – predominately invested in long duration interest rate swaps
- a global equity fund which takes large positions away from benchmark allocations

(ii) Discuss, for each of the funds above:

(a) the TWO most prominent financial risks.

(b) the actions or changes which the risk manager should implement to control the risks identified.

[12]
[Total 18]

## END OF PAPER