INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

25 September 2012 (pm)

Subject CA1 – Actuarial Risk Management

Paper Two

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 six 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) List the types of financial and non-financial risks that a provider of financial products faces. [3]

(ii) State the purpose of risk classification. [1]

(iii) Describe how risk classification can be used in the design and pricing of an insurance contract. [5]
[Total 9]

2 (i) Discuss the advantages and disadvantages of using market values for the valuation of the assets of a pension scheme. [4]

(ii) Suggest why using:

(a) smoothed market values
(b) discounted cash flow values

may not be suitable alternatives to market values for the valuation of assets of a pension scheme. [2]

It is three years since the last scheme valuation. The average annual return on the domestic equity portfolio of a pension scheme over the three years has been lower than half the average domestic equity annual return over the ten years prior to the last scheme valuation.

(iii) Suggest possible reasons for this relative fall in returns. You should consider both market and scheme specific factors. [7]
[Total 13]

3 (i) State the principles of investment. [2]

(ii) Describe how an institutional investor could use the Actuarial Control Cycle to develop an optimum investment strategy. [7]

An institutional investor is considering purchasing shares in an overseas company which owns a small fleet of private jets that are leased to individual and corporate customers.

(iii) Discuss the factors that could influence the attractiveness or not to the investor of the proposed share purchase. [7]
[Total 16]

4 (i) List the criteria that could be used to assess the viability of a capital project. [3]

A large, profitable life insurance company is looking to expand into new markets. At present the company sells term assurances, endowments and sickness policies. The sales director has just bought a cat and has suggested that the company enters the pet insurance market.

(ii) Discuss the issues that should be considered before entering this new market. [10]

The company has decided to enter the pet insurance market and has developed a project plan.

(iii) Describe the considerations the insurance company should take into account when choosing a suitable risk discount rate for the analysis of this project. [4]
[Total 17]

5 A country is proposing to introduce new technical actuarial standards to be followed by members of the national actuarial association.

(i) State what the main aim of these standards is likely to be. [2]

(ii) Outline when a departure from these standards may be acceptable. [1]

(iii) Set out how the following accounting concepts are generally interpreted:

(a) Accruals
(b) Realisation
(c) Cost
(d) Prudence
(e) Consistency [5]

Two insurance companies are based in different countries and each company only writes business in its home country. Different local accounting practices apply in each home country which treat the concepts in part (iii) differently.

(iv) Discuss the difficulties that may arise when comparing the statements of financial position and income statements of the two companies. [10]
[Total 18]

6 An individual aged 35 is considering the following options as ways of providing for his retirement needs:

Option A:

Take out a 30-year regular premium with profit endowment assurance policy.

Option B:

Take out a personal loan repayable over 30 years. The loan will be used to buy a residential property that the individual will rent out to tenants. The rental income will be used to make the capital and interest repayments on the loan. After 30 years, the individual will use the property as an asset to provide retirement benefits.

Option C:

Take out a series of without profit, deferred annuities each of which will come into payment at age 65. Every year, for 30 years, the individual will pay a single premium to secure a guaranteed prospective pension based on prevailing premium rates.

Discuss the relative merits of each option in terms of:

(i) likely tax treatment of benefits and contributions [4]

(ii) protection of benefits relative to inflation [5]

(iii) expenses and administrative complications [4]

(iv) potential benefits on death before retirement [4]

(v) potential flexibility if the individual wishes to retire early [5]

(vi) suitability of the nature of the benefits available on retirement [5]
[Total 27]

END OF PAPER