INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

27 September 2011 (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) State what is meant by the term “statutory role” when referring to the work of an actuary, and state what statutory roles for actuaries mainly relate to. [2]

(ii) Set out what an actuary might be required to certify when carrying out a statutory role. [3]
[Total 5]

2 (i) Define the term “compulsory insurance”. [1]

(ii) List four possible distinct types of compulsory insurance. [2]

(iii) Discuss, for each type of insurance identified in (ii), why it might be compulsory. [8]
[Total 11]

3 An insurance company writes regular premium with profits endowment assurance business. In recent years, there has been an economic downturn and many policyholders have been struggling financially.

(i) Describe the options the company could offer to policyholders who are unable to meet the full premiums due under their policies. [7]

(ii) Discuss how these options might differ for term assurance policies. [4]
[Total 11]

4 A retailer owns a chain of 15 stores selling high value, fashionable clothing and accessories. The chain’s target markets are young, professional females. Most of the stores are located in and around the capital city of a developed country

(i) Suggest why the profits of this retailer may be volatile. [3]

(ii) Suggest adjustments that could be made to the retailer’s business model that could reduce the volatility in profits. [3]

Following a run of several successful years, the retailer proposes to expand its operations significantly. This proposal will involve more than doubling the number of stores and the number of staff employed. The expansion will be restricted to the domestic country. The retailer has built its reputation on having highly knowledgeable and reliable staff, and is concerned that the expansion may compromise these standards.

In order to attract and retain the best staff and keep staff turnover as low as possible, the retailer has asked an insurance company to devise a savings scheme for employees that will encourage staff loyalty. This scheme will be in addition to the existing pay, bonus and benefits structure.

(iii) Describe possible features of the savings scheme that could help to achieve the retailer’s objectives. [7]

At present, the retailer does not provide pension arrangements for its employees. Employees are expected to rely on basic state pension provisions. The government has announced that it will introduce a new legal requirement for employers to make some provision for employees' pensions. The retailer is considering two alternative methods that will meet this requirement – neither of which will affect the employees' basic state provision:

(a) Increase gross pay by a "pensions supplement". Employees will be encouraged, but not required, to invest this supplement in a pension plan provided by an insurance company.

(b) Both employer and employee contributions will be paid into a state top-up pension scheme. Contributions and the associated benefits are expressed as a proportion of basic salary and are set by the government.

(iv) Discuss the advantages and disadvantages of each of these alternatives from the point of view of the employees. You do not need to consider any individual arrangements that some employees may already have. [11]

The retailer has identified that maternity and paternity provisions cause a significant cost and disruption to its planning. It is worried that the expansion will exacerbate these problems.

(v) Outline measures the retailer could take to lessen the impact of these difficulties. You can assume that all reasonable actions would be legal. [5]

In order to finance the expansion, the retailer is proposing to issue a five-year conventional bond that will pay interest annually. Currently, yields on similar government bonds in the retailer's domestic country are 5% p.a. However, yields on such government bonds in a major overseas country are only 2% p.a. The retailer believes that by issuing the bond in the currency of this other country, it can cut its borrowing costs.

(vi) Explain why yields on the respective government bonds may vary. [3]

(vii) Describe the risks faced by the retailer if it issued such a foreign currency bond. [6]

[Total 38]

5 (i) State the components of both the expected and required returns on equities. [1]

An investment consultant has argued that equities should provide investment returns that are consistently above the level of national earnings inflation, and that they are therefore suitable investments for funds that have real liabilities.

(ii) Discuss the validity of the consultant's arguments. [8]

A government has recently announced its intention to change the measure of inflation it uses for its inflation target. The new measure of inflation to be adopted has typically been lower and much less volatile than the existing measure. This new measure will be used for:

- State benefit revaluation and public sector pay awards
- The setting of short term market interest rates

(iii) Explain why these two uses may have opposite effects on the rate of inflation actually experienced by consumers in the economy. [3]

(iv) Describe how the prices of domestically traded equities may develop in the short term following the adoption of the new inflation measure. [2]

[Total 14]

6 (i) Outline how the two key objectives for managers of specific investment funds could influence risk budgeting for a particular asset portfolio. [2]

(ii) Explain how, when using a top down approach, the total risk budget for a portfolio of assets could be monitored in terms of strategic risk, structural risk and active risk. [7]

(iii) Describe the different approaches to the managing of the systemic risk and the diversifiable risks within an equity portfolio held by a large insurance company. [12]

[Total 21]

END OF PAPER