EXAMINATION

29 September 2010 (am)

Subject CA1 — Actuarial Risk Management

Paper One

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 seven 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) Discuss why there may be legislation governing the information contained in the statement of benefits that is issued to the members of a defined benefit scheme. [3]

(ii) Outline the information that may be disclosed in such a statement. [4]
[Total 7]

2 Explain why an insurance company would monitor its experience. [9]

3 (i) Explain why the financial markets of developed economies are regulated. [4]

(ii) Outline why some financial products may not be subject to regulation. [2]

(iii) Discuss the advantages and disadvantages of using statutory regulation for all products in the financial markets. [5]
[Total 11]

4 An insurance company offers mortgage payment protection insurance. The policies provide a benefit in the form of income payable for up to 24 months. Benefits are payable in the event that the insured is unable to work as a result of accident, sickness or involuntary unemployment. Policyholders who are self employed at the date the claim is made will not be eligible to receive any benefits.

The level of benefit is fixed and is selected by the policyholder at the outset from a range of specified options. As a policy condition, the amount of benefit actually payable is restricted so as to be no more than the corresponding mortgage payment during a claim period.

The insurance company operates the policy with the following features:

- The insurance cover is sold separately from and is not tied to any particular mortgage product.
- The level of benefit selected at the outset can only be changed on the written request of the policyholder. Premiums payable are then adjusted accordingly.
- The premiums and benefits are payable monthly.
- The policy renews automatically each year until the end of the term selected at the outset by the policyholder.
- The premium rates can be varied by the insurer at each policy anniversary provided that at least 3 months' notice is given.
- Once the policy is in force, there is no regular communication with policyholders unless a premium change needs to be notified.

- Claims or changes to the level of benefits are effective from the date that the insurance company receives written notification with no back-dating permitted.

(i) Discuss whether any of the features of the policy are potentially unfair to customers. [9]

(ii) Outline any changes that could address the issues identified in (i) above. [3]
[Total 12]

5 An investment company manages a property unit trust fund which has a market value of €800 million. When investors sell units, payment to the investor is normally made within four days. However, in extreme circumstances (as defined in the governing documentation), the investment company can defer such payments by up to six months.

(i) Justify why it might be necessary to defer payments in this way. [2]

(ii) Discuss the following aspects of the fund's investment strategy:

(a) The nature and range of the property assets it should hold.
(b) The proportion of the fund that should be held in liquid assets. [8]

A change in the regulations governing unit trusts has been proposed. The new regulations will specify that payments to selling investors must be made within a prescribed normal settlement period (as defined in the regulations).

(iii) Discuss the actions that the fund manager could take and hence the impact that this new regulation could have on the investment performance of this fund. [5]
[Total 15]

6 The regulator in a particular country has proposed major changes to the insurance regulations that are expected to affect a wide range of activities within the insurance industry.

An insurance company is establishing a project to implement the new regulations in time to meet the regulator's deadline. This project is expected to run for several years and will be implemented in a number of stages.

(i) List the key topics that should be included in a project strategy document. [5]

(ii) Outline the differences between the roles of the project owner and the project manager. [5]

(iii) Describe the process for managing this project. [13]

(iv) Discuss the requirements for reporting the progress of this project. [4]

(v) Describe four measures that could be used to monitor the progress of this project against the objectives that were set at the start of the project. [4]
[Total 31]

7 A merchant has just purchased goods from a supplier based in an overseas country. The goods cost $7 million. Currently these goods could be sold for $10 million in the merchant's home country. It will be necessary to ship these goods from their present location and the voyage should take one month. The expenses of the voyage and selling the goods are estimated to be $0.5 million.

The merchant estimates that over the duration of the voyage, one or more events could arise with the following total consequences and probabilities:

Consequence	*Probability of event*
Total loss of the cargo:	1%
Loss of half the value of the cargo:	2%
Loss of 5% of the value of the cargo:	40%

(i) Calculate the insurance premium the merchant would expect to have to pay, in order to cover the risks of these events arising over the expected period of the voyage. [2]

The merchant decides not to take out this insurance cover.

It is estimated that, by the time the goods are sold at the end of the voyage, their sale value and the expenses incurred may change in the following ways:

Value of the goods:

No change:	60% chance
Increase by 20%:	25% chance
Decrease by 30%:	15% chance

Level of expenses:

No change:	40% chance
Increase by 25%:	40% chance
Decrease by 20%:	20% chance

(ii) Calculate the expected profit the merchant will make on this venture. You should ignore tax and any interest payable or receivable. [5]

The merchant takes out a contract which guarantees that the goods will be sold to the writer of the contract in one month's time, for 97.5% of today's market value. At that time, the merchant must supply the goods to the writer of the contract at the merchant's home port, for which he will receive the agreed payment. The effect of taking out the contract is to reduce the expected profit to the merchant due to the cost of the guarantee.

(iii) Discuss the possible financial implications for the merchant if the voyage takes longer than anticipated, for example at least an extra month. [8]

[Total 15]

END OF PAPER