INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

18 September 2018 (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 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.

1 Buyco is intending to purchase another company. An actuary has been asked to comment on the liabilities associated with the pension scheme of the target company.

(i) Outline the factors that the actuary should take into account in order to ensure they are able to carry out a professional job and accept the appointment. [5]

(ii) Describe why is it important that these factors are addressed. [3]
[Total 8]

2 A company has recently formed following the merger of two separate companies. The two companies in the merger currently have their own separate offices in the same city. A proposal has been made to move both offices to a new office in a new location. A new office block will be built for them at the new location and the old sites will be closed.

(i) Outline the possible risks that the company would encounter in relation to the office move. [3]

(ii) Set out, for each of the risks in (i), distinct ways how to manage them. [5]
[Total 8]

3 ABC is a large company. It is considering the purchase of XYZ, a much smaller company which operates in the same industry. Both companies offer their employees a defined benefit pension scheme.

ABC is considering whether, as part of the purchase, it would be practical to take over the XYZ pension scheme and merge it with its own scheme.

(i) Outline the information that ABC would need to calculate the cost of taking over the XYZ pension scheme. [4]

(ii) Describe the checks that will need to be made on the information in part (i). [4]

(iii) Discuss the issues ABC will need to take into account before proposing the merger of the two schemes. [5]
[Total 13]

4 The Government in a developing country is looking at measures to control the cost of providing a universal state pension. The main features of the universal state pension are:

- An income payable to all citizens for the remainder of their lives from when they reach age 65;
- The income is initially set to be equal to 50% of the average annual wage in the country;
- The income will increase in line with price inflation each year;
- Individuals must have lived in the country for at least 10 years before becoming eligible; and
- Citizens are not required to pay in contributions.

(i) Suggest reasons why the Government would want to control its state pension costs. [4]

The Government's proposal to control costs is to introduce one of the following options:

- A – Individuals must contribute for at least 5 years to be entitled to the universal state pension.
- B – Increase the age the pension becomes payable to age 66.
- C – Pension no longer increases once in payment (but past increases are guaranteed).

(ii) Discuss the advantages and disadvantages of each of the proposals. [6]

After consultation, the Government decides to implement option B.

(iii) (a) Discuss the possible options that the Government has to implement option B.

(b) Outline the practical issues that it would have to consider in implementing this change. [5]

[Total 15]

5 (i) Assess the issues with the underwriting data available for a renewal versus a new policy. [7]

A general insurance company writes annual buildings and contents insurance business. The company regularly reviews premium rating factors, underwriting process and risk management for the product lines it writes.

(ii) Discuss how the insurance company could make an allowance for the time since a policy was originally taken out in each of:

(a) Level of cover.

(b) Underwriting.

(c) Risk management.

[7]

(iii) Explain why the company regularly reviews its premium basis. [5]

[Total 19]

6 (i) List the circumstances that could lead to a benefits scheme becoming discontinued. [2]

(ii) List the options that exist for the provisions of accrued benefits if a benefits scheme is discontinued. [2]

(iii) Discuss the advantages and disadvantages of each option in part (ii) to a member. [5]

(iv) Outline the factors that will influence the level of benefits payable to members of a discontinued scheme. [4]

(v) Discuss how the scheme's investment strategy may change following discontinuance. [6]

[Total 19]

7 (i) Outline reasons why it is important for insurance companies to measure their risks. [4]

(ii) Define Value at Risk (VaR). [1]

An insurance company regularly measures the risks it faces for its business.

(iii) Explain how Value at Risk (VaR) would be calculated given the results of a stochastic simulation of the risks. [2]

(iv) Discuss the usefulness of VaR as a method of quantifying the insurance company's risks. [6]

(v) Explain the limitations of VaR in other circumstances. [2]

(vi) Compare the usefulness of VaR and Tail VaR as methods of measuring risk. [3]

[Total 18]

END OF PAPER