INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

17 September 2019 (pm)

Subject CP1 – Actuarial Practice
Paper One

Time allowed: Three hours and fifteen minutes

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. *Mark allocations are shown in brackets.*

4. *Attempt all questions, begin your answer to each question on a new page.*

5. *Candidates should show calculations where this is appropriate.*

Graph paper is NOT required for this paper.

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 A life insurance company has decided to launch a new product in a developing country (Country A) in which it has not operated before.

An actuary working for the life insurance company is carrying out an assessment of life expectancy in Country A for the purposes of projecting future liabilities.

The actuary is considering using past data from the country's statistical authority as a basis for their initial work.

Outline the factors the actuary should take into account when using this data. [6]

2 An established retail bank in a developed country has recently been losing market share. The bank is also facing rising costs from increased rents of its branches and staff salaries.

The bank's Board has decided to become an internet only bank, offering all services online to its retail customers with no physical branches.

(i) List the stakeholders who might be affected by such a change. [2]

The Board of the bank believes that the reduction in costs should increase future profitability and the new model will attract new customers.

(ii) Describe the risks that might negatively impact the bank's plans. [8]
[Total 10]

3 (i) State the principles of investment for a provider of benefits on future uncertain events. [3]

A charity has both short-term and long-term assets. The charity's fund managers are reviewing their investment strategy.

(ii) Outline why the charity may need to review the appropriateness of its investment strategy. [4]

The charity's long-term assets are invested in an ethical equity fund and an ethical corporate bond fund. The performance of these two funds has been measured and the returns appear to be lower than those of similar funds.

(iii) Suggest why the performance of the ethical funds might be out of line with similar funds. [4]
[Total 11]

4 Discuss why an insurance company may not pay a terminal bonus on one or more of its with-profits products. [11]

5 (i) Describe why the Economic Capital requirements of a company may be lower than its solvency capital requirements. [4]

(ii) Describe how the company could use capital management tools to reduce the capital requirement in the future. [4]

An insurance company writes only immediate annuity business. Over the last year it has seen its liabilities, calculated on a best-estimate basis, reduce by 20%. However, over the same period its solvency capital requirements have increased by 20%.

(iii) Discuss possible reasons for these changes in liabilities and solvency capital requirements. [4]
[Total 12]

6 A developed country has introduced legislation which requires the following for corporate governance of boards of insurance companies:

- separation of roles of chairman, chief executive, finance director and chief risk officer
- the majority of the board to consist of non-executive directors
- a director representing employees and pensioners
- a minimum of 40% of directors to be male
- a minimum of 40% of directors to be female
- the regulator must approve all board and senior management appointments.

Discuss the appropriateness of the new legislation from the perspective of the main stakeholders. [15]

7 (i) Outline the main factors that influence a financial institution's long-term investment strategy. [6]

The board of a university located in a particular city are concerned about the shortage of accommodation available for students. To address this, the board has proposed the construction of a new building which will accommodate approximately 200 students. The new building will be funded by private investors, whose funds will finance the construction and ongoing maintenance of the new building.

(ii) Outline reasons why private investors would want to invest in the new building. [3]

(iii) Contrast how the following potential investors would evaluate this proposal:

(a) A large defined benefit pension scheme.
(b) An individual who has recently inherited a significant sum.

[4]

An alternative proposal being considered by the board is to encourage individual investors to purchase houses in the city to rent out to university students.

(iv) Assess how this alternative proposal addresses the accommodation shortage. [4]
[Total 17]

8 An insurance company only writes term assurance contracts. The company has been monitoring its mortality experience for many years.

(i) Describe the reasons for monitoring the mortality experience of these contracts. [4]

The mortality experience analysis has shown that the company has been underestimating the actual number of deaths that occurred over the last three years.

(ii) Discuss the reasons why the mortality experience may have been heavier than expected. [7]

(iii) Describe how the results of this analysis could be used. [3]

The company's mortality analysis team has raised concerns around selection in relation to these policies.

(iv) Suggest possible reasons for the selection occurring in these policies. [4]
[Total 18]

END OF PAPER