INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

28 April 2020 (am)

Subject CP1 – Actuarial Practice

Paper One

Time allowed: Three hours and fifteen minutes

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 Explain the concept of mortality convergence. [2]

2 Outline why regular risk reporting is important for the management of a financial institution. [4]

3 (i) Define the following terms:

(a) systematic risk

(b) diversifiable risk.

[2]

(ii) Describe why a manufacturing company may decide to offer only a single product, rather than a diversified product range. [6]

[Total 8]

4 An insurance company sells long-term care products in two countries. These countries are both developed and have similar population sizes.

The theoretical value of the benefits provided by the products is the same in both countries. The premiums charged are, however, very different.

Discuss possible reasons for the difference in premiums. [8]

5 (i) Outline why a company needs capital. [3]

ABC is a mutual insurance company specialising in providing life cover to the over 50s. ABC has just decided to expand its product range, and is about to launch a mortgage protection product.

(ii) Suggest possible reasons why ABC could require additional capital. [4]

(iii) Propose, with reasons, possible actions ABC could take to improve their capital position. [4]

[Total 11]

6 (i) Outline the reasons for underwriting an insurance risk. [4]

A life insurance company in Country A has so far offered products only to its own domestic market. Country A is a well-developed country. The company is about to start selling a new term assurance product in Country B. Country B is a remote under-developed country. The company is considering the underwriting processes it will apply in Country B.

(ii) Explain ways in which the company's underwriting processes for Country B might need to be modified compared with its existing approach in Country A. (Details of how to price the business are not required.) [8]

[Total 12]

7 A large corporation has purchased a number of companies from different sectors of the economy of the country it operates in. Each company has a defined benefit pension scheme. The past mortality experience has varied significantly between each of the defined benefit pension schemes.

(i) Outline the factors that could explain the differing mortality experience. [2]

(ii) Describe the types of information that would be required to investigate the main factors affecting the mortality experience of a scheme. [7]

The members of a scheme are allowed to move their accrued pension benefits out of the scheme. The scheme's actuary calculates a lump sum 'Transfer Value' to be paid out by the scheme for this purpose.

(iii) Outline the issues of using the types of information in (ii) to calculate Transfer Values for a scheme. [3]

[Total 12]

8 A wealthy individual has a large cash lump sum. He has asked an actuary to advise on how he might invest this sum to provide for himself and his family in retirement, and to be able to leave an amount as an inheritance.

(i) Describe how the actuary would assess the individual's future liabilities. [4]

(ii) Identify four key risks, from the viewpoint of the individual, which the actuary should consider when giving their advice. [2]

(iii) Describe how each of the risks in (ii) might be mitigated. [6]

[Total 12]

9 A bank sells a special mortgage product to prospective borrowers aged over 70. The product provides a loan secured on the accumulated equity in the borrower's home.

The borrower does not need to make any cash payments to the bank on the amount borrowed. Interest is added to the loan balance every month; a fixed, non-reviewable rate of interest is charged. The loan balance (including accumulated interest) has to be repaid when the borrower dies, moves into long-term care or sells the property.

(i) Describe the risks the bank is exposed to with this product. [6]

(ii) Propose, with reasons, actions the bank could take to manage the risks identified in (i). [8]

[Total 14]

10 (i) Describe motor third-party liability insurance. [3]

In a certain country, motor third-party liability insurance is not compulsory. Its government is proposing to provide motor third-party liability insurance to all motorists and pay for the related claims.

(ii) Suggest reasons for the government's proposal. [3]

(iii) Describe the areas where an actuary could provide advice to the government in relation to the proposal. [6]

(iv) Discuss how stakeholders, other than the government, might be affected if the proposal was implemented. [5]

[Total 17]

END OF PAPER