INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

4 April 2019 (pm)

Subject CP1 – Actuarial Practice
Paper Two

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. *You have 45 minutes of planning 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 two hours and 30 minutes to complete the paper.*

4. *Mark allocations are shown in brackets.*

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

6. *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.

Note: your work needs to link to the information provided in the questions and should discuss/ outline areas of professionalism/actuarial advice as required. Limited credit will be given to solutions where generic answers have been given that do not refer back to the information provided.

1 Background

A university in Country A has a large campus in a city.

The university currently has 30,000 students and 5,000 employees.

The university offers its employees various benefits. These include life cover, cover for sickness and disability, as well as membership of a pension scheme. Some employees are in a defined benefit pension scheme and others in a defined contribution scheme.

The university is looking to significantly increase the number of students it has as part of its expansion plan to become a world leading university. It is considering whether to expand the current campus, open a new campus in a different city or open a new campus in a different country. It is consulting a number of different professional advisers as part of this process.

The government in Country A has recently announced legislation which will substantially increase the state pension benefits to all citizens in Country A. At the same time state pension benefits increase so will the state pension age. The net effect is expected to give rise to additional costs and tax rates in Country A are expected to rise to help fund these costs.

The university is concerned about the long-term affordability of its pension commitments and has asked your company to advise if this may be a suitable opportunity to consider closing the defined benefit scheme and also to reduce contributions to the defined contribution scheme.

Questions

(i) Suggest why the government may have decided to increase the state pension. [4]

(ii) Outline why the university may be concerned about its pension commitments. [3]

(iii) Discuss the options that may be available to the university regarding its pension commitments. [8]

(iv) Discuss the impact of the university's expansion on its stakeholders. [5]

(v) Discuss how actuaries could contribute to the university's expansion plan. [5]

(vi) Outline how the university could raise the capital needed for its expansion plan. [4]

(vii) Discuss the risks involved in the expansion plan, indicating for each how that risk might be managed. [6]

(viii) Suggest the types of insurance cover the university may need. [4]

(ix) Outline other areas, in addition to the expansion plan, on which actuaries could provide advice to the university. [3]

Your employer has recently set up a new department dealing with 'Big data'.

(x) Outline what is meant by 'Big data'. [2]

(xi) Discuss the challenges involved in using 'Big data'. [3]

(xii) Suggest ways that 'Big data' could be useful to the university. [3]

[Total 50]

2 **Background**

The government of a developed country (Country B) is concerned about the low levels of personal savings by its citizens. The government is inviting a wide range of banks, insurance companies and investment companies to provide new and simple types of savings products to help meet its concerns.

The government is considering offering a range of incentives to help encourage increased savings.

The government wants the new types of savings products to:

- be low cost from the saver's point of view
- give the saver maximum flexibility on when they pay money into and take money out of the product.

An established investment company is considering launching a suitable product.

The company will administer this product as a unit-linked savings plan. There will be no death benefit. For this plan, the government will allow only one charge to be applied. The charge will take the form of an annual management charge levied on the unit fund, subject to a maximum of 0.75% of the fund value. The company wishes to make the product appeal to a wide range of potential savers.

The product will be aimed at all potential investors including those who might be less financially sophisticated.

The company needs to be able to compete with planned products of its competitors; some of these products are simple and non-linked.

Questions

(i) Discuss why the government might want to increase the levels of personal savings in Country B. [7]

(ii) Suggest, with reasons, possible encouragement and incentives that could be offered by the government to increase the levels of personal savings. [7]

(iii) Discuss how the company's need to administer the product as a unit-linked plan, and yet be able to appeal to the complete range of financial sophistication of its target market, could be achieved by appropriate wordings of its marketing literature. [8]

(iv) Discuss the advantages and disadvantages of the government's restriction on charges on the unit-linked plan, from the viewpoint of savers. [5]

(v) Describe how and when the charges on the unit-linked plan could be disclosed to savers. [4]

The company has now launched the savings product.

(vi) Discuss the possible risks to the company. [15]

A group of private investors is considering setting up a new company to provide the same type of unit-linked product as the established investment company.

(vii) Outline the main issues and opportunities that private investors would face, compared with the established investment company. [4]
[Total 50]

END OF PAPER