

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

13 October 2015 (am)

Subject SA1 – Health and Care Specialist Applications

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 three 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.

<p><i>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.</i></p>
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- 1** A UK health insurer has been writing individual critical illness insurance for many years.

In the past, private treatment providers have carried out diagnostic tests and scans on patients only at the request of their doctor. Recently, the insurer has been concerned to notice that these private treatment providers have started to carry out the tests and scans at the request of the policyholders themselves and that advertisements for the tests and scans have started to appear on television and in the popular press.

- (i) Explain in detail the likely reasons why the insurer is concerned about these changes. [15]
- (ii) Suggest possible actions that the insurer could take to reduce the potential adverse impact of these changes on its business. [13]

[Total 28]

- 2** The country of United Financionia (the UF) comprises five distinct regions: A is the largest, whilst B, C and D are smaller equally-sized mainland regions and E consists of a number of small and widely spread out islands. Legislation, regulation and taxation are the same in every region of the UF and there is a State-funded healthcare system which offers the same services in every region.

A health insurer which is based in Region A writes private medical insurance (PMI) business for the residents of the UF. These products provide cover for specified acute treatments, which can be carried out at any hospital of the policyholder's choice within the UF.

Following a referendum, Region C has announced that it will become a completely separate and independent country and will no longer be a part of the UF from 1 January 2017. The insurer will be permitted to continue to sell policies to residents of Region C.

The insurer is considering the potential implications of this announcement for its PMI portfolio.

- (i) Outline these potential implications, other than those relating to the PMI reserves. [23]

Region D has now also decided to leave the UF and become a completely separate and independent country with immediate effect.

- (ii) Assess the potential short term implications of this action for the insurer's PMI reserves. [13]

[Total 36]

- 3** A UK health and care insurer with a subsidiary in the USA has been writing pre-funded long term care insurance (LTCI) contracts for many years, both in the UK and in the USA.

The LTCI product that the insurer sells is written on an annual premium basis. These premiums are reviewable every five years. The product provides fixed lifetime benefits increasing at 5% per annum compound. These benefits are paid directly to the care home. The policy can be surrendered at any time without any value.

As part of its Solvency II preparations, the insurer has identified the operational and credit or counterparty risks that are associated with its in-force LTCI business. It has also identified its exposures to group risk, i.e. risks that arise in relation to the group structure of the company.

- (i) Outline the operational risks that the insurer is likely to have identified. [10]
- (ii) Outline the credit or counterparty risks that the insurer is likely to have identified. [4]
- (iii) Outline the group risks that the insurer is likely to have identified. [3]
- (iv) Suggest actions that the insurer could take to manage these operational, credit or counterparty and group risks. [14]

The insurer intends to allow for operational risks within the Solvency Capital Requirement calculation using an internal model rather than using the standard formula.

- (v) Comment on the relative merits of these two approaches for this purpose. [5]
[Total 36]

END OF PAPER