

# EXAMINATION

27 April 2010 (pm)

## Subject ST1 — Health and Care Specialist Technical

*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 seven questions, beginning your answer to each question on a separate sheet.*
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** Outline the measures that a health and care insurer should take to ensure that its policy and claims data are complete and accurate. [7]

**2** (i) State the general considerations for any health and care insurer when setting assumptions. [4]

A large health and care insurer is reviewing its lapse assumptions for critical illness business. The Chief Actuary has stated that the results of this process need to be widely communicated to the actuaries in the business.

(ii) Explain why this wide communication might be needed. [5]  
[Total 9]

**3** Describe the main distribution channels for health and care insurance products. [8]

**4** An insurance company writes a range of healthcare products other than long term care insurance.

It also sells an equity release product, which is a loan taken by homeowners on the security of the equity in their owner occupied property. The loan is rolled up with interest and is repaid when the property is sold on the death of the last surviving policyholder or when the last surviving policyholder moves to a care home.

It has been suggested that the company could enter the immediate needs annuity market. For joint life equity release policies, in the event that one of the policyholders enters a care home, the cost of the required immediate needs policy could be added to the equity release loan. This would enable the remaining policyholder to remain in their own home whilst the other is in the care home.

(i) Discuss this suggestion. [10]

(ii) Review the viability of the scheme where policyholders other than those who are legally married husband and wife apply to take an immediate needs annuity. [2]  
[Total 12]

- 5** A health and care insurer writes a range of long term products. It is carrying out a review of the financial performance of its business, including calculating the embedded value.

(i) Outline the calculation of embedded value. [5]

The following information and assumptions have been provided in respect of a block of existing stand-alone critical illness business:

Number of policies	10,000	as at 01/01/2010
Average premium	120	p.a.
Average sum assured	100,000	
Claims rate	0.001	p.a.
Lapse rate	10%	p.a.
Expenses		
• Renewal	20	per policy p.a.
• Claim	250	per claim
Reserve (immediately before premium and expense payments)	50%	of premium
Investment return	5%	p.a.
Tax	20%	of profits

As part of the calculation of the embedded value, the company needs to determine the expected shareholder profit arising on this block of business during 2010. It can be assumed that premiums are payable annually in advance, renewal expenses are incurred at the beginning of the year, claims and lapses occur at the end of the year and the claims rate and lapse rate are mutually independent.

(ii) Calculate the net of tax shareholder profit expected to arise during 2010. [8]

The senior management team of the insurer has commissioned the production of a regular management information report. This is to assist the financial management of its business.

(iii) Outline the information that could be included in the following sections of the management information report:

- (a) Key Performance Indicators
- (b) Operational
- (c) Risk and compliance

[12]

[Total 25]

- 6** (i) State the key reasons for calculating the technical reserves of a health and care insurer. [3]
- (ii) Describe how the following situations would affect the reserves for existing business of a health and care insurer writing accelerated and stand-alone critical illness, income protection and a comprehensive PMI product:
- (a) Improvements in recovery rates from cancer.
- (b) A sudden, unexpected, decrease in the supply of hospital operating theatre nurses.
- (c) Increase in the take-up rate of a diagnostic test for a serious cancer, following a high profile celebrity case. [12]
- [Total 15]

- 7** A health insurer which writes only individual critical illness and income protection insurance has in place a quota share reinsurance treaty and an aggregate excess of loss reinsurance treaty.

The finance director has identified that the total amount of reinsurance premiums paid by the insurer is 80% higher than the amount of reinsurance claims received from the reinsurer. The industry average is 30%, so she is concerned that the company is not receiving value for money from its current reinsurance strategy.

- (i) Discuss possible reasons for the difference and the investigations that should be carried out in order to respond to her concerns. [18]
- (ii) Suggest alternatives to continuing with the current reinsurance strategy. [6]
- [Total 24]

**END OF PAPER**