

EXAMINATION

25 September 2007 (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 at 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 8 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.</i></p>

1 An insurer charges a single premium of £12,000 to provide group disability cover (with a deferred period of six months) from 1 April 2006 to 31 March 2007. During the scheme year there is only one claim: date of sickness 1 July 2006, monthly benefit £2000, date of return to work 1 March 2007.

(i) Calculate the earned premium in 2006. [1]

(ii) Calculate the loss ratio for 2006. [2]

(iii) Give two terms that are used to describe the loss ratio if expenses are included in the numerator. [1]

[Total 4]

2 (i) Outline the regulator's priorities in assessing a new health product. [2]

A niche health insurer, RudeHealth Insurance, is in the process of designing a new, limited cover, critical illness plan which bases the level of payout on an assessment of the impact of the illness on the policyholder. You are an actuary working within the regulator and you have been approached by RudeHealth for your views on such a development.

(ii) Outline the key areas on which you would wish to be satisfied in order to minimise customer detriment. [4]

[Total 6]

3 You are a consultant to a specialist sales team which is contemplating launching its own health and care insurance company. Both long and short term products are being considered. You have been asked for a paper covering two aspects of reinsurance:

- (a) the use of financial reinsurance
- (b) the determination of the retention limit

Discuss the points you would make in the paper, highlighting the issues to be considered for both long and short term products. [12]

- 4**
- (i) Define what the following terms mean when applied to group healthcare products.
 - (a) experience rating
 - (b) credibility
 - (c) burning cost

[3]
 - (ii) Discuss why the past claims experience on an employer's group disability contract may not be a good proxy for the future claims experience for the company.

[3]
 - (iii) Explain why a simple comparison of premiums and claims paid in a calendar year may fail to give a proper view of the profitability of a group disability contract.

[4]
- [Total 10]

- 5**
- It is normal for the insurer of an income protection policy to require potential claimants to notify them of a potential claim at an early stage.
- (i) Explain the reasons for this requirement for reporting potential claims.

[1]
 - (ii) State, where the notification of the claim occurs after the end of the deferred period, six approaches that the insurer may use to treat such an event in accordance with the policy conditions.

[6]

As an insurer of individual income protection policies, your current basis of notification is that potential claimants must notify you at the end of the deferred period. No action is taken on a late notification of a claim; the claim is paid. It has been suggested that you consider using a revised basis that potential claimants must use to notify the insurer of a potential claim.

- (iii) Discuss the general points to be taken into account when consideration is being given to altering the above approach.

[3]

Two alternative bases have been suggested:

Basis 1 The insured is required to notify the company a set time after the incapacity begins, irrespective of the deferred period.

Basis 2 The insured is required to notify the company at a set time before the end of the deferred period.

- (iv) Comment on each approach.

[2]
- [Total 12]

6 You are part of a team which is designing a pre-funded long-term care insurance plan which is to compete with a number of existing market products. You have been asked to produce a comparison of the benefit structure of the existing plans in the market.

- (i) List the features that you would need to consider and suggest appropriate values for these, where relevant. [8]
- (ii) List the factors that you would need to consider in order to determine the suitability of a proposed contract design. [5]
- (iii) List the incentives that the State could offer to encourage self-provision of long term care insurance. [2]

[Total 15]

7 You are the pricing actuary working for a health insurance company. You have been asked to give advice in respect of a UK-type large group hospital cash scheme insured with the company.

- (i) Describe the key features of a typical UK-type hospital cash contract. [4]

You have extracted from the company database the following historical data on the hospital cash contract for the 2002 to 2006 scheme years.

<i>Scheme Year</i>	<i>Written Premium</i>	<i>Incurred Losses</i>
	£000	£000
2002	150	130
2003	160	145
2004	100	105
2005	120	110
2006	140	130

Rates increased for the 2004 scheme year by 10%. There have been no other rate changes.

You also know that claims inflation has been running at 1% per annum over this period for this group scheme.

- (ii) Calculate the loss ratio that can be expected for 2007 for this group assuming that there is no rate increase at the 2007 renewal, based on all of the historical experience and the rate change and inflation assumptions given above, stating any assumptions you make. [8]
- (iii) Calculate the rate increase required at the 2007 renewal to bring the target loss ratio for this group for the 2007 scheme year up to 85%. [1]
- (iv) State any other information other than claims experience that you would require in order to determine whether this group scheme can be profitable in 2007. [4]

Your managing director has realised that the rate of claim inflation on this group since 2002 is substantially less than retail price inflation.

- (v) Suggest possible reasons why the claim inflation rate is so low. [3]
[Total 20]

8 You are the marketing actuary for an office writing reviewable accelerated critical illness. The contract is to be re-launched and you are considering a number of possible changes to the product.

- (i) Suggest a general framework describing the issues that you would consider before making any change to the product design. [5]

The following three design changes have been proposed.

Option A Include an option to enable the policyholder to increase the sum assured by 15% each year without the need to provide any evidence of health.

Option B Replace the current reviewable premium rates with rates that are guaranteed for up to 25 years.

Option C Replace the current underwriting requirements with a pre-existing condition exclusion clause.

- (ii) Evaluate each of the proposals against the framework in part (i) and indicate any additional constraints that you would impose before introducing the product change. You should consider each option on its own and not in conjunction with any other option. [16]
[Total 21]

END OF PAPER