EXAMINATION

1 November 2011 (am)

Subject F201 — 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 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 both 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.

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.

Question 1

You are an actuary employed by Zela Re, a reinsurer interested in entering healthcare reinsurance in emerging markets. Zela Re has been approached by a reinsurance broker appointed by a small restricted South African medical scheme, VuvuMed, to quote for reinsurance. The broker provided you with the following summarised financial information for VuvuMed. Amounts are shown in rands.

	2009	***2010***	***2011 (proj)***
Opening reserves	19,583,000	21,334,000	21,486,000
Average members	6,896	6,863	6,901
Average beneficiaries	15,312	15,298	15,385
Closing reserves	21,334,000	21,486,000	38,607,000
Solvency ratio at year-end	11.10%	9.65%	15.53%

The last column is based on the scheme actuary's latest year-end projection for 2011. You can assume for the purposes of answering this question that it is presently November 2011.

The broker also indicated that:

- VuvuMed is required by regulatory authorities to achieve statutory solvency by the end of 2013.
- VuvuMed experienced a single large hospital claim of R9.5 million during 2010.

VuvuMed is concerned about the possibility that another large hospital claim of this nature will prevent it from reaching its solvency targets in the future.

i) List the kinds of reinsurance that VuvuMed could consider and briefly discuss whether each of these is likely to be suitable to address the scheme's needs. [5]

ii) Outline the regulatory process and requirements for medical schemes to obtain reinsurance. [4]

The reinsurance broker suggests that Zela Re prepares a reinsurance quotation for high cost hospital case excess of loss cover.

iii) Describe
  a. the factors that you will consider in formulating the features of the reinsurance treaty;
  b. any additional data that you want to request to calculate the reinsurance premium; and
  c. how you would calculate Zela Re's risk premium under this treaty, as well as the factors you would consider in the calculation. [22]

VuvuMed's consultants have apparently analysed the Zela Re quotation and projected that VuvuMed's expected net reinsurance results are, in the longer term, projected to be negative. One of the Trustees of VuvuMed has argued that the reinsurance will therefore result in an additional cost to the scheme, and is therefore not in the best interest of members. The Trustee also expressed reservations as to whether the regulatory authorities are likely to approve a loss-making reinsurance contract. Zela Re's marketing director is concerned that VuvuMed is not approaching its decision on reinsurance in an appropriate manner and has asked for your assistance.

iv) Draft an outline of the factors that you would put forward for VuvuMed to consider when evaluating the reinsurance quotation. [8]

PLEASE TURN OVER

VuvuMed's reserves are presently held in cash. One of VuvuMed's Trustees indicated that, if reinsurance is put in place, the scheme should be able to pursue a more risky investment strategy in pursuit of higher investment returns.

v) Give a brief outline of the main categories of investments that VuvuMed could consider, and the maximum percentage of assets that it is allowed to invest in each of the categories. [5]

vi) Explain whether you agree with the Trustee's suggestion. [6]

[Total marks 50]

Question 2

You are a healthcare actuary consulting to a closed scheme, FruitMed, which provides cover for employees of Fruit Inc.. FruitMed has two options, Apple and Orange, that both have traditional benefit designs but with Apple having more generous benefits and higher contributions. Both options have income based contribution tables. FruitMed has a solvency margin of 28%.

Apple has been in a surplus position for the past few years, while Orange has been in a deficit position. However, due to union pressure, FruitMed has been giving the same contribution increase to both options each year. It is now time to perform the annual pricing exercise for 2012.

i) As described in PGN303, briefly discuss the factors you need to consider when performing an analysis of the change in utilisation for each option. [10]

A trustee on FruitMed remarks that he believes that the utilisation increase assumption for 2012 should be 0%. He argues that he remembers reading in the press that the medical scheme population in South Africa has been stable over the past few years, and that there is no expected increase in the burden of disease for medical schemes.

ii) Comment on the trustee's view. [4]

As a result of the unhappiness of some trustees regarding the effective cross-subsidy of the Orange option by the Apple option, the Board of Trustees decide that they want to merge the two options, and have only one option from next year.

iii) Discuss the factors that you would need to consider when designing the new merged option. [7]

In addition to this, they also want to consider making a change to the benefit structure by including most day-to-day benefits within a pooled risk benefit from which these benefits would be paid, doing away with individual benefit limits and having one overall limit for these benefits.

iv) Briefly discuss the factors to consider regarding the design and pricing of this new pooled risk benefit. [5]

There have been discussions with neighbouring farms regarding possible acquisition by Fruit Inc., and it is possible that a large group of low income employees may join the scheme from July 2012.

v) Discuss how this might impact the pricing exercise for FruitMed for 2012. [7]

PLEASE TURN OVER

Concern has been expressed by the Union representative trustee that FruitMed's reserve levels are too high and should be used to subsidise the suggested contribution increase for next year.

vi) Comment on this suggestion by the trustee. [6]

Recently a new vaccine has been approved by the Medicines Control Council that helps to prevent liver cancer in some individuals. The Chairperson has requested advice on whether the scheme should fund this new drug from next year.

vii) Describe the investigation that you would perform before advising the scheme. [11]

[Total marks 50]

