

# EXAMINATION

5 April 2005 (am)

## Subject SA3 — General Insurance 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.*

- 1** Company A is a large international insurance and reinsurance group whose statutory returns show annual gross earned premiums in excess of \$5,000m. The company writes all classes of business from a large number of offices widely spread across the globe.

You are an actuary within Company A. The company measures the performance of its underwriters on taxable profit, including credit for investment return. Investment return is credited at a notional rate of interest decided before the start of the financial year.

Company A is aiming to increase taxable profit in the next financial year. The budget for each portfolio of business written in Company A must be submitted in June so that the group can finalise the overall figures by the end of July.

The underwriting manager of a niche commercial insurance business within Company A is responsible for \$200m of annual gross premium which has been stable at this level for many years. Company A has set a budgetary target for this portfolio of increasing taxable profit from \$20m to \$24m in the next financial year. This business is underwritten in 6 offices each of which operates in a different country. Over half of this business is written in the London Market. Most of the policies in this portfolio have two year exposures and the risk exposure increases from zero at a uniform rate over the policy period. Policies are written evenly over the course of the year.

For this portfolio acquisition costs have consistently been 20% of gross premiums and reinsurance spend has been 17% of premiums. The reinsurance has been well used and in the manager's opinion has been key to smoothing profits. Company A has asked the underwriting manager to halve the amount of reinsurance purchased. Internal expenses have been cut over the past two years from 15% to the current year budget figure of 13% of gross premiums. The mean duration of claim settlement is four years from policy inception.

This underwriting manager has asked you for a report outlining the options open to him to achieve the company profit target explaining the advantages and disadvantages of the options.

- (i) Discuss the possible options open to him that you would consider for your report. [47]

The underwriting manager has expressed dissatisfaction at the rate of investment return credit, telling you that he is getting more on his own fixed interest investments. He also disagrees with Company A's decision to cut his reinsurance spend by a half.

- (ii) Explain why the underwriting manager's view may be different from Company A's view. [18]  
[Total 65]

- 2** The FSA is in the process of changing the capital requirements from solvency margin to Individual Capital Assessment (ICA).
- (i) Describe the core elements of the new proposals under the headings of ECR, ICA and ICG. [4]
  - (ii) Describe the three components of the ECR calculation. [4]
  - (iii) Discuss the advantages and disadvantages to a general insurance company of ICA compared with ECR. [6]
  - (iv) Outline the main areas that are expected to be covered in the ICA format proposed by the FSA. [9]
  - (v) For each of the risk types itemised under these proposals:
    - (a) State each risk and suggest a basis for modelling each of them.
    - (b) Explain, with examples, how each risk may be correlated with the others. [7]
  - (vi) You are the actuary for a London market company writing commercial property business both insurance and reinsurance. Describe how you would parameterise the model of the insurance risk. [5]
- [Total 35]

**END OF PAPER**