

EXAMINATION

14 April 2008 (pm)

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 from the approved list.

- 1 You are the actuary responsible for estimating the reserves for a large UK general insurance company with several lines of business. Below is the gross claims development for the public liability class of business and your estimates of the gross ultimate claims at year end 2006.

Figures in £ 000s

Policy Year	Notified Claims Development Quarter				
	4	8	12	16	20
2002	5,691	10,256	11,956	11,421	11,565
2003	5,649	3,146	3,265	3,684	
2004	8,652	11,423	10,875		
2005	10,428	23,453			
2006	11,513				

Figures in £ 000s

Policy Year	Year End Notified Claims	Year End Paid Claims	Estimated Ultimate Claims
2002	11,565	7,716	12,409
2003	3,684	2,431	4,265
2004	10,875	3,898	13,285
2005	23,453	3,596	38,202
2006	11,513	1,006	35,125
Total	61,089	18,648	103,286

At year end 2006 you estimated the following range of gross ultimate claims for this class of business:

Range of estimated ultimates (£ 000s) - Percentiles						
65%	70%	75%	80%	85%	90%	95%
105,352	115,680	121,878	126,009	131,173	136,338	146,666

The underwriter for this line of business calls you to explain that policies are written on a claims made basis and have been since 2002. He is worried that you are not taking account of this in your projections as you seem to have significant IBNR in prior years.

- (i) Define the term “claims made” policy. [1]
- (ii) List the advantages and disadvantages to an insurer of this type of wording. [3]
- (iii) Outline the points that you would make to the underwriter in explaining your estimate of ultimate claims in prior years. [4]
- (iv) Explain whether the actuary responsible for reserves should provide a range of estimates in a reserve report. [5]

You estimated the range at year end 2006 using scenario testing and your judgement.

- (v) Explain the advantages and disadvantages of this approach in calculating a range. [4]

You have been asked to consider two further ways of deriving a range: Bootstrapping and Mack's method.

(vi) Describe each of these methods, giving its advantages and disadvantages. [14]

You now have six additional months of data. The latest notified claims and your new estimated ultimate claims as at 30 June 2007 are as follows:

Figures in £ 000s

Policy Year	Notified Claims	Estimated Ultimate
2002	11,565	12,409
2003	3,774	4,350
2004	10,848	13,030
2005	50,910	65,687
2006	14,542	41,256
Total	91,640	136,732

You mention this to a colleague who comments that:

- the ultimate level is inconsistent with the range that you provided at year end 2006.
- this might have a significant impact on the company's ICA.

(vii) State with reasons whether you agree with these comments. [10]

The premium for each of the years is shown below:

Figures in £ 000s

Policy Year	Gross Written Premium
2002	15,649
2003	12,156
2004	21,635
2005	25,265
2006	35,684
Total	110,389

You have been asked by the finance director whether this is a sufficiently profitable line of business following the change to the claims made basis as from 2002.

(viii) Outline the points that you would make to your finance director and detail any further information that you might require. [18]

[Total 59]

- 2** Rapidco is a large industrial company based in the United Kingdom. The company has seen rapid expansion over the past ten years, doubling its output through automation of key processes while keeping its workforce at similar levels and increasing the number of manufacturing sites it owns by over fifty percent.

You are an independent actuary engaged by the company's directors. The directors believe that the company has a very low reported claims record over the past ten years. They believe that the insurance premiums are too high as they are paying their insurers' standard book rates with the exception of the fleet portfolio which is experience rated. Its main other insurances are predominantly commercial fire, business interruption, employer's liability, public liability and goods in transit. The company does not buy product liability cover.

- (i) Discuss the features of past loss experience and exposure that you would need to consider in advising the company's directors on its insurance premium. [18]

The company is part of a world-wide manufacturing group with subsidiaries in other countries. The group is considering establishing a captive in one of the non EU countries in which it operates.

- (ii) Define the term "captive". [2]

- (iii) State the advantages and disadvantages to the group in setting up this captive. [6]

You have been asked to advise on:

- the capital requirements of this general insurance subsidiary.
- the establishment of its reinsurance programme.

- (iv) Comment on the factors that you would take into account in formulating your recommendations. [15]

[Total 41]

END OF PAPER