

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

23 April 2018 (pm)

Subject ST7 – General Insurance: Reserving and Capital Modelling 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 must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *You have 15 minutes of planning and reading time before the start of this examination. You may make separate notes or write on the exam paper but not in your answer booklet. Calculators are not to be used during the reading time. You will then have three hours to complete the paper.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all nine questions, beginning your answer to each question on a new page.*
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 List key strengths and weaknesses of the Chain Ladder Method. [4]

- 2 State an appropriate exposure measure, together with a key rating factor, for each of the following lines of business:
 - (a) Aviation Liability
 - (b) Goods in Transit
 - (c) Extended Warranty
 - (d) Legal Expenses

[4]

- 3
 - (i) Define “subrogation”. [1]
 - (ii) State with a reason whether subrogation is likely to be material for each class, giving an example if appropriate:
 - (a) Engineering Plant & Machinery
 - (b) Trade Credit
 - (c) Employers’ Liability
 - (d) Aviation Hull

[6]
[Total 7]

- 4
 - (i) Define “operational risk”. [1]
 - (ii) Give four examples of where there may be overlap between operational risk and other risk categories. [4]
 - (iii) Outline a potential approach to parameterising and modelling operational risk. [5]

[Total 10]

- 5** (i) Describe the benefits provided by Employers' Liability insurance. [3]

A general insurer specialises in employers' liability policies and has a portfolio of 18,000 policies written on a losses occurring basis. Around one third of the policies incept on 1 January each year, with another third incepting on 1 April. The remainder incept reasonably evenly over the second half of the calendar year.

- (ii) Estimate the average date of accident for the company's policies incepting in 2016, stating all assumptions made. [3]
- (iii) Explain why the actual average notification date of claims may be significantly later than the average date of accident calculated above. [4]
- [Total 10]

- 6** (i) List six uses of capital modelling investigations. [3]

InsuranceGroup A writes a diversified portfolio of business across a number of insurance companies within its group.

A new management team is in place and it has asked for the results of a recent capital assessment to be allocated by class of business and product within the group for performance measurement purposes.

- (ii) Discuss the methods that might be used. [8]
- [Total 11]

- 7** (i) State the four principal aims of insurance regulation. [2]

- (ii) Outline desirable outcomes for an insurance regulatory system. [4]

- (iii) List eight regulatory requirements or restrictions that might be imposed on the insurance industry, giving a purpose for each. [8]
- [Total 14]

8 A company writes the following portfolio of business:

- (a) Travel Insurance
 - (b) Commercial Property
 - (c) Commercial Motor
 - (d) Marine Liability & Property Damage
- (i) Give, with a reason, an appropriate reserving approach for each line of business. [6]
- (ii) Determine an appropriate reinsurance programme structure for this company. [10]
- [Total 16]

9 (i) Define insurance and reinsurance business. [2]

A student actuary has spent the first few years of her career carrying out reserving exercises for an insurer. She has recently changed jobs to work for a reinsurer.

- (ii) Discuss the differences between insurance and reinsurance business that the student should consider before embarking on a reserving exercise for her new employer, under the following headings:
- (a) Reporting delays
 - (b) Data & IT System constraints
- [8]
- (iii) Describe the additional data and assumption issues that the student actuary should consider before embarking on this reserving exercise for her new employer. [6]

The student actuary has been asked to carry out the reserve analysis for the non-proportional Property Treaty and Casualty Treaty business written.

- (iv) Discuss the reserving methods and approach that she should consider. [8]
- [Total 24]

END OF PAPER