INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

20 April 2018 (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 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 four 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 A general insurance actuary works for an actuarial consultancy. She holds a practising certificate as a Lloyd's Syndicate Actuary and is providing an independent reserve review and relevant Statements of Actuarial Opinion to a Lloyd's Syndicate which writes risks across the globe.

(i) Describe briefly what professional standards the actuary should consider in carrying out her work. [8]

(ii) Describe briefly two other professional standards which apply to general insurance actuarial work. [2]

[Total 10]

2 A national car dealership in an industrialised country has over 100 outlets covering all major towns and cities. It sells new cars only and sells just one brand of car although three different models are available.

Their chief executive is considering offering a year's free comprehensive insurance as a marketing initiative, and is exploring various options for providing this cover including self-insurance.

(i) Discuss the advantages and disadvantages to the dealership of self-insuring the proposed insurance. [5]

The chief executive is also exploring potential agreements with insurers to write this business. To avoid adding additional complexity to the car sale process, she has expressed a preference for a flat-rate premium per policy rather than one that varies according to the characteristics of the purchaser or model of car.

A large general insurer with a significant book of private motor insurance business is quoting for this opportunity. It is aware that at least two competitors have also been asked to quote.

(ii) State the key rating factors for comprehensive motor insurance. [4]

(iii) Outline the key data the insurer would want to determine an appropriate flat-rate premium for this policy. [4]

The data available from the dealership is very limited and is restricted to the name and addresses of all purchasers over the last two years and the model of car purchased. The three models are a small car aimed at older drivers, a sports car and a large estate car best suited to families.

(iv) Discuss how the insurer could estimate an appropriate flat-rate premium using the information available. [8]

(v) Outline the key risks to the insurer of writing this product, suggesting, for each, how the insurer might manage that risk. [6]

[Total 27]

3 (i) Describe the main features of the following products by reference to the cover provided, main perils covered and coverage basis:

(a) Directors & Officers

(b) Professional Indemnity

(c) Commercial Property

[9]

A Lloyd's syndicate which writes the above products is carrying out a risk assessment to explore its exposure to cyber events.

(ii) Describe why each product might have exposure to cyber events. [9]

(iii) Outline two potential cyber claims for each product. [6]

The syndicate is considering launching a cyber risk product aimed at large multinational companies. They wish to purchase a cyber catastrophe model from an external model provider to enable them to estimate aggregate exposure to cyber risk.

(iv) Discuss the likely limitations of current cyber catastrophe models. [5]

[Total 29]

4 A large general insurance company (Company X) with worldwide operations is looking to start writing insurance for satellites.

(i) (a) Outline the cover that might be provided under this insurance; and

(b) Set out the likely loss & development profile.

[5]

(ii) (a) Outline the opportunities & risks the company faces moving into this new business line.

(b) Suggest how the company might manage potential risks of entering this market.

[7]

Company X is reviewing insurance protection available in the market, including an Industry Loss Warranty contract which pays out $10 million in the event that the insurance market loss from satellite launches in a calendar year is $1 billion or more.

One hundred satellite launches have been planned for the year in question. The average launch failure rate has historically been 2%. All launch failures result in a total loss, and the average launch value is $250 million.

(iii) Calculate the expected loss cost for the Industry Loss Warranty contract, assuming a binomial distribution for loss frequency and a fixed severity of $250m for all launches. [3]

(iv) Comment on why your result in part (iii) may not be appropriate as an estimation of the loss cost. [6]

Company X is considering expanding through buying an existing specialist satellite insurer. The chief actuary of Company X has been asked to comment on the feasibility of this purchase particularly with respect to the purchase price.

(v) Outline, with reasons, four key financial ratios from the satellite insurer's accounts which the actuary might wish to consider before commenting. [8]

(vi) Discuss other factors which may influence the offer Company X makes for the satellite insurer. [5]

[Total 34]

END OF PAPER