INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

11 April 2016 (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 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 Below are the Solvency II Solvency Capital Requirement (SCR) results for two insurance subsidiaries of a group of insurance companies:

Amounts in £ millions

	Subsidiary A	*Subsidiary B*
Spread risk	50	20
Equity risk	400	20
Currency risk	150	0
Catastrophe risk	20	140
Counterparty risk	5	25
Reserve risk	**X**	50
Underwriting risk	400	100
Operational risk	20	80
Other	40	40
Total diversified	1,010	430
Diversification benefit	40.5%	9.5%

(i) (a) Define counterparty risk.

(b) State with a reason what the entry in the table labelled as "Other" might be. [2]

(ii) Calculate X. [2]

(iii) Suggest possible reasons for the differences between the SCR results for A and B. [6]

The group management of the two subsidiaries has calculated the risk margin using the internal model for the first time. The future development of SCR is estimated using the run-off of the reserves. The run-off of reserves is given below. The risk-free discount rate used to determine the reserves is 2% per annum.

Year	*1*	*2*	*3*	*4*
Reserves (£m)	100	49	9	1

(iv) Explain the purpose of the risk margin. [2]

(v) Estimate the risk margin for subsidiary B, stating your assumptions. [10]

The Head of Capital of the group has revised the risk margin calculation by using the square root of the run-off of reserves as she has assumed that the diversification benefit changes as the portfolio runs off.

(vi) Sketch a rough graph showing the SCR run-off and the revised SCR run-off. [2]

(vii) Comment on the difference between the methods. [4]

The group management has recently acquired a medium-sized UK insurer, Realm that writes mainly liability lines of business. An analyst has made a high-level estimate of Realm's Solvency II figures using publicly available data:

	£m
Solvency Standard Formula SCR (estimated)	950
Solvency Internal Model SCR (estimated)	1,100

(viii) Suggest reasons for the difference between the two figures in the table above. [5]

The Chief Risk Officer of Realm has proposed that Realm should adopt a standard formula only as this gives the lowest capital requirement.

(ix) Outline the advantages and disadvantages of the Chief Risk Officer's proposal. [6]
[Total 39]

2 (i) List the benefits likely to be provided under a travel insurance policy. [5]

In a particular country with a developed general insurance market, Flysure is the leading travel insurer. Flysure writes a range of travel insurance policies, including policies with annual cover. Currently Flysure imposes restrictions on its annual policies limiting the number of days policyholders can spend in any one overseas country.

Flysure is planning to launch a migrant worker travel insurance (MWT) product targeted at citizens who work overseas for more than a year. No similar products are currently offered in the country. MWT policies will be issued with fixed terms of between one and five years, depending on how long the policyholder expects to work overseas.

Flysure is considering the cover and benefits that should be provided under the new MWT product to appeal to the target market.

(ii) Discuss, with examples, how the benefits and level of cover provided under the MWT product might compare to Flysure's existing travel insurance policies. [6]

(iii) Describe how Flysure could estimate premiums for the MWT product. [16]

Premiums will vary by policy duration. The CEO of Flysure wants the process of buying the product to be as easy as possible, with only two rating factors other than policy duration.

The CEO wants the product to be available to as many migrant workers as possible, but is prepared to decline cover for individuals deemed to be uninsurable, although he does not want these to be a large proportion of potential policyholders.

(iv) Propose two rating factors which are likely to be indicative of claim costs. Give a reason for your choice in each case. [2]

(v) List four groups of customers for whom no cover should be provided, or certain types of claim restricted. Give a reason in each case. [4]

Flysure has commissioned its actuary to draft a report setting out the potential risks associated with the MWT product in the following key areas:

- legal
- reinsurance
- claims
- currency
- demand
- operational; and
- expenses

The actuary has been asked to describe the risks and their effect on the business and outline how these risks may be mitigated.

(vi) Set out the points the actuary should include in his report. [16]

The product is to be launched one month before the end of Flysure's financial year, and provisions need to be established for Flysure's accounts.

(vii) State the balance sheet items which will need to be estimated for the accounts in respect of this business. [2]

(viii) Discuss how the company should estimate the outstanding claims provision for MWT business:

(a) at the end of the first financial year (one month after product launch).

(b) at the end of the following financial year (13 months after product launch).

[10]
[Total 61]

END OF PAPER