EXAMINATION

3 April 2006 (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 Packit is a mutual insurance company incorporated in the UK and owned by importers who are retailers and wholesalers based in the UK. The importers have their goods shipped from around the world by reputable carriers. The carriers choose the most suitable transit methods for the goods by land, sea and air. The importers buy an all risks cargo policy from the point at which they purchase the goods to the point at which they enter their stores and warehouses in the UK. Packit was formed when importers felt that insurance rates were too high, and that they could save significant costs through a mutual. Packit underwrites all proposals prior to writing the business. Although there is no restriction on what goods can be insured, in practice they are exclusively high street non-perishable goods including clothing, electronics and white electrical.

Recently there has been a major catastrophic loss at a large distribution hub resulting in losses to warehoused and containerised goods largely as a result of water damage. The size of the loss has exhausted Packit's reinsurance programme resulting in a large net loss.

Following this event Packit has asked for a comprehensive review of its operations. You are the consulting actuary advising Packit.

(i) State how the various UK tax rules apply to Packit and the policies it sells. [3]

(ii) Describe how the current loss should be recovered from the member companies and steps which may be taken to reduce the size of loss. [16]

(iii) (a) State the desirable characteristics of rating factors.

(b) List the main risk factors which are likely to be used for rating this type of business.

(c) Describe why your chosen factors are likely to be the main factors.

(d) Explain why some of your risk factors will not be used as rating factors. [14]

(iv) Describe the different ways in which differing policy deductibles and limits requested by the different members could be priced equitably. [4]

(v) Describe the considerations that Packit needs to evaluate when designing next year's reinsurance programme. [12]

Based on recent studies you have found that the expected cost of claims to Packit is a function of the maximum sum at risk and the selected attachment point. The percentage of claim cost below the attachment point
$= 39.81 * (\text{attachment point} * 100 / \text{maximum sum at risk})^{0.2}$.

You are pricing a quote. The importer wants to reduce its insurance cost and thinks that a total loss is unlikely. It has therefore asked for a policy which protects it for 40% in excess of 10% of its maximum exposed values.

(vi) (a) Calculate the percentage of claim cost retained by the importer.

(b) Comment on the suitability of the importer's policy request.

[9]

[Total 58]

2 Payfast is a general insurance company writing only payment protection insurance. Payment protection insurance protects a borrower's ability to maintain loan repayments should he/she be unable to keep up his/her repayments due to accident, sickness or unemployment. Payfast writes its business through retailers selling furniture and electrical goods via various credit schemes.

For each payment protection plan taken out, the customer pays a one-off premium, typically about 10% of the amount borrowed. In return the insurer will cover the customer's monthly loan repayments:

- for the period of the remaining loan term while the customer is hospitalised; and
- for a maximum of 12 months in the event of unemployment or disability

The majority of the payment protection plans cover level monthly repayments.

Payfast pays a commission to the retailer of between 30% and 60% of the gross premium paid by the customer. The level of commission varies by retailer. The terms of the credit schemes generally range from 3 to 5 years.

Payfast's earned premiums are based on the assumption that risk reduces uniformly during the term of the payment protection policy. Premiums earned in 2005 totalled £11.3m gross of commission.

The company has been writing business since 1 January 2003. Paid claims have totalled approximately 3%, 5% and 10% of gross earned premium in 2003, 2004 and 2005 respectively. Payfast currently books an outstanding claims, IBNR and claims handling expense reserve of £2.0m as at 31 December 2005. It has shareholders funds of £20.0m at that date.

From your market research you have established that:

- a current expected ultimate loss ratio for an account of this nature is 20%, gross of commission

- IBNR claims at the end of an accident year are typically equal to 25% of the ultimate claims for that year

- claims handling expenses are typically 20% of claims payments; and

- it is common for payment protection insurers not to establish case estimates

(i) Describe the risks relating to premiums and claims that are faced by Payfast. [5]

(ii) Suggest steps that Payfast could take when underwriting the business in order to mitigate some of these risks. [6]

(iii) (a) Suggest the factors that would influence the earning pattern for each individual policy.

(b) Comment on Payfast’s assumption that risk reduces uniformly during the term of each individual policy.

[7]

(iv) Describe how you would segregate Payfast’s claims and policy data for the purposes of monitoring profitability. [6]

(v) Comment on the reasonableness of Payfast’s outstanding claims, IBNR and claims handling expense reserve of £2.0m as at 31 December 2005. [10]

(vi) Suggest, with approximate calculations, how you might expect Payfast’s shareholders funds to change between 31 December 2005 and 31 December 2006 assuming that the company stopped writing business on 31 December 2005. [8]

[Total 42]

END OF PAPER