

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

11 September 2023 (am)

Subject SP2 – Life Insurance Specialist Principles

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

- 1** A life insurance company issues a range of unit-linked bonds.
- (i) Set out how the company would calculate the expropriation price of units. [3]
 - (ii) State how the appropriation price of units differs from the expropriation price. [1]
 - (iii) Describe what is meant by pricing on an ‘offer basis’ and pricing on a ‘bid basis’. [2]
 - (iv) Discuss possible reasons why the company may use an adjusted unit price that differs from the ‘theoretically’ correct price determined on an offer basis or bid basis. [5]
- [Total 11]

- 2** (i) Outline the main customer needs that endowment assurance products may fulfil. [3]

A life insurance company is considering introducing a new unit-linked endowment assurance product to replace its existing with-profits endowment product.

- (ii) Discuss the likely impact on the life insurance company of making this change. [5]
- [Total 8]

- 3** A life insurance company is considering adding a paid-up option to its without-profit whole life assurance product going forwards, using a prospective calculation to price the option.

Discuss how the assumptions used to price the revised product with the added paid-up option may differ from the assumptions last used to price the product without the option. [8]

- 4** A life insurance company has recently started using ‘big data’ analytic tools to analyse its policy data. The big data team has taken the in-force policyholder data for immediate annuities and has analysed the following fields to spot anomalies in the data:

- First life age
- First life age vs second life age
- Second life annuity percentage
- Original premium divided by annual annuity amount
- Current annuity amount vs original annuity amount for policies with indexation.

Discuss the data anomalies that may be highlighted by checks on each of the fields above. [6]

5 A life insurance company is considering developing products to sell via social media. Selling via a social media distribution channel is a very new approach in the country concerned.

- (i) Discuss advantages and disadvantages to the insurer of using social media to sell products. [9]

Following the launch, sales in the new channel have been lower than expected.

- (ii) Suggest possible ways to increase sales in this new distribution channel. [4]
[Total 13]

6 Country X has a small life insurance market. The insurance regulator in Country X has just announced that it is planning to adopt a ‘market consistent’ valuation approach for the statutory valuations of life insurance companies.

This change will apply to all life insurance companies operating within Country X from the start of the next year. It will replace the existing valuation approach where assets are valued at book value and liabilities use a prudent passive valuation.

The change will bring Country X in line with the practice in other equivalent countries.

A life insurance company operating within Country X predominantly writes long-term life insurance business, including annuities and whole life contracts.

Discuss the possible factors the insurer will need to consider in implementing the new valuation approach. [11]

7 A life insurance company, which sells a wide range of products via insurance intermediaries, is using information from the company’s most recent analysis of expenses to determine the expense assumptions to use when pricing a new product.

Describe how the company could make use of the existing expense analysis data to determine appropriate expense assumptions for pricing the new product. [12]

8 A life insurance company, Company A, has for many years written a significant volume of term and whole life assurances, and annuity business. Currently the insurer makes very limited use of reinsurance.

- (i) Discuss why this approach to reinsurance might have been taken. [5]

Following a review of its approach to reinsurance, Company A has decided to investigate increasing the use of reinsurance across the business to provide additional financial support for the insurer.

- (ii) Discuss the factors the insurer should consider before deciding to increase their reinsurance cover. [6]

- (iii) Describe possible forms of reinsurance for Company A that may be suitable for this purpose. [6]

[Total 17]

9 Company B is a large, long-established life insurance company specialising in whole life and endowment assurance products.

Company C is a smaller, newly established insurer selling only term assurance.

Company B has recently completed a takeover of Company C.

- (i) Discuss the difficulties that Company B may face when sourcing data to model the capital requirements of the term assurance business. [7]

- (ii) Outline the main factors that Company B should consider when modelling its capital requirements following the takeover. [7]

[Total 14]

END OF PAPER