# INSTITUTE AND FACULTY OF ACTUARIES

# EXAMINATION

20 April 2021 (am)

## Subject SA2 – Life Insurance Specialist Advanced

Time allowed: Three hours and fifteen minutes

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| 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 sells a unit-linked individual personal pension product through advisers. It wrote with-profits business in the past, but it no longer sells new with-profits business. The company is considering launching a new term assurance product.

(i) Outline the considerations for the company when selecting an appropriate distribution channel for the new term assurance product. [6]

The company is about to price the new term assurance product but it has limited data.

(ii) Suggest how the company might address the lack of data when pricing the new term assurance product. [5]

The regulations regarding the capital regime that the company is subject to are changing, and will require more capital to be held in respect of with-profits business. This is expected to come into effect in 5 years' time.

(iii) Discuss the actions that the company might take following this announcement. [10]

[Total 21]

**2** A life insurance company started writing bulk annuity business 2 years ago. Final salary pension scheme trustees pay a lump sum premium to the insurance company, and, in exchange, the company pays the retirement income in respect of the pension scheme members who are current pensioners as at the inception date.

The company is provided with details of the members of a particular final salary pension scheme when they are pricing the scheme, with the exception of information regarding the members’ health, which is not available. No new members are added to the bulk annuity scheme once the premium has been paid.

All annuity benefits increase annually in line with an inflation index, but the date the benefits increase varies by scheme. In addition, all annuities have attaching contingent dependants’ benefits equal to 50% of the members’ annuity at point of death, irrespective of the members’ marital status in the pricing data.

The company has written five separate bulk annuity schemes over the past 2 years.

(i) Describe how the company expects to make a profit on these schemes. [3]

(ii) Discuss the components that are likely to be included in an analysis of change of Solvency II Best Estimate Liabilities (BEL) for the company’s bulk annuity business. [14]

Since the last year-end valuation date

- the company has strengthened its reserving assumption for future improvements in annuitant mortality
- expenses related to the bulk annuities are higher than originally expected at the start of the year
- deaths on one particular scheme have been higher than assumed.

(iii) Discuss how each of the items outlined above will impact the analysis of change in BEL. [6]

A new bulk annuity scheme has been written and the company’s pricing team has provided management with an estimated impact on BEL. This is based on the latest pricing model and assumptions, and how the pricing team has set the scheme up in their model.

(iv) Suggest possible reasons why the estimated BEL determined by the pricing team may differ from the actual BEL derived by the reserving team for the same time period. [6]

[Total 29]

**3** (i) List areas of a life insurance company's operations where there may be restrictions imposed by the regulator. [5]

(ii) Describe briefly the standard formula approach under Solvency II. You are not required to give details of the risk modules. [4]

(iii) Describe briefly the internal model approach under Solvency II. [6]

Territory X has a solvency assessment regime for insurance companies, such that statutory reserves are determined using a prudential basis prescribed by the regulator. Companies in Territory X must also hold additional capital in excess of their statutory reserves. The additional capital is equal to a prescribed multiple of statutory reserves plus a prescribed multiple of the sum at risk. The sum at risk is defined as the difference between a policy's sum assured and its statutory reserves.

The regulator of Territory X is considering moving to a risk-based approach for determining the statutory capital requirement in a company's solvency assessment.

The regulator has proposed a similar approach to that adopted in the EU under Solvency II, whereby companies determine the statutory capital requirement on one of the following two approaches:

- a prescribed 'standard' approach, similar to the standard formula in Solvency II, which is the default approach

or

- an approved internal model.

(iv) Suggest possible reasons why it is reasonable for there to be two approaches to determine capital requirements for regulatory purposes. [5]

The regulator has recognised that, for most companies, the difference between the available capital and the required capital will be significantly lower under its proposed risk-based capital approach than under the current regulatory solvency assessment.

The regulator is looking at two options to gradually implement its proposal:

- introduce the new solvency assessment approach in full and allow a transitional adjustment over several years
- introduce the new solvency assessment approach to apply to only new business written after its introduction. Business written prior to the introduction would be assessed under the existing solvency assessment.

(v) Discuss the advantages and disadvantages of each option from the viewpoint of both the regulator and life insurance companies operating in the territory. [9]

The regulator has put in place a solvency assessment regime very similar to the Solvency II regime in the EU. Technical provisions are the best estimate liabilities plus a risk margin, and capital requirements are a risk-based capital requirement. A life insurance company operating in Territory X has appointed an actuary who is a Fellow of the Institute and Faculty of Actuaries to carry out a statutory actuarial role within Territory X.

(vi) Outline the professional standards and guidance that the actuary should consider. [3]

The regulator of Territory X has introduced the new solvency assessment regime for new and existing business.

Company A is a life insurance company operating in Territory X. Company A sells a unit-linked endowment product with the following key features:

- The policyholder pays regular premiums.
- The premiums cannot be altered or the policy be made paid up during the policy term.
- Each premium is used to purchase units in a range of internal unit-linked funds offered by Company A.
- The allocation rate is 100%.
- The only charge is an annual management charge, taken by cancelling units. The annual management charge is not the same for all of the internal unit-linked funds.
- The benefit payable to the policyholder on surrender or maturity is the value of the units at the time of the claim less a penalty if the policy is surrendered in the first 3 years.
- The benefit payable on the death of the policyholder is 101% of the value of units at the time of the claim.

(vii) Compare the statutory reserves for this product under the previous prudential reserving approach with the statutory reserves under the new solvency assessment regime. [9]

(viii) Outline the risks in respect of the unit-linked endowments described above that would contribute to Company A's statutory solvency capital requirements. [9]

[Total 50]

## END OF PAPER