INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

20 September 2022 (am)

Subject SA2 – Life Insurance Specialist Advanced

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.

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1 A proprietary life insurance company based in Country A calculates technical provisions and capital requirements under Solvency II Pillar 1, and uses the standard formula approach for the Solvency Capital Requirement (SCR).

The company writes mainly immediate annuity business. The annuities have an average remaining duration of 13 years. The company matches the liabilities with a mixture of government and corporate bonds that are all held in the currency for Country A, and uses a matching adjustment that was 0.2% at the most recent valuation date.

(i) Describe how the assets would be valued under Solvency II. [2]

(ii) Describe how the Best Estimate Liabilities (BELs) would be calculated for the annuities under Solvency II. [5]

(iii) Identify the key risks related to the annuities for the company in the SCR. [3]

The company is considering setting up a new subsidiary overseas, in Country B, which has tax benefits compared to Country A. Country B has adopted aspects of Solvency II reporting. The differences between reserving and capital requirements in Country B compared to Country A are:

	Country B relative to Country A
Current yield curve	On average 0.5% higher at all durations
Yield curve stress in SCR	No difference
Matching adjustment	Not permitted in Country B
Longevity risk in SCR	Pre-diversification risk is on average 50% lower
Expense risk in SCR	Only considers a day-one shock to expenses, with no inflation shock (whereas Country A has both a day-one and inflation rate stress)
Operational risk in SCR	On average 25% lower
Equity risk in SCR	20% higher
Lapse risk in SCR	On average 30% higher

All other aspects of the technical provisions and SCR follow the same methodology and assumptions as in Country A.

The company in Country A is considering reinsuring all the liabilities for existing business to its new subsidiary in Country B.

(iv) Estimate the percentage change in BEL for the annuities under Country B relative to Country A. [5]

(v) Contrast the SCR under Country B with the SCR under Country A for the annuities. [5]

(vi) Justify whether the risk margin for the annuities under Country B will be higher or lower than under Country A. [2]

(vii) Discuss other factors the company needs to consider before setting up the new subsidiary in Country B. [8]

[Total 30]

2 A proprietary life insurance company sells conventional with-profits endowment policies as well as without-profits business. The with-profits business is written in a separate ring-fenced fund in the company so that it does not share in the profits arising from the without-profits business. The with-profits policies have been sold for many years but recent new business volumes have been steadily declining.

(i) Describe the possible impact that the fall in new with-profits business may have for both policyholders and shareholders. [12]

The company operates in a territory where the regulatory regime is similar to Solvency II. The company sets the BELs for its with-profits business to be the asset shares plus the cost of guarantees.

(ii) Explain why this is a reasonable approach for the BELs. [5]

The company defines the estate for the with-profits policies in the ring-fenced fund as being the difference between the market value of assets and the BEL. The ring-fenced fund is invested in a mixture of equities and fixed interest securities. Over the past year, the with-profits business has experienced higher mortality rates than expected, and the fund has seen falls in the value of equities held.

(iii) Discuss the impact this experience is likely to have on the estate. [9]

Due to the decline in new business and the recent adverse experience, the company considered closing the with-profits fund to new business, but decided not to.

(iv) Suggest actions the company could take to maintain the fund while remaining open to new business. [8]

[Total 34]

3 A life insurance company sells a unit-linked pensions product and a without-profits annuity product. It has recently started selling a term assurance product.

(i) Describe the company's liquidity risk associated with each of these three products. [7]

The company uses both independent financial advisors and a direct salesforce to distribute its products. It has been suggested that the company should make greater use of digital technology in its sales distribution for all three products.

(ii) Discuss this suggestion. [12]

When designing new products, the company aims to make the product capital efficient.

(iii) Assess how the three standard profit criteria may be used by the company to achieve its aim. [4]

The recently written term assurance is making a loss.

(iv) Discuss why the term assurance business may be loss-making. [6]

The company invests in fixed interest assets to match the annuity liabilities by value and duration.

The company has to hold regulatory capital on a risk-based approach similar to the Solvency II SCR. Analysis of the capital requirement indicates that the company is at risk from a fall in interest rates in relation to the annuity business.

It has been suggested that the annuity investment strategy should be altered so that the assets have a longer duration than the liabilities.

(v) Discuss why the company may consider this change in investment strategy. [4]

An investigation has indicated that a significant proportion of the unit-linked pension policies are still in force several years after the selected retirement age.

(vi) Suggest possible reasons for this. [3]

[Total 36]

END OF PAPER