

# INSTITUTE AND FACULTY OF ACTUARIES

## EXAMINATION

4 October 2012 (pm)

### Subject SA2 – Life 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.*

<p><i>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.</i></p>
--

**1** A large UK proprietary life insurance company has only ever sold conventional with profits and without profits life assurance and pensions business.

- (i) Describe how the company would calculate the tax payable on its pensions business under the current taxation regime. [7]

Due to the introduction of Solvency II, the UK taxation regime will need to be amended. In particular, where currently the tax calculation is based on taxable surplus within the FSA Returns, the government is considering changing this to use trading profits from the statutory accounts.

- (ii) Discuss the impact that this change might have on the company's future tax payable. [8]

The government has also proposed changing life insurance protection business from being taxed on an "I-E" basis to a trading profits basis. This change would apply only to policies written after 1 January 2013. It would not apply to policies already in force at that date.

- (iii) Discuss possible reasons why the government has proposed this change. [5]

- (iv) Discuss the actions that the company might take in response to this change. [5]

To coincide with Solvency II, a number of changes are being considered to the approach used to apportion investment income and gains between Basic Life Assurance and General Annuity Business (BLAGAB) and Gross Roll-up Business (GRB).

The current method splits investment income and gains by reference to the mean liabilities from the FSA Returns.

One of the changes being considered is to calculate the accrued investment income and gains on the assets hypothecated to each individual policy each year, and then to allocate these directly to BLAGAB and GRB as appropriate. Investment income and gains earned on the inherited estate would also have to be allocated.

- (v) Discuss the practical implications of this potential change. [8]

The company currently calculates shareholder transfers on its with profits business as 1/9 of the cost of bonus, where the cost of bonus is calculated as the value of reversionary bonus declared plus the cost of terminal bonus paid out. The value of the reversionary bonus is determined on the FSA Peak 1 basis.

For with profits business, the company will be producing best estimate liabilities under Solvency II which are based on asset shares plus a stochastically generated cost of guarantees, similar to the current FSA Peak 2 approach.

In order to take account of the fact that the Peak 1 calculation will no longer be required under Solvency II, the company will need to reconsider its calculation of the reversionary bonus component of the shareholder transfers. It is considering three options:

Option A – continue to calculate the transfers using Peak 1 cost of bonus as now.

Option B – using the Solvency II best estimate model, determine the stochastically generated cost of guarantees based on all reversionary bonus declared to date, including the current declaration, and the same cost excluding the current declaration, and calculate the transfers as 1/9 of the difference between these two results.

Option C – calculate the transfers using a deterministic value of the cost of bonus, using assumptions consistent with the best estimate Solvency II assumptions.

(vi) Discuss these options. [14]

The directors of the company are concerned that, given all the significant changes being implemented, there is a risk that the balance sheet which is to be produced under Solvency II could have errors in it.

(vii) Describe the controls that the company could put into place to mitigate this risk. [3]  
[Total 50]

- 2** (i) Suggest actions that a life insurance company can take to ensure effective delivery of Treating Customers Fairly (TCF) outcomes. [6]

A UK proprietary life insurance company writes a stakeholder pension with investment options that include unit-linked funds and a smoothed unitised with profits (UWP) fund.

For the UWP fund the asset share is calculated using the unsmoothed unit price, which is calculated in the same way as prices for the unit-linked funds. The customer benefits are expressed using the published smoothed unit price. There is no regular or terminal bonus, and the smoothed unit price can fall. Smoothing profits and losses are recycled back into the fund on a daily basis.

An error in the historic unsmoothed unit price has just been discovered. It occurred some weeks ago and resulted in the unsmoothed unit price being too high for a period of five days. The company is now deciding what action to take following this pricing error.

- (ii) Discuss how the TCF requirements will influence this decision. [17]

- (iii) Discuss the other factors that the company should consider. [18]

After the resolution of the error, equity markets fall dramatically over the period of a week. As a result, the Finance Director is asking whether smoothing can be stopped temporarily on payouts.

- (iv) Discuss the issues that the company should consider when determining whether smoothing should be suspended. [9]

[Total 50]

**END OF PAPER**