

# INSTITUTE AND FACULTY OF ACTUARIES



## EXAMINATION

9 April 2019 (am)

### Subject SP2 – Life Insurance Specialist Principles

*Time allowed: Three hours and fifteen minutes*

#### ***INSTRUCTIONS TO THE CANDIDATE***

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*
2. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *Mark allocations are shown in brackets.*
4. *Attempt all questions, begin your answer to each question on a new page.*
5. *Candidates should show calculations where this is appropriate.*

***Graph paper is NOT required for this paper.***

#### ***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 from the approved list.*

- 1** In a particular country, life insurance companies are required to use a passive valuation approach for determining their statutory reserves and capital requirements. The regulator is now considering changing the requirement to an active valuation approach.

Discuss the likely impacts of this change on the life insurance companies operating in the country. [8]

- 2** A life insurance company sells unit-linked savings products.

An investment bank has approached the life insurance company offering to provide a new unit-linked fund that could be added to the range already offered by the life insurance company. The assets underlying this new unit-linked fund are very different to the assets underlying any of the existing unit-linked funds available in the current market.

Describe the factors which the life insurance company would need to consider in deciding whether to include the new unit-linked fund in its range of products. [13]

- 3** (i) List the reasons why a life insurance company may use reinsurance. [3]

A life insurance company writes term assurance policies and currently reinsures part of the business through an original terms quota share arrangement with a large reinsurer.

The life insurance company is now considering replacing this reinsurance arrangement with a risk premium individual surplus arrangement with a different reinsurer.

- (ii) Contrast the two reinsurance arrangements. [6]

- (iii) Suggest possible reasons why the insurance company is considering changing the reinsurance arrangement. [6]

[Total 15]

- 4** (i) State why life insurance companies set assumptions. [1]

A life insurance company is reviewing the expense assumptions it uses to price its level term assurance product.

- (ii) Explain how the company could make allowances in the expenses allocated to this product in respect of the following items:
- (a) Relocation of the business to a new office that the company has recently purchased. [4]
- (b) The purchase of a new administration system for its products. [4]

As an alternative to purchasing a new administration system, the company is considering outsourcing all the client administration for the term assurance product to a third party.

- (iii) Discuss the risks to the company of outsourcing its administration to a third party. [5]
- (iv) Describe how the company would adjust its expense assumptions in respect of the level term assurance product if the administration were outsourced. [4]
- [Total 18]

- 5** Discuss a suitable investment strategy for each of the following products:

- (i) A conventional immediate annuity with 50% spouse's pension payable on the death of the annuitant. [9]
- (ii) A regular premium unit-linked bond with a term of ten years and 100% of the fund returned on death or at maturity. [3]
- (iii) A conventional with profits whole life assurance that has been in force for 15 years, where surpluses are distributed under the "additions to benefits" method. [8]
- [Total 20]

- 6 (i) State the key uses of models in life insurance. [2]

A life insurance company that writes without profit life insurance business uses a cashflow projection model for pricing and determining its reserves.

- (ii) List the key requirements and features of the cashflow model. [5]

- (iii) Outline how the model points used for pricing will differ from those used for reserving. [3]

The auditors have asked the company to demonstrate that the model is allowing for future cashflows accurately and completely.

- (iv) Explain why the company would have been asked to do this. [4]  
(*You do not need to comment on the assumptions or model points*).

In order to demonstrate the validity of the model, the company has decided to build an independent cashflow projection model in a spreadsheet with the aim of replicating the live model.

- (v) Outline the information needed to build the independent model. [6]

- (vi) Discuss other factors the company should consider before the model is built. [6]

[Total 26]

**END OF PAPER**