

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

9th November 2010

Subject CA1 – Core Application Concept (Paper II)

Time allowed: 3 Hours (14.45* - 18.00 Hrs)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. *Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception*
2. *Attempt all questions, beginning your answer to each question on a separate sheet.*
3. **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 3 hours to complete the paper.*
4. *You must not start writing your answers until instructed to do so by the Supervisor.*
5. *Mark allocations are shown in brackets.*

AT THE END OF THE EXAMINATION

Please return your answer book and this question paper to the supervisor separately.

- Q. 1)** A large employer intends to set up a pension scheme for all its employees. It is proposed that the scheme be administered in-house.
Describe how such administration costs could be minimised? [9]
- Q. 2)** (a) Outline the main requirements of a good model? (5)
(b) Set out the steps involved in using a deterministic model? (4)
[9]
- Q. 3)** Outline the features of the ongoing management process that should be adopted to ensure that a project is completed in a timely and cost effective way? [11]
- Q. 4)** Due to a failure to meet statutory solvency requirements, the regulator has instructed a life insurance company to stop writing new business. The company has only ever written with profits business.
(a) Describe the consequences to the company of this action by the regulator? (6)
(b) Outline the measures the company could take to improve its solvency position? (5)
[11]
- Q. 5)** (a) Describe the three components of market risk involved in the construction of an investment portfolio. (3)
(b) A small specialist general insurance company sells only motor insurance contracts covering own damage, repairs and third party liability.
The fund's current assets are solely a mix of index-linked government bonds and cash instruments.
• Describe the features of the company's liabilities. (2)
• Discuss whether the current asset mix is the most appropriate given the liabilities of this company (7)
[12]
- Q. 6)** A person takes a home loan for a period of 15 years from a bank. He has the following options:
• Take a reducing capital repayment home loan and purchase a decreasing term assurance policy or
• Take an interest-only loan and purchase an endowment assurance policy
(a) Describe the potential cashflows under both the options showing how the combinations could repay the loan taken out. (9)

- (b) State the main advantages and disadvantages to the bank of combining a loan with an insurance policy as in the above options. (2)
- (c) Discuss how the problems that could arise if the reducing capital loan is taken out without any insurance cover could be dealt with (3)

[14]

Q. 7) For the last 10 years, an insurance company has been writing immediate annuity policies in conjunction with buy-outs of members retiring from occupational pension schemes. On retirement, such members can choose to use the value of their fund to purchase an annuity from any insurance company in the market.

The company is now proposing a major review of its existing premium rates for this line of business.

- (a) Explain why the company may wish to make such a review of its rates? (5)
- (b) Outline the problems that could arise if the company were to use its past mortality experience from this business for the purposes of pricing? (3)
- (c) Discuss why just using the most recently published standard mortality tables may not be appropriate for pricing purposes? (4)
- (d) Set out the alternative sources of data that could be used as a basis for pricing mortality assumptions? (2)

[14]

Q. 8) The appointed Actuary of a life insurance company has recently asked an independent consultant to conduct an external review of the company's annual statutory valuation work. The purpose of the exercise is to give an independent assurance to the Appointed Actuary that the work associated with the valuation is in compliance with required regulations and generally accepted actuarial principles.

- (a) Discuss the main professional issues the consultant should consider before taking on this assignment (4)
- (b) Outline specific aspects of the valuation process that should be investigated when carrying out this assignment. Your answer need only cover issues relating to the following general topics
 - Process of data collection and verification (4)
 - Reasonableness of valuation assumptions (6)
 - Method adopted for valuation of policy liabilities (4)
 - Reasonableness of results (2)

[20]
