

Actuarial Society of India

EXAMINATIONS

23rd June 2005

Subject CA12 – Liabilities and Asset Liability Management

Time allowed: Three Hours (2.15* - 5.30 pm)

INSTRUCTIONS TO THE CANDIDATE

- 1. 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.*
- 2. You must not start writing your answers until instructed to do so by the supervisor.*
- 3. The answers are not expected to be any country or jurisdiction specific. However, if examples/illustrations are required for any answer, the country or jurisdiction from which they are drawn should be mentioned.*
- 4. Mark allocations are shown in brackets.*
- 5. Attempt all questions, beginning your answer to each question on a separate sheet.*
- 6. Fasten your answer sheets together in numerical order of questions. This, you may complete immediately after expiry of the examination time.*

Professional Conduct:

“It is brought to your notice that in accordance with provisions contained in the Professional Conduct Standards, If any candidate is found copying or involved in any other form of malpractice, during or in connection with the examination, Disciplinary action will be taken against the candidate which may include expulsion or suspension from the membership of ASI.”

AT THE END OF THE EXAMINATION

Hand in BOTH your answer script and this question paper to the supervisor.

- Q.1**
- a) Describe briefly the actuarial control cycle. [3]
 - b) A life insurance company sells immediate annuities. It offers two sets of annuity rates, depending on whether the client is a smoker or not.
 - i) Explain why the annuity would be underwritten. [3]
 - ii) List the methods of underwriting that might be used for this product. [2]
 - iii) Describe the steps necessary to review the effectiveness of the underwriting process. [4]
- Total [12]**
- Q.2**
- a) Describe briefly the reasons why a life insurance company needs capital. [6]
 - b) Discuss how financial reinsurance can be used as a source of capital by life insurance companies. [8]
- Total [14]**
- Q.3**
- In a certain country, amounts paid towards all kinds of savings up to a certain limit are exempt from tax. There is no tax payable on investment accumulations. However, all kinds of withdrawals are taxed at the hand of the individuals at their current highest rates of income tax.
- a) State the advantages and disadvantages of this method from the perspective of the individual and the government. [4]
 - b) State other practical ways of providing tax concessions on savings. [4]
- Total [8]**
- Q.4**
- You are the actuary for a small general insurance company that writes only personal lines motor business.
- A major motor manufacturer has approached your company with a proposition. The manufacturer wishes to sell all its new cars with insurance included in the purchase price. Cars sold will thus have free insurance for a period of 3 years.
- Their proposal is that your company underwrites and administers the motor insurance and the manufacturer will pay a one off fixed premium per car sold for the 3 years' free insurance.
- Generally personal lines motor business is priced using various rating factors such as car type, age of driver or past claims experience. The motor manufacturer has proposed that the fixed premium does not depend on any rating factor.
- Discuss the specific risks for the insurer associated with the motor manufacturer's proposal. [13]

Q.5 A retirement benefit scheme provides lump sum benefits on retirement, earlier termination of service due to withdrawal or death in service.

The benefit payable at retirement or earlier termination of service due to withdrawal is equal to of 50% of the member's current salary for each complete year of service up to the date of exit.

The benefit payable on death in service is calculated as above, but is based on potential service up to the normal retirement date.

- a) List the data you would require for valuation of the scheme. [4]
 - b) List the checks you would employ to test accuracy of the data. [4]
 - c) Describe how you would analyse the salary increase experience. [7]
 - d) Discuss the ways in which the company can manage the mortality risk. [4]
- Total [19]**

Q.6 A new life insurance company sells unit linked policies.

The company is currently considering introduction of a hospital cash benefit rider where a fixed amount of cash per day is payable on hospitalization during the policy term. At the policy inception, the insured can select the amount of cash benefit payable on hospitalization.

- a) Describe how the company should establish the risk charges for the hospital cash benefit. [6]
 - b) Describe the options open to the company if the underwriting process shows an applicant to have a higher expected level of risk than that priced into the product terms. [4]
- Total [10]**

Q.7 A proprietary life insurance company sells without profits term assurances through insurance intermediaries and its own sales force. It uses a pricing model for pricing this product.

- a) Describe how to determine the various assumptions that will typically be used in such a pricing model. [15]
- It is now considering selling direct to the public via the Internet. Prospective policyholders will be able to submit an application on-line and be underwritten solely on the basis of responses to a short health questionnaire.
- b) Discuss the elements of the pricing basis that may be expected to be different for the new sales channel. [9]
- Total [24]**
