Actuarial Society of India

EXAMINATIONS

15th May 2006

Subject SA2 – Life Insurance Specialist Applications

Time allowed: Three Hours (10.15*am – 1.30 pm)

INSTRUCTIONS TO THE CANDIDATE

1. ***Do not write your name anywhere on the answer scripts. You have to write only your Candidate Number on every answer script.***
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 have then three hours to complete the paper.***
3. ***Mark allocations are shown in brackets.***
4. ***You must not start writing your answers in the answer papers until instructed to do so by the Supervisor.***
5. ***Attempt all questions, beginning your answer to each question on a separate sheet.***
6. ***Fasten your answer sheets together in the numerical order of the questions.***
7. ***The answers are expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which are meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However if application specific to any other country is quoted in the answer the same should answer the question with reference to Indian environment.***
8. ***In addition to this paper you should have available Actuarial Tables and your own calculator.***

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."

Candidates are advised that a reasonable standard of handwriting legibility is expected by the examiners and that candidates may be penalized if undue effort is required by the examiners to interpret scripts.

AT THE END OF THE EXAMINATION
Hand in BOTH your answer script and this question paper to the supervisor.

Q1) An Indian life insurance company sells conventional and unit linked products. In order to grow quickly it now intends to develop a new unit linked product for high net worth individuals.

The marketing department has proposed the following design:

- Five year single premium unit linked policy
- Choice of two funds: Fund 1 will have equity exposure up to 80%, with a target exposure of 60% in equity; fund 2 will have equity exposure up to 100% with a target exposure of 80% in equity.
- The product will be offered from 8 February to 31 March. All moneys are invested on 31 March for five years.
- Minimum premium Rs 1,00,000; there is no maximum premium
- Allocation of premium to purchase units: 97.5%
- Underwriting: Usual underwriting but with non-medical limits increased
- Maturity guarantee: The entire premium paid
- Death benefit: Higher of 1.25 times the single premium paid OR 100% of the value of units on the date of intimation of death
- Surrender terms: not guaranteed

a) Comment on the design of the product and describe the risks to the company with launching this product. A discussion about the general risks affecting the industry is not required. **(15)**

b) Describe briefly the two principal methods used to price a product and state why one of them is preferable. **(8)**

c) State the legislative provisions on limitation on management expenses of a life insurance company and how they apply to pricing of products. **(8)**

The marketing department has since suggested the following modifications:

- Split the investment up into ten identical policies, which may each be surrendered separately from the others, and guarantee the terms for surrender.
- Extend the offer period to two months, in order to capture more money. Pay 4% pa interest on the investment during this period.

d) Discuss these suggestions. **(8)**

The benefit illustration for the product has been prepared and you are seeking approval of the Board of Directors for releasing this. A new director questions why a life company would issue a benefit illustration and what should be the underlying principles to be followed by the life company.

e) Draft a reply to the new director. Your reply should cover regulatory and other professional requirements in this regard. **(11)**

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Q2) A newly established proprietary life company in its first year of operation writes with profits endowment, money back and whole life contracts together with a range of rider benefits. In preparation for the first declaration of bonuses, the company now needs to formulate its bonus policy.

In the long term the company intends to invest 25% of the with profits fund in equities and the balance in fixed interest. The proposed bonus strategy is to declare a stable rate of reversionary bonus with the hoped for returns on equities in excess of the gilt rate to be distributed by way of a more volatile terminal bonus rate.

i) Describe the investigations the actuary would need to make in order to recommend the initial reversionary and terminal bonus rates. **(15)**

ii) The company wishes to formulate its policy on smoothing of bonuses. Discuss how the smoothing policy will be impacted by:

- policy holder expectations
- the asset allocation, and
- the extent of the free assets of the company **(7)**

iii)

a) List the sources of surplus for distribution and discuss for each source the suitability of the company's proposed structure of reversionary and terminal bonuses. **(8)**

b) The company's business plan projects substantial expense overruns for at least the first five years of operation (although for marketing reasons the directors wish to declare bonuses from inception). Discuss the considerations the actuary faces in dealing with the expense overruns when making his recommendations on bonus rates. **(5)**

iv) One of the directors has been studying the requirements of the Insurance Act 1938 and regulations framed there under as they relate to the allocation of surplus to shareholders. The Director has asked you to explain:

a) The difference in the treatment of reversionary and terminal bonuses when determining the amount of surplus to be allocated to shareholders.

b) The effect of any changes in the solvency valuation basis on the amount and timing of allocations to shareholders.

c) The difference between the prescribed shareholder allocations actually made and the value of these allocations under the company's realistic valuation basis.

Draft your reply to the Director. (3 marks will be awarded for drafting style.) **(9)**

v) Discuss the implications of the three types of bonus (under the "additions to benefits" method) as regards:

a) the asset liability matching process, and **(3)**

b) the policy liabilities and hence capital requirements. **(3)**

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