

# Actuarial Society of India

## EXAMINATIONS

14<sup>th</sup> November 2005

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.***

- Q.1)** An established proprietary life insurance company writes conventional regular premium with profit endowment and whole of life policies. For some years the company actuary has used the asset shares of representative sample policies as a guide in setting surrender values, defining policyholder reasonable expectations and developing bonus philosophy.

The company actuary is now considering developing the asset share methodology by calculating asset shares for each individual policy at least annually, but possibly even more frequently with the intention that individual asset shares would be used more directly in determined surrender and maturity values. He is also reviewing the rates of investment return used in calculating asset shares and considering whether these rates should match more closely the characteristics of each individual policy, particularly product type, original term and duration in force. Similarly, he is reviewing the cost of capital charged to asset shares and whether this should reflect more closely the circumstances of each individual policy.

Prepare a communication paper for the information of senior management in which you should:

- i)** Define the term "asset share". **(3)**
- ii)** Discuss the implications for the company of regularly calculating and updating individual asset shares. **(8)**
- iii) a)** Discuss the approaches which can be taken in setting the rates of investment return to be used in accumulating asset shares, including the possibility of determining investment returns according to product group and policy duration, and the advantages and disadvantages of each approach. **(10)**
- b)** Discuss the ways in which the cost of capital could be included in the calculation of the asset shares. **(8)**
- iv) a)** List the key principles to consider in determining surrender values. **(4)**
- b)** Discuss the implications of using the unadjusted individual asset shares for calculating surrender values and maturity values. **(7)**
- v) a)** List the overall factors which establish PRE. **(5)**
- b)** Discuss the use of asset shares in quantifying PRE and the implications of making asset shares known to individual policyholders at any point during the term of the policy. **(5)**

**Total [50]**

**Q.2)** A medium sized Indian Insurance Company sells all types of conventional with and without profit products and unit-linked endowments. There are three unit linked endowment products as follows

- (a) low commissions, low initial charges and with very high minimum regular premiums,
- (b) medium level of commissions, medium level of charges and medium level of minimum regular premiums and
- (c) maximum statutorily permitted commissions, higher charges and with small minimum premiums.

The company prepares annual business plans at the beginning of the year and projects the P & L Account and Balance Sheets for the ensuing year and for the next two years.

A mid term review of the current year's plan shows that the actual reserves under the policies at the end of the half year are significantly higher than those projected.

- (i) Discuss the possible reasons for the higher level of reserves as compared to the business plan. **(10)**

You are the Appointed Actuary of the company and a newly appointed director has asked you send him a note on the principal risks the company is facing and how the legal and regulatory provisions seek to control these risks.

- (ii) Prepare a draft reply. **(15)**

The director after seeing your report writes to you saying that investment markets are very volatile and following failure of some big companies there is global concern about the financial strength of life insurance companies. He feels there is a need to hold more capital than the statutory required solvency margins.

- (iii) Briefly explain the primary reasons, besides the risks you have mentioned, why you would require additional capital above statutory requirements. **(16)**

You have been asked to advise on a suitable policy framework for the additional capital.

- (iv) List the important items you would consider in giving this advice. **(9)**

**Total [50]**