

Actuarial Society of India

EXAMINATIONS

16th November 2005

Subject ST2 – Life Insurance

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.”

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)** (a) Explain what is meant by new business strain. (1)
- (b) Identify the factors that drive new business strain and explain the issues arising under each. (5)
- (c) A director of a life company has said: 'Unit linked business will always have lower new business strain than conventional with profits'. Discuss whether the director's assertion is likely to be true. (3)
- Total [9]**

- Q.2)** You have been retained to advise the promoters of a new life insurance venture in an unspecified county but you are told it has a well developed system of life insurance regulation. The promoters have expressed a preference for the initial product range to consist of with profits contracts. The promoters assert that they would then have discretion to determine benefits to policyholders and would thereby be able to maximize benefits to shareholders.
- (a) What points would you make in your initial advice to the promoters about with profits products both generally and as a result of the promoters' assertions? (4)
- (b) Identify the types and features of surplus distribution systems that the promoters might consider. (3)
- (c) Identify the key advantages and disadvantages of each method of surplus distribution system identified in b). (12)
- Total [19]**

- Q.3)** (a) Define the terms embedded value and appraisal value. (1)
- (b) Describe the principal steps in calculating an embedded value. (3)
- (c) Explain how to determine the contribution of new business to embedded value and why this is an important measure.
- You are employed by a company that has been determining a contribution from with profits new business to embedded values for many years. Recently interest rates have fallen significantly and bonus rates reduced, but premium rates have not been altered. (3)
- (d) In reviewing the methods used to determine embedded values, you have noted that a deterministic approach has been used in the past. Why might this not be appropriate now? (2)
- (e) A recently appointed finance director has criticised the historic methods used to determine embedded and appraisal values as producing results that are not market consistent. What does the director mean? (1)
- Total [10]**

- Q.4)** A life insurance company writes all types of life assurance business.
- (a) List the principal factors which can give rise to and which could contain legal risk.

- (4)
- (b) State the underlying purpose of a regulatory regime, identify the principal potential adverse consequences and identify the constraints that may typically be found. (10)
- Total [14]**
- Q.5)** A life insurance company transacts all kinds of life insurance business but not annuity business. It wants to launch an immediate annuity product for the annuity market.
- (a) Describe briefly the factors relevant to the design of the new product. (5)
- (b) Describe the process of setting assumptions for pricing the product. (7)
- Total [12]**
- Q.6)** As the actuary for a life insurance company, you have to undertake the annual supervisory valuation of the assets and liabilities and recommend bonuses. The company adopts a gross premium valuation method and uses the additions to benefit method of distributing surplus.
- (a) Describe the features of the valuation method. (4)
- (b) Describe the key considerations in setting your assumptions for the supervisory valuations. (4)
- (c) Explain briefly the considerations required in determining the bonus rates. (3)
- Total [11]**
- Q.7)** You are the actuary to a recently formed life insurance company transacting all types of life insurance business.
- (a) Outline the factors that have to be taken into account in formulating its investment strategy. (6)
- (b) Explain the process of the solvency and capital management of the life insurance company. (6)
- Total [12]**
- Q.8)** You are the actuary to a recently formed life insurance company transacting all types of life insurance business.
- (a) State the aspects that you would look into before giving your recommendations to the company. (6)
- (b) State the aims of underwriting the proposals received by a life insurance company. (3)
- (c) Discuss the considerations for a life insurance company in setting the medical limits. (4)
- Total [13]**
