

# Actuarial Society of India

## EXAMINATIONS

14<sup>th</sup> May 2007

### Subject SA6 – Investment

Time allowed: Three Hours (09:45\* – 13.00)

#### *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 Separately.**

**Q.1** You are the Chief Investment officer of a leading general insurance company, which writes about 40 per cent of her total business in marine, 30 per cent in fire, 20 per cent in third party motor insurance and the balance in health and other non-life business. In rupee terms the assets of the Company as on March 31, 2007 are Rs. 1500 crore; and the liabilities are Rs. 1800 crore on best estimate basis and Rs. 2150 crore on a 90th percentile basis. The liabilities have been valued using a discount rate of 7.5% pa which is the yield on a 10 year Government Bond as on March 31, 2007. The duration of the liabilities as on March 31,2007 were as follows: 40 per cent in less than 2 years, 35 per cent in 2 years and above but less than 5 years and the balance 5 years and above but less than 10 years.

The distribution of assets as at end March 31, 2007 is as follows:

Domestic equities	30 %
Foreign equities	20 %
Property	10 %
Corporate bonds	15 %
Government bonds	20 %
Cash	5 %

- (a) The Board has asked you to review current investment policy and examine the appropriateness. Describe how you would proceed in your report and in particular how do you construct a portfolio of assets, which addresses the matching of cash flows with liabilities. Further how do you ensure that the company has followed such a policy from time to time? (10)
- (b) Explain the risk budgeting process and how it might be used to compare different asset strategies for the insurer's assets. (10)
- (c) One of the Directors has suggested that in the case investment in foreign equities, hedging techniques be used to minimize the risk. Explain the rationale of this strategy and how do you determine the minimum percentage of hedging. Also explain the advantages and issues that may arise in hedging currency exposures for other asset classes. (10)
- (d) One Director has suggested that investment in venture capital needs a special consideration to improve the yield on the portfolio. Critically evaluate this recommendation and comment on the suitability of this investment for this Company. (7)
- (e) The Board asked you to examine the suitability of investment in commodity futures. Draft a reply bringing out the advantages and issues in investing in commodity futures. (8)
- (f) Assume that the general insurance company is located in India. Briefly discuss the IRDA [Investment] Regulations applicable to the investment pattern of this company (10)

[55]

- Q.2** You are a Consulting Actuary and an Investment Advisor to “ABC Hotels Ltd. This company owns a chain of hotels not only in India but also in USA and Europe. The company operates a final salary defined benefit pension scheme, which has, as on March 31 2007, 15,000 members. Of which about 5,000 are pensioners, 8,000 are contributing members and 2,000 are deferred pensioners. ABC Hotels Ltd has a huge expansion plan in future.
- (a) You have been asked to formulate an appropriate investment strategy for this scheme. Explain what considerations you would take into account in this context. (12)
- (b) The Board of trustees debated the task of entrusting the investment to an external fund management company, which has a good track record. You have been asked to evaluate this proposal. State all the points, which you would consider in your report to the trustees. (12)
- (c) This external fund management company is considering launching a “manager of managers’ fund, which would help the clients by removing the need for selecting fund managers. Describe how a “manager of managers” fund operates and discuss why the investment management company is setting up such an operation and describe the problems that may arise. (12)
- (d) The regulator for pension business in India has asked you to chair a committee, which has been asked to set the investment principles for occupational pension plans. Briefly discuss the principles, which you might highlight in your report. (9)
- [45]**

\*\*\*\*\*