

Actuarial Society of India

EXAMINATIONS

30th October 2006

Subject SA6 – Investment 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)

- (a) The trustees of XYZ pension fund have set that year's benchmark for asset allocation to be 75% invested in Indian equities and 25% in rupee cash deposits. The manager is allowed to deviate from this benchmark if he or she is very confident of achieving excess returns. Within the Indian equities portion of the fund the objective is to outperform the Mumbai All-Share Index by 0.5% per annum.

At 1 January 2005 the manager takes an optimistic view investing 85% of the fund in equities and rebalancing to this proportion at the start of each quarter.

The quarterly return, including both capital and income, from the All-Share Index and cash were as follows:

	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>
All-Share (%)	-5.6	-5.5	+4.4	+1.7
Cash (%)	+1.2	+1.3	+1.2	-1.3

The development of the actual fund was as follows (Rupees crore):

	<u><i>Equities</i></u>	<u><i>Cash</i></u>		<u><i>New Money</i></u>
1/1/05	850	150	1 st quarter	+50
31/3/05	854	160	2 nd quarter	+80
30/6/05	880	166	3 rd quarter	-40
30/9/05	892	153	4 th quarter	+50
1/1/06	944	166		

- (i) Calculate the money-weighted and linked internal rates of return from the fund (assume new money is received/paid out half way through each quarter and is invested/disinvested 85% in equities, 15% in cash.) (4)
- (ii) Allocate the Manager's performance between stock and sector selection. (12)
- (iii) Discuss the manager's performance relative to his objective and discuss briefly and deficiencies in the analysis. (4)
- (b) At a recent meeting with trustees, for which you are the investment manager, one of the trustees expressed concerns about the proportion of equities held in the fund, and about the proportions held in domestic rather than overseas markets.

One of the trustees suggested that the fund can invest up to 5% in US equities and 4% in Japanese equities. Draft a response to the trustee giving your reactions to the suggestion. (10)

- (c) The trustee has spent some time looking through the data provided to her in respect of her own fund and general pension fund data that she found on the internet. The data is as follows:
- ? The 5-year information ratio for her fund is 0.7.
 - ? 12 months ago the 5-year information ratio for her fund was quoted as -0.3.
 - ? The investment style of her equity fund is described as "contrarian".
 - ? The investment style of the median manager was be described as "value-based"

- (i) Explain briefly what the information above means; (8)
- (ii) As a result of the rapid increase in the size of the fund, the trustee has asked you about the merits of placing a large proportion of the fund with a number of managers on a passive basis, and to leave only a small proportion with the existing managers on an active basis. Discuss the points you would make to the trustee. You do not need to create a formal draft, but your report should cover the following issues:
- ? the different types of passive fund available in the market
 - ? the advantages and disadvantages of her suggestion
- (12)
[50]

Q.2)

- (a) You work as the investment manager of a well-established Indian life office that writes only three types of policy. None of the policies are unit-linked. The following calculations have been made using realistic assumptions by the actuarial department (all figures in Rupees crore). In the case of with profit policies this includes allowance for all expected future bonuses.

Policy type	Present value of future premiums	Present value of future expenses	Present value of future claim-outgo
Non profit term assurance	50	20	45
With profit endowments	500	40	900
Non profit annuities	0	30	1,200

The company's total assets are Rs.2, 000 crore.

Ignoring the need to hold additional reserves:

- (i) Calculate the total reserve needed for each type of policy and hence the total policy reserves needed for the office (3)
- (ii) Discuss in detail the nature and other features of the above company's liabilities that should be taken into account when determining an appropriate investment strategy. (15)
- (iii) Suggest, with reasons, an appropriate asset distribution. (10)
- (iv) If the total assets were Rs. 2,500 crore, how would your suggested asset distribution change? (4)
- (v) What additional reserves might the office be expected to need to hold? (4)

- (b) An investment bank offering you the opportunity to invest in a new asset-backed security has approached you. Under the terms of the deal, a retail bank will package a large portfolio of its residential mortgages securitise it and sell it on to funds (such as your own) that are looking for good quality collateralised lending opportunities offering yields above government bonds.
- (i) Describe how assets-backed securities are typically structured. (3)
- (ii) The investment bank is assessing the demand for such a product and has asked you to indicate:
- ? Your main concerns about such an investment and the principal risk for you as an investor. (7)
 - ? The safeguards you would like to see in place in order to reduce these risks. (2)
 - ? How you would make a judgement on whether the return available from the investment is sufficient for you to justify investing in the security. (2)

Discuss fully the response you would give to the investment bank on each of the above topics.

[50]
