INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

29th October 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 IAI."

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 an investment consultant and have been asked to give advice on investment strategy to the trustees of a privately managed Provident Fund in India with total assets exceeding INR 500 cr.

(i) Set out the considerations that need to be taken into account when formulating an investment strategy. Describe the possible investment options available in India and discuss their appropriateness for this fund. (20)

You have also been asked to give advice on investment strategy to the trustees of a Defined Contribution Superannuation Scheme in India with total assets of INR 1500 cr.

(ii) Set out the considerations that need to be taken into account when formulating an investment strategy. Describe the arguments you would use for and against the concept of investment in art to the trustees. (15)

You have also been asked to give advice on investment strategy to the trustees of a Final Salary Defined Benefit Superannuation Scheme in India with total assets of INR 5000 cr.

(iii) Set out the considerations that need to be taken into account when formulating an investment strategy. Describe the arguments you would use for and against the option of investment in property to the trustees. (15)

(iv) Explain the key differences in the investment strategy in the three funds i.e. privately managed Provident Fund, Defined Contribution Superannuation Fund and Defined Benefit Superannuation Fund. (10)

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Q. 2)

(i) You are working as a consulting actuary to a life insurance company which sells guaranteed annuity options. In the recent Board meeting it was considered whether derivatives could be used to hedge liabilities relating to guaranteed options. One of the directors suggested that derivatives could be used for reducing investment risk or for efficient portfolio management purpose.

Draw a reply to the Board explaining the terms "reduction in investment risk" and "efficient portfolio management" and how to assess whether proposed derivatives satisfy these criteria. (15)

(ii) You are the chief investment officer of ABC Investment Management Company, which is having about Rs. 1000 crore of assets under management. The client base includes institutions, private fund managers and also a number of investment trusts.

XYZ is an investment trust with Indian equity remit and is having gross assets of Rs. 240 crore as on March 31^{st}, 2007. It has an unsecured debt (200 crore debenture certificates) with a total face value of Rs. 30 crore. The debt stock carries an interest rate of 7.5 % and was issued with a margin of 100 basis points 5 years ago with interest payable half yearly on 15^{th} May and 15^{th} November with the maturity date of 15^{th} November, 2017. Investment management fees are 1 % of net assets and other expenses are Rs. 30.75 lakhs and annual dividend is 4.5 paise per share. The share price trades at discount of 14.3 % to the net asset value.

- Draw up the balance sheet and income account for XYZ assuming that 75% of the management fees and loan interest are charged to the capital. (5)
- The Board of XYZ has been exploring the option of repaying its unsecured debt given the fact that other investment trusts have been repaying their debt obligations. Assess the impact that repayment of the loan might have on XYZ trust stating the assumptions ,if any, underlying your recommendation (10)

The following options are available for repaying the existing debt:

Option A: LKG, a stock broker, has suggested that he could place up to Rs. 75 crore zero coupon bonds which would mature in 10 years to replace the existing debt. On maturity, the zero coupon bonds would be redeemed at Rs. 137.52 crores

Option B: North Star, an insurance company has also agreed to lend money to XYZ trust. The terms are that North Star will receive the dividend yield on the Mumbai All Share Index as interest and a redemption value equal to the original loan plus capital change in the index. The loan covenants include a condition that the size of the loan will not exceed 50% of the net asset of XYZ trust at any time.

- Evaluate these proposals and make a recommendation to the Board on the appropriate alternative. (10)

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