INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

16th May 2008

Subject ST4 — Pensions and Other Employee Benefits

Time allowed: Three hours (14.15* pm – 17.30 Hours)

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer sheet.*
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 then have three hours to complete the paper.*
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. *You must not start writing your answers in the answer sheet until instructed to do so by the supervisor.*
5. *Mark allocations are shown in brackets.*
6. *Attempt all questions, beginning your answer to each question on a separate sheet.*
7. *Candidates should show calculations where this is appropriate.*
8. *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 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
Please return your answer sheet/s and this question paper to the supervisor separately.

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

Q. 1) In a seminar on Retirement Benefits, an Actuarial student mentioned as follows: "It is not necessary to value a Defined Contribution Scheme."

Outline the reasons for valuation of a Defined Contribution Scheme, setting out the points you would make in your reply to the student. **[3]**

Q. 2) For an occupational defined benefit scheme,

a) What is meant by sponsor covenant? (2)
b) List the ways of monitoring the sponsor's covenant. (3)
c) Outline the actions for trustees to take on the sponsor if it is deemed to be in distress. (4)

[9]

Q. 3) You have been engaged to advise the Government of a country on the establishment of the primary tier of State pension provision. The country has no previous history of such State provision, and has enjoyed recent rapid economic progress. Briefly describe the issues that you would raise in your report. **[10]**

Q. 4) You have recently become the actuary to an existing, open, defined benefit pension scheme under which members have the option to commute a part of their pension at retirement. The rules of the scheme provide that the factors for converting pension to lump sum should be determined "on the advice of the actuary". Outline the benefit design considerations of providing a commutation option and the considerations to be taken into account in determining the commutation factors for the pension scheme. **[7]**

Q. 5) The Government of XYZ country is planning reforms in the private pension sector. Currently, it believes that the members of a pension scheme are not informed nor educated enough on their benefits. As part of pension sector reforms, it is mandatory to provide appropriate disclosure to the pension scheme members.

List six general items of information concerning the pension benefits which it would be appropriate to disclose to each of the following groups:

a) the beneficiaries, and
b) the owners of capital. **[6]**

Q. 6) In a developed economic market, a company is to discontinue the final salary pension plan it has been operating for a number of years.

a) Outline the options which may be available for the provision of the accrued benefits at the date of discontinuance. (4)

b) Outline the factors which will affect the suitability or otherwise of each of these options. (11)

[15]

Q. 7) A large manufacturing company has been running a non-contributory defined benefit pension scheme for its employees for a long time. The assets of the pension fund are invested in the following proportion – 50% in domestic equities, 30% in overseas equities, 15% in domestic fixed interest corporate bonds and 5% in cash. Pension benefits are paid out of the funds assets.

The local economy has slowed down considerably after a decade of sustained growth. The stock markets worldwide have also shown significant volatility over the last few months. In light of these developments and a recent review of the cost of the pension scheme, the company has decided to close down the defined benefit scheme for new entrants. However, existing members will continue to accrue benefits in the defined benefit scheme in the usual manner.

You are a pensions consultant and the company has approached you for your advice on the existing investment strategy of the pension scheme and how it can be modified in light of the recent developments.

Discuss the issues that you will consider while formulating your report. **[10]**

Q. 8) You have been recently appointed as an actuary for a defined benefit pension scheme for which you will have to carry out a triennial valuation shortly.

The scheme is run on a tiered basis whereby the staff members and managers accrue different levels of benefits in the pension scheme. The staff members accrue benefits at the rate of 1/80th of annual average of basic pay received in the 3 years before retirement for each year of scheme service; while the managers accrue at the rate of $1/40^{th}$ from the date they entered the management grade. There is a spouse's pension on death after retirement of 50% of the member's pension. Death in service benefits are insured with a life insurance company.

The normal retirement age is 60 years; however managers only can retire from age 55 on special terms. Pensions are increased in payment at the lower of 5% and price inflation each year. On leaving service before retirement, members receive a deferred pension payable at retirement age with no future accruals.

The scheme currently has 500 staff members and 10 managers. There are 100 deferred pensioners, but no pensioners.

a) List all the data and other information you would require in order to carry out the triennial valuation. (6)

b) Discuss the validation and checks that you will carry out on the data provided for the valuation of assets and liabilities. (5)

c) List all the financial and demographic factors about which you will need to make assumptions. (3)

d) Explain for each of the factors in (c) why you need to need to make an assumption. (7)

[21]

Q. 9) A defined-benefit pension scheme has recently conducted its annual valuation. The valuation has produced a significant surplus for the first time in the entire history of the pension scheme.

Assets of the scheme are entirely invested in equities and valued on a market-value basis. Liabilities are valued using a discount rate equal to the gross redemption yield on long-term fixed interest government bonds plus a margin to reflect potentially higher returns on the actual investment of assets.

The scheme rules specify that trustees must consider whether benefit improvements should be granted from any surplus revealed at a valuation.

a) Explain how a surplus may arise in a defined benefit scheme. (4)

b) Discuss the issues that the trustees need to consider while deciding on the appropriate use of the surplus. (4)

c) Outline the possible ways to remove the surplus from the scheme commenting upon how the source of this surplus may affect its application. (4)

d) Discuss the implications of using the surplus to award benefit improvements (2)

[14]

Q. 10) A company, which has run a defined benefit pension scheme for its employees for a number of years, is currently undergoing a sustained period of financial difficulty. As a part of company-wide initiative to reduce costs, it is planning to provide an option to the pension scheme members to retire early.

Outline the issues that the company should consider when setting the terms for early retirement benefits.

[5]

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