INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

27th October 2015

Subject CA1 – Actuarial Risk Management (Paper I)

Time allowed: 3 Hours (14.45* - 18.00 Hrs)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. *Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception*
2. *Attempt all questions, beginning your answer to each question on a separate sheet.*
3. **You have 15 minutes at the start of the examination in which you are required to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have 3 hours to complete the paper.*
4. *You must not start writing your answers until instructed to do so by the Supervisor.*
5. *Mark allocations are shown in brackets.*
6. *Please check if you have received complete Question Paper and no page is missing. If so kindly get new set of Question Paper from the Invigilator*

AT THE END OF THE EXAMINATION

Please return your answer book and this question paper to the supervisor separately.

Q. 1) Define strategic, active and structural risk with respect to managing an investment portfolio. **[3]**

Q. 2) An employer provides a defined benefit to his employees on exit where benefit is linked to final salary of the employee. The employer has created a fund to manage the scheme benefits, to which, contributions are currently made based on scheme valuation done 5 years ago. A recent external actuarial review has indicated that the scheme funding is in a deficit situation.

i) List out the possible reasons why such a situation may have arisen? (3)

ii) List the ways in which the deficit can be corrected/eliminated. (2)
[5]

Q. 3) **i)** List six different ways/methods of valuing assets. (2)

ii) List four advantages and four disadvantages of valuing assets using market value. (4)

iii) Briefly explain why an investor would expect higher return on equities compared to government bonds. (2)
[8]

Q. 4) **i)** Explain briefly, what is meant by "mortality risk" and how this may have an adverse financial impact on an insurer. (2)

ii) A life insurance company is planning to launch a without profit immediate annuity plan. Under this product, in return for a lump sum premium paid by the annuity holder, the company would pay monthly annuity to the annuity holder as long as he is alive and there shall be no payment on or after the death of the annuity holder.

Discuss briefly the risks involved in the product from the perspective of the annuity holder and the insurance company. (5)
[7]

Q. 5) **i)** Discuss the suitability of various asset classes for an individual who intends to save for her retirement. (9)

ii) State the factors/criteria that an individual has to consider while choosing the asset class to invest in. (2)

iii) Unit linked pension products are available in the market which offer a wide variety of fund choices. The local regulator is however concerned about risk of erosion of capital invested by policyholders in a unit linked policy. Hence, regulator has suggested that a minimum of 50% of the investments of a policyholder should be in a fund investing only in government bonds.

State the advantages and disadvantages of this suggestion. (5)
[16]

Q. 6) **i)** List key investment objectives of a life insurance company (2)

ii) A small life insurance company writes only non-participating savings and protection products. Its investments are predominantly in government bonds and highly rated corporate bonds. Due to a recent change of investment officer, the new Chief Investment officer has suggested the following:

- The equity markets are doing well and hence the company should invest 10% of its total funds in equity.
- Further, given that a low rated corporate bond typically gives higher returns than AAA rated corporate bonds, the company should invest 25% of its total funds in AA rated to B rated corporate bonds.

Discuss the factors to consider before accepting or rejecting the above proposal. (10)

iii) In case, the management agrees to the above proposal, list out risk management/mitigation actions that could be taken to manage the risks arising. (4)

[16]

Q. 7) **i)** List the factors under which you would rate/ assess a property, as an investor? (6)

ii) A commercial property has been let out on lease. The rack rent is currently Rs. 105,500 per annum. The outstanding term of the lease is 42 years and the current rent being received is Rs. 85,500 per annum payable monthly in advance. Assuming that there are upward only rent reviews every 6 years under the lease (the first review in 6 years' time), and that the rack rents will increase at 5% per annum, value the lease at a discount rate of 11% p.a. Assume there would be no voids. Ignore expenses and ground rent. (4)

iii) You are the chief financial officer of a cement manufacturing company that owns and occupies the premises of the factory. A builder has approached you for purchasing the property with intentions of developing residential apartments in the place. Describe the factors that you would need to take into account in deciding whether to accept the offer. (8)

[18]

Q. 8) **i)** List key characteristics of well-run projects. (3)

ii) Company P is a large life insurance company operating through several branches in its home country and a few overseas branches. One of its overseas branches has been making losses over the past 10 years and the management has decided to close down this overseas branch by selling the portfolio of business to another insurer, Company Q. Both the companies are listed in the stock exchanges of their respective countries.

In the above project, identify the major stakeholders and their needs? (13)

iii) Discuss the key aspects that Company Q has to consider while developing the project strategy document. (11)

[27]

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