

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

12th September 2017

**Subject CA1 – Actuarial Risk Management
(Paper I)**

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

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

- 1. Please read the instructions inside the cover 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)** Explain why property investors demand a higher yield from investment in a factory site compared to investment in a shopping centre. [4]
- Q. 2)** You are a senior manager in the pricing team of a well-established health insurance company. A junior actuarial student is assisting you in pricing a health product, where fixed sum insured is payable, if the policyholder is diagnosed with certain diseases. The actuarial student has developed a pricing model for this product. List various checks that you will apply to validate the model for
- a) Accuracy
 - b) Completeness [12]
- Q. 3)** Due to increasing popularity of Ayurveda products, a cosmetics manufacturer is considering introducing a range of Ayurveda products.
- i) Identify the major risks involved with the project and suggest how they might be mitigated. (8)
 - ii) Describe how the discount rate to be used in evaluating this project be chosen. (4) [12]
- Q. 4)** Mr and Mrs X are both aged over 70 and own an apartment. Mr and Mrs X have received offer from a bank for purchase of their apartment on the basis that Mr and Mrs X can live in the apartment rent-free until their death.
- i) Why would the aged couple be interested in the bank's proposal? (2)
 - ii) How should the bank calculate the purchase price and outline the factors that need to be considered when calculating the price. (6)
 - iii) State with reasons factors other than price, the bank should consider before making this investment. (4) [12]
- Q. 5)** The Central Bank of a country has just announced reduction in short term interest rates.
- i) Explain why the central bank may have taken this course of action. (10)
 - ii) Discuss how a reduction in short term interest rates would affect the following types of domestic investments:
 - Government bonds
 - Equities (8) [18]
- Q. 6)** A bank is considering loan application received from a well-established housing mortgage company and is performing due diligence investigation.
- i) List the principles of good lending that a bank should adhere to. (2)
 - ii) What is the purpose of a due diligence investigation and what should such investigation of

the mortgage company include? (5)

iii) Describe the main categories of risks faced by the mortgage company. (8)

iv) In assessing the risk management systems in the mortgage company, discuss the areas that the bank should look into. (5)

[20]

Q. 7) A life insurance Company has a portfolio of non-linked non-participating individual endowment business (85%), unit linked individual business (10%) and a small portfolio of term business (less than 5%).

i) Outline the principles that an investment manager should consider while finalising investment strategy for the policyholder portfolio. (8)

The current asset mix of the portfolio backing the savings endowment and term product is index linked government bonds (30%), corporate bonds (60%) and cash instruments (10%).

ii) Critically analyse the suitability of the asset portfolio to the liability profile. (8)

The Chief Risk Officer (CRO) of the Company is evaluating the investment strategy to foresee any investment risk in future and wants to put few controlling parameters to limit risk exposure.

iii) Outline key suggestions he should put forward to limit risk exposure. (6)

[22]
