# INSTITUTE OF ACTUARIES OF INDIA

# EXAMINATIONS

## 15th March 2018

## Subject CA1 – Actuarial Risk Management (Paper II)

## 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 |
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| Please return your answer book and this question paper to the supervisor separately. You are not allowed to carry the question paper in any form with you. |

**Q. 1)** The Board of an insurer has given mandate to a reputed actuarial consultancy firm to calculate the Embedded value (EV) of the insurance business and to present the results in one of its Board meeting. Highlight the key professional considerations which the firm needs to take into account while communicating the results to the Board? **[5]**

**Q. 2)** A global re-insurer has been asked to quote for catastrophe cover for one year group term insurance portfolio of a large life insurer.

**i)** Outline the factors that reinsurer should consider before taking this liability on its books? (5)

**ii)** The reinsurer is concerned about the likely volatility in its year to year Profit & Loss results which the catastrophe risk cover could bring. Outline what the reinsurer could do in order to reduce the volatility and the related issues. (4)

**[9]**

**Q. 3)** An individual aged 50 is married and is currently employed with a manufacturing company. The retirement age in his company is 60 years. He has approached you to provide financial advice about planning his finances for a comfortable retired life.

**i)** How is the expenditure post retirement likely to be different from the expenditure pre-retirement? (4)

**ii)** List the information that you will ask the individual before providing further advice. (6)

**[10]**

**Q. 4)** A big jewelry chain is planning to launch a yearly savings cum purchase scheme for its customers. A customer joining the scheme has to choose at outset how much he is willing to contribute every month. He will have to pay for 11 months and the $12^{th}$ month contribution will be made by the jeweler. The customers can purchase jewelry for the total amount at the end of one year.

**i)** Why would the jeweler want to introduce this scheme? (3)

**ii)** What are the advantages and disadvantages to the customers of joining this scheme? (3)

**iii)** Is there any risk in the scheme to the jeweler and how can it be addressed by him? (4)

**[10]**

**Q. 5)** The senior management of a large multinational insurance company is discussing the impact of adopting a new global accounting and reporting standard across the group, which requires significant effort and cost to be incurred on actuarial systems, reporting systems and in educating various stakeholders.

**i)** List key stakeholders who will be interested in the financial disclosures of an insurance company? (3)

**ii)** Discuss the benefit to the multinational insurer of moving to the global accounting standards despite the challenges and costs involved therein? (8)

**[11]**

**Q. 6)** Insurance industry in a developing country currently has only Government owned companies operating and the Government is planning to open the industry to private players. It is considering regulations to oversee the sector and is looking into the following:

- The existing banking industry regulator should be given additional responsibility of regulating the insurance industry as well.
- The insurance regulations should be principle based rather than being prescriptive.

**i)** Why would the government want to regulate the insurance industry? (4)

**ii)** Analyze the government's proposals mentioned above. (8)

**[12]**

**Q. 7)** A large company is having a defined benefit scheme for its employees, wherein it provides pension for life based on final salary and years of service, to its employees. The scheme is funded by contributions made by the employer during the working life time of employees. In case of death/permanent disability of the employee during service, pension is payable to the dependent/s taking into account the salary at exit and total service of the employee if he had continued till normal retirement age. The scheme does not provide benefit if any employee leaves/withdraws from service within five years of joining. If the employee withdraws/leaves service after 5 years, pension based on salary and service at exit will be payable from the normal retirement age. The company is about to carry out the triennial valuation exercise.

**i)** Why would the company carry out triennial valuation? (2)

**ii)** List the items of experience that should be analyzed in the exercise. (4)

**iii)** For each item of experience, briefly explain how the difference between actual and expected experience can impact the surplus/deficit arising. (11)

**iv)** How would you carry out withdrawal experience analysis for the scheme? (3)

**[20]**

**Q. 8)** The marketing department of midsize life insurer is planning to design a non-participating reviewable premium critical illness product which provides a lump sum in event or diagnosis of heart disease, cancer and stroke. The premium under the proposed product can be reviewed every 5 years based on product's morbidity experience. The insurer's products currently comprise of savings and investment products and it is a new entrant in the protection space.

**i)** Discuss the factors that the insurer needs to consider in pricing the product (8)

**ii)** Explain how the monitoring aspect of the actuarial control cycle should be applied for this product. (6)

**iii)** What are the benefits of having reviewable premiums for the insurer and the policyholder (4)

**iv)** What steps can be taken by the company at policy issuance stage to reduce the morbidity risk under the product? (5)

**[23]**

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