INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

21st March 2017

Subject SA2 - Life Insurance

Time allowed: Three 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. **** 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 three hours to complete the paper.***
3. ***You must not start writing your answers in the answer sheet until instructed to do so by the supervisor.***
4. ***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 is 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 candidate should answer the question with reference to Indian environment.***
5. ***Attempt all questions, beginning your answer to each question on a separate sheet.***
6. ***Mark allocations are shown in brackets.***
7. ***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) You work for an Indian life insurer which has been operating for more than a decade. The Company primarily writes business through the individual agency channel, but also writes some business through bancassurance and broker channels.

Prior to 2011, the Company mainly wrote unit-linked business. From 2011 onwards, it has focused more on traditional non-participating savings products as the profitability of unit-linked business eroded significantly following the regulatory changes in 2010.

The Company had contemplated writing traditional participating savings business, but favored traditional non-participating products due to their higher profitability relative to the traditional participating products.

i) For each of the key risks listed below that the Company is exposed to, compare and contrast the nature of such risk exposure across unit-linked products, traditional participating savings products and traditional non-participating savings products.

- Insurance risk (mortality, withdrawals, expenses)
- Credit risk
- Market risk
- Liquidity risk
- Operational risk (16)

The Chief Financial Officer ("CFO") now wants to know why the profitability for a traditional participating savings product is lower than that of a traditional non-participating savings product.

ii) Discuss various points that you will cover in your explanation to the CFO. (10)

The Chief Risk Officer ("CRO") of the Company is conscious of the risk of falling interest rates that the Company is exposed to on account of writing traditional non-participating savings products.

iii) Discuss how the Company can hedge the interest rate risk for the non-participating savings products through the use of derivatives as permitted by the IRDAI. (12)

iv) Identify the areas of Policyholders' Reasonable Expectations ("PRE") for the traditional non-participating savings products and outline how these can be managed. (6)

v) Briefly summarise the minimum adverse scenarios to be considered while determining the margins for adverse deviations (MADs) for the statutory reserves under the Actuarial Practice Standard – 7 of the Institute of Actuaries of India. (6)

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Q. 2) **i)** Outline the regulatory requirements as set out by the IRDAI for life insurance companies in India, in respect of the apportionment of indirect expenses of management amongst various business segments. (4)

The CFO of an Indian life insurance company has undertaken a detailed expense allocation exercise based on activity-based-cost allocations to the various business segments. Activity based cost allocations have been determined using detailed timesheet analysis and interviews with relevant department heads. High level conclusions from this analysis are as follows:

- For the participating business, which the Company has been selling for the past 15 years and has a very mature portfolio of, the unit cost loadings implied by the expense analysis is broadly consistent with the Company's business plan; and
- For the non-participating business, which the Company started selling only a couple of years ago, the implied unit loadings for acquisition expenses are significantly higher and those for maintenance expenses are significantly lower than the assumptions used at the time of pricing (which have remained unchanged since the time of pricing these products, two years ago).

Given this, the CFO has suggested revising the unit cost loadings for the non-participating business in line with the latest experience analysis.

ii) Assess the appropriateness of using the above-mentioned expense analysis as a basis for setting the maintenance expense assumptions to be used in the Company's statutory valuation and propose, with reasons, suitable alternatives or adjustments, if necessary. (12)

iii) The Company distributes its participating fund surplus by declaring a simple reversionary bonus each year and has historically followed an approach of declaring only reversionary bonuses without any terminal bonuses. However, given the recent economic conditions and uncertainty regarding future interest rates, the Company has decided to lower its reversionary bonus rates and potentially introducing a terminal bonus that may be declared in the future. Discuss in detail the factors the Company should consider when deciding to change its bonus philosophy. (18)

iv) A leading global reinsurer with a significant presence in India has approached the life insurance company you work for with a new product proposition: The reinsurer has noted that your Company does not currently have a health insurance offering and has provided you with an off-the-shelf product, which has been very successful internationally. Describe the key risks to the Company of launching the new health insurance product with the assistance from the reinsurer. (16)

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