

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

08th May 2015

Subject ST2 — Life Insurance

Time allowed: Three 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. ** 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 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.*
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)** Give reasons why different types of life insurance policy would be underwritten. [5]
- Q. 2)** A life insurance company has a sizeable block of in-force with profits policies and calculates asset share on a per policy basis. Asset shares are used for determining the sustainable bonus for participating policyholders. The calculation methodology and recommendation is presented to a With Profit Committee (WPC) which comprises people with actuarial, distribution and marketing backgrounds. The final recommendation made by the WPC is then placed in-front of the Board for approval.
- i)** Define asset share and its components. (5)
 - ii)** The Marketing Director recommends declaring 10% more reversionary bonus than what is supportable on the basis of the asset share calculations. The additional cost would be borne by the shareholders. This would help increase new business. Discuss this recommendation. (5)
 - iii)** The WPC noticed that while on an aggregate basis the asset share is close to the benefits paid to the policyholders, there are variances at a few model points. The asset share for these model points are much higher or lower than the benefits paid to the policyholders. Discuss why this could arise. (5)
 - iv)** Describe how the company would use asset shares to calculate the terminal bonuses for its with profits products. (5)
- [20]
- Q. 3)** An established life insurance company which uses employed agents to sell new business has been experiencing considerably higher expenses than they have priced for over the last few years. This has been a major cause of concern and there have been questions raised on the viability of the agency channel.
- i)** Explain why this might be a cause of concern for the company and state the investigations that the company could make to understand the reasons for expense overruns. (7)
- Recent customer research shows a substantial number of potential customers wanting to buy life insurance products on-line. Against the backdrop of a struggling agency channel, the company is willing to explore using the internet as a way to sell products efficiently.
- ii)** Discuss the issues the company should consider before making this change in strategy. (16)
- [23]
- Q. 4)** A life insurance company is considering its lapse/withdrawal experience as part of an exhaustive experience analysis.
- i)** List the reasons for monitoring experience in a life insurance company, and explain how experience analysis helps in managing the risks of the company. (4)

- ii) List the factors that might affect the current and future withdrawal experience of a life insurance company. (4)
- iii) Outline how you would carry out the analysis. Comment on need for statistical credibility of the results. (5)

The company's compliance officer is worried that a significant reason for high lapses is apparent mis-selling, and has expressed concerns that the Regulator may take remedial actions.

- iv) Discuss the ways in which the Regulator may impose restrictions on the way in which life insurance companies operate that can address mis-selling. (10) [23]

Q. 5) While analyzing the popularity of life insurance products, a company notices a new trend. Policies that pay a fixed lump sum benefit on the death of the insured are becoming less popular. Instead, policies that provide options to take the benefits as part lump sum and the remainder in fixed monthly pay outs, with the various option factors defined at the beginning of the policy, are becoming more popular. The fixed pay-outs extend from five to fifteen years after death.

- i) Explain the risks faced by the insuring company for these products. (3)

A colleague comments that this option is very similar to guaranteed conversion rates for the annuity policies after the accumulation stage, where the premiums invested during accumulation period are converted into annuities at pre-defined conversion factors.

- ii) Discuss this comment (4) [7]

Q. 6) The Product Manager of an established life insurance company has suggested providing value added services to annuity customers. He suggests that being in a developing country with negligible social benefit coverage, annuities will be key for growing aged population and value added services may be good differentiator for the company in the market. As part of value added service, the manager recommends subsidized health checkups, medical second opinion and an additional annuity pay-out in case of critical illness diagnosis for next five years.

As part of pricing team you are asked to design a single premium immediate annuity product with a flat charge to be deducted from annuity payouts for the above benefits except the additional CI benefit. For the CI benefit an additional one time charge will be deducted from the single premium. You should take into account the following:

- The company does not have annuity products in its current product basket.
- Bond markets are not deep and liquid enough to provide long term investment.
- No derivatives are allowed as per the investment regulatory norms.

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- i) Outline the factors to consider when determining the suitability of the proposed contract design. (12)
- ii) Describe how you will set the assumptions in respect of the following:
- a) Morbidity assumptions for CI benefit (4)
 - b) Investment return (3)
 - c) Expenses and commission (You are not required to demonstrate how an expense analysis is carried out) (3)
- [22]
