INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

11th September 2018

Subject ST2 – Life Insurance

Time allowed: Three hours (10.15* – 13.30 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 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. You are not allowed to carry the question paper in any form with you.

Q. 1) **i)** Define appropriation price in the context of unit pricing. (2)

ii) State how appropriation price is calculated for a unit linked product. (4)
[6]

Q. 2) **i)** State the principles to consider in surrender value calculation. (5)

ii) Explain why it is important to have consistency between surrender value and paid-up value of a policy. (3)
[8]

Q. 3) In the country where a life insurance company operates, the Government prohibits the refusal of an insurance proposal on health grounds.

The company has so far only sold unit-linked products, but now plans to introduce a term assurance product.

i) Discuss the factors the company might consider when setting the following assumptions for the new product:

a) Mortality (7)
b) Expenses (6)

Following the introduction of the new term assurance product, the company is performing comprehensive review of its risk management practices.

ii) Outline the potential risk management practices that would need to be changed as a result of launching this new product. (5)
[18]

Q. 4) A life insurance company sells a regular premium unit linked endowment plan. All premiums received by policyholders of this product in any given calendar month are invested in a specific unit-linked fund. At the end of the calendar month the fund is closed to new premiums, and a new fund is set up for the next calendar month. The investment strategy for each fund is set by the insurer.

For each fund there will be two unit prices published each day – a guaranteed price and a current price. The unit prices will be based on the Net Asset Value (NAV) of the fund. The guaranteed price will be the highest unit price ever achieved by the fund since launch, and the current price will be the price that reflects the current value of the assets in the fund.

The death and maturity benefits are based on the guaranteed prices and the surrender benefits will be based on the current prices.

i) Describe the needs of the customer that may be met by this product. (3)

ii) Outline the risks to both the insurer and to the insured associated with this product. (16)
[19]

Q. 5) The lead reinsurance company in a country has significantly reduced their reinsurance rates for term assurance policies sold via the internet (known as "online term assurance policies"). The reinsurance rates for all other products have remained the same.

i) Discuss why the leading reinsurer might want to reduce its reinsurance rates for online term assurance policies. (5)

ii) Discuss the impact this might have on the online term assurance market in the country. (6)

iii) Discuss briefly the additional risks to a life insurance company of selling online term assurance policies following the reduction in reinsurance rates. (8)

[19]

Q. 6) A life insurance company has a portfolio of without profit immediate annuity contracts. The company is required by regulation to calculate a liability based on best estimate assumptions for these contracts.

i) List the assumptions the company would require to set the best estimate liability. (3)

ii) Discuss what factors the company may consider when setting each of the assumptions. (8)

The company is going to use a cashflow model to determine the best estimate liability.

iii) Outline the process that might be used to calculate the best estimate liability using a cashflow model. (5)

The regulator is considering changing its valuation regulations to calculate liabilities based on a market consistent valuation method, which will include the calculation of a Risk Margin. The company is now considering changes to the best estimate assumptions and methodology to comply with these potential new regulations.

iv) Describe how the company may calculate a Risk Margin. (8)

v) Discuss any other changes to assumptions that the company will need to consider. (6)

[30]

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