INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

3rd September 2021

Subject SP2 – Life Insurance

Time allowed: 3 Hours 30 Minutes (14.30 – 18.00 Hours)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. *Please read the instructions to examinees sent along with hall ticket carefully and follow without exception.*

2. *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.*

3. *Mark allocations are shown in brackets.*

Q. 1) An individual in early twenties, who has recently started his career and received joining bonus, wishes to invest the amount in a financial instrument where the returns at least exceed inflation. He is approached by an insurance advisor who advises him to purchase an index-linked policy by paying a single premium with a term of five years. The policy contract will guarantee to pay after five years the value of the single premium adjusted by the change in the index over the policy period. In case of earlier death, the contract guarantees at least the capital protection.

i) Explain the investment risk arising from the contract from the perspective of

a) Policyholder (2)

b) The insurance company (2)

ii) State alternative product categories which could mitigate the investment risk to the insurance company significantly. (4)

[8]

Q. 2) In a particular country, the Regulator is contemplating to introduce market-consistent valuation of liabilities and move from factor-based solvency regime (factor 1 x mathematical reserves + factor 2 x Sum at Risk) to the Risk Based Capital (value at risk) regime. The Regulator has requested the insurance companies to assess the capital requirement under the proposed new regime as well as the factor based regime.

You have assessed the capital requirements under both regimes and found that the capital required under the risk-based regime is higher than that under the factor-based capital.

Briefly explain the reasons for the higher capital required under risk-based regime. **[7]**

Q. 3) A large life insurance company has opened an overseas branch. Management is considering which functions should be developed in-house and which should be outsourced.

i) List the possible activities or functions that can be developed in-house and those that can be outsourced in order to run the operations of the Branch. (2)

Management has decided to retain the product development function in-house but to outsource the policy administration and investment activities to two separate outsource service providers.

ii) Briefly explain the risks the Branch is likely to be exposed in case of outsourcing the above-mentioned activities. (5)

Local regulations in the overseas country permit the outsourcing of investment activities. However, it imposes certain restrictions on the investment strategy of the branches having an overseas parent company.

iii) Suggest how a regulator may restrict the investment strategy of a life insurance company including the branches of overseas parent companies. (5)

[12]

Q.4) **i)** How does estimating the Appraisal Value mainly differ from Sale & Purchase perspectives? (2)

A life insurance company is proposing to sell a percentage of stake and hence is estimating the Traditional Embedded Value (TEV). However, the insurer has observed significant adverse changes, in its experience due to pandemic, with respect to mortality, persistency and investment experience. The Regulator directs that the adverse experience cannot be ignored while setting the assumptions to estimate TEV as the pandemic is expected to continue for a few more years.

ii)

a) Describe the methodology for setting the basis for estimating the TEV under normal circumstances? (7)

b) How would your answer in (a) would differ if you take into account the changed adverse experience due to pandemic? (4)

c) Explain how will each of the revised parameters viz. persistency, mortality and investment would impact the TEV and the Sale Value? (6)

[19]

Q.5) In a well-established insurance market, pure risk assurance products including term insurance products are sold both offline and online at highly competitive rates. Due to prevailing uncertainty on account of current pandemic, reinsurance companies have stopped providing reinsurance cover for term insurance products.

i) Describe how the decision of the reinsurance companies of not offering reinsurance support will impact the insurance companies with respect to the term insurance products. (9)

ii) Discuss in brief, how the response to the above question would change, if the regulator allows direct insurance companies to provide reinsurance support for term insurance product for two years. (5)

[14]

Q.6) **i)** List the principles to be considered in assessing alteration methods. (2)

A life insurance company intends to offer a with-profits product which pays only terminal bonus on death, maturity and surrenders. The product does not provide any kind of reversionary bonuses. For surrenders, terminal bonus becomes payable only if the policy has been in force by paying all due premiums at least for the first five years.

ii) Discuss the two methods of arriving at the paid-up values and assess them with respect to the principles you have listed in (i). (10)

The insurance company is evaluating the possible investment strategies for the above mentioned with-profit product.

iii) Explain the possible investment strategy for this product and how it would differ, if the product is paying regular reversionary bonuses along with terminal bonus. (8)

[20]

Q.7) A large life insurance company currently sells its products through several distribution channels. Due to high distribution costs and management expenses, the actual expenses have been exceeding the expected expenses for the past few years resulting in a negative expense surplus with an adverse impact on the profitability of the company. The Board has expressed its concern regarding higher expenses.

i) Discuss the steps that the company may take to reduce its expenses to be in line with the planned expenses. (7)

The Company decides to go digital and sells its individual term assurance product directly to customers via its own website.

ii) What are the product design parameters that company needs to consider while pricing the online term assurance product? (5)

The company has been approached by a price comparison website, which includes term assurance in its range of products sold. The website aims to provide instant premium quotations for products offered by different providers to enable the customer to make a comparison. If the customer selects a quotation, the website directs to the insurance company's systems to complete the sale.

iii) Describe the additional risks that the insurance company might face from selling the product via the price comparison website, compared to just offering the product directly from its own website. (8)

[20]

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