

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

27th November 2019

Subject SP1 – Health and Care

Time allowed: 3 Hours 15 Minutes (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. *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. *Attempt all questions, beginning your answer to each question on a separate sheet.*
4. *Mark allocations are shown in brackets.*
5. *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) A health and care insurance company has been selling individual 10-year regular premium critical illness policies with return of 50% of total premium paid at the end of the term if there was no claim made.

i) Outline the main risks faced by the insurance company. (3)

The company has been reinsuring the product on original terms basis retaining first 15 lacs of each policy. The Reinsurer pays a first year commission of 75% of reinsurance premium.

Chief Risk Officer (CRO) of the Company has identified that the total amount of reinsurance premiums paid by the insurer is much higher than the amount of reinsurance claims received from the reinsurer.

Concern is that the company is not receiving the value for money from its current reinsurance structure.

ii) Outline the most likely reasons for the company buying reinsurance. (3)

iii) Discuss the investigations that should be carried in order to respond to the CRO's concern. (5)

The company has decided to launch a unit-linked version of the contract while keeping the key features unchanged and gradually phase out the current product.

iv) Explain why the company might have taken such a decision. (2)

v) Suggest how the reinsurance structure might be changed for the new product design. (2)
[15]

Q. 2) **i)** State the principles of Investment. (2)

A health insurance company has been writing only individual private medical insurance (PMI) contracts for a long time.

ii) Suggest with the reasons an appropriate investment strategy for the product. (3)

In the past one year the new business volumes has fallen by 50% and the market analysis shows that the premium rates were much higher than that of competitors. Hence it has been decided to re-price the product.

iii) Outline the factors that should be considered before proceeding with re-pricing of the product. (3)

iv) Describe briefly the steps involved in re-pricing of existing product. (7)

The company now intends to start writing its business in an overseas market where Group PMI products covering both inpatient and outpatient are predominantly sold.

v) Discuss the problems related to main sources of data that the insurance company will face and how they can be overcome. (4)

The Company has got data from a Third Party Administrator (TPA) with significant presence in that market for a number of years. The following is a summary of Burning Cost (BC) analysis of the data.

Age Band	BC Relativity	
	Female	Male
<0	144%	169%
1-1	93%	104%
2-2	85%	103%
3-9	71%	79%
10-14	51%	56%
15-19	66%	64%
20-24	86%	74%
25-29	108%	83%
30-34	128%	100%
35-39	162%	120%
40-44	207%	151%
45-49	245%	185%
50-54	312%	244%
55-59	382%	329%
60-64	451%	416%
65-69	509%	521%
>=70	694%	665%

Annual Medical Limit	BC Relativity
500	76%
1,000	78%
5,000	84%
10,000	86%
20,000	89%
25,000	90%
50,000	92%
75,000	94%
100,000	95%
150,000	96%
200,000	97%
250,000	100%
300,000	102%
500,000	104%
1,000,000	110%
1,500,000	112%
2,000,000	113%
2,500,000	114%
5,000,000	118%
5,500,000	118%
6,000,000	119%

Group Size	BC Relativity
INDIVIDUAL	71%
1-10	90%
11-25	111%
26-50	110%
51-100	110%
101-200	108%
201-300	106%
301-500	108%
501-1000	103%
1001-5000	100%
5001-10000	105%
10001+	118%

Coinsurance	BC Relativity
0	100%
1-20	106%
21-99	101%
100	71%

Marital Status	BC Relativity
Married	100%
Single	90%

vi) What do you interpret from the above results and why? (4)

vii) Outline any further investigations required to validate your interpretations. (4)
[27]

Q. 3) XYZ Health Insurance Company has been issuing regular premium pre-funded individual long term care policies for the past 5 years. The benefits are regular payments that are dependent on severity of the impairment.

i) Outline the different types of reserve that might be held for this product. (3)

ii) Explain the principal elements of supervisory valuation basis for the business and comment on their relative importance. (7)
[10]

Q. 4) Actuariana has multiple companies selling all types of health and care insurance products sold to individuals on premium rates guaranteed for the term of the policy. However, recently, due to varying experience and changing nature of health care industry, regulator of Actuariana has decided to mandate reviewable premium rates.

i) Discuss relative advantages and disadvantages of reviewable premium rates in above context. (6)

ii) Discuss the changes in terms and conditions of policies and practices that should be adopted by companies to ensure that customers are fairly treated. (7)

- iii)** Outline the factors that should be considered before a premium review and also list reasons that cannot form valid ground for changing premiums. (8)

The regulator has released an exposure draft that proposes to remove difference in premium rates due to gender.

- iv)** Explain the implications for the policyholders and the insurers if the proposal were to be implemented. (7)
[28]

Q. 5) In Actuariana competition for retail banking customers' business has become fierce. The banks have started to offer many additional benefits alongside their banking products, such as gym membership discount etc. The Bank of Actuariana has decided that it would like to offer its customers health insurance alongside its current account. All current account holders of the bank will be automatically eligible for the Critical Illness (CI) cover on guaranteed acceptance basis as long as they continue to be customers of the bank. The bank approaches a leading health insurer, and the insurer agrees to provide a group CI product to the bank. The next stage is to produce a quotation with rates, terms and conditions. The insurer therefore needs to decide how the premium will be structured, including possible rating factors.

- i)** Discuss how the premium could be structured. (4)

The bank needs to decide on how the premium should be met, and in particular the extent to which the cost is passed onto the customers.

- ii)** Discuss how this issue might be addressed. (4)

The insurance company is considering how the experience and risks for this CI product might differ from those for an individual CI product sold to its usual customers via an insurance intermediary.

- iii)** Discuss how the morbidity experience of the bank's product might differ from that of the insurance intermediary product. (5)

- iv)** Describe how the other risks faced by the insurance company might differ. (7)
[20]
