

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

7<sup>th</sup> September 2018

**Subject SA3 – General 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 a new set of Question paper from the Invigilator.*

AT THE END OF THE EXAMINATION

Please return your answer booklet 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 country with approximately Rs. 50,000 Crore market in motor comprehensive insurance (own damage and third-party liability combined) has a regulation for product filing which mandates the companies to file the exact premium rate formula including the rating factors the company intends to use. Up to 15% discount or loading to the filed rate is allowed at the discretion of the company on a case to case basis.

The regulator has proposed, as a part of the new regulation that it wants to totally do away with the filing of the pricing formula and the actuary only has to file a pricing assumption loss ratio. As part of the filing, under the new regulation, the actuary will certify that:

- The actual loss ratio of the motor segment is expected to be below the pricing assumption loss ratio.
- If the actual loss ratio is higher than the pricing assumption loss ratio, corrective action will be taken to ensure that the loss ratio is brought back within the pricing assumption.

Outline the benefits and challenges of the proposed change.

[6]

- Q. 2)** A company in India has Rs. 2,000 Crore of Motor portfolio which is 10 years old. The net incurred loss ratio of the motor segment of the company was 90% for the financial year 2017-18 as per the financial statements, while the loss ratio for the overall industry motor segment was 80%.

Outline the possible reasons for the loss ratio for the company being higher than the market average.

[8]

- Q. 3)** Pioneer Insurance Company has been writing health and motor insurance for several years. In recent times, it has observed a marked increase in fraudulent claim activity.

- i) Suggest mechanisms that can be put in place by Pioneer Insurance Company to minimise insurance fraud.

(10)

Pioneer expects to write 10,000 motor policies next year at an average annual premium of Rs. 1,000 per policy. It expects 8,000 claims on this portfolio with individual loss amounts assumed to follow a lognormal distribution with mean 750 and standard deviation 1,500.

It is considering buying one of the following types of reinsurance cover:

- Proportional with 70% of all claims and premiums ceded
- XOL with a retention limit of Rs.800 per claim for a ceded premium of Rs. 45,00,000

- ii) Calculate the loss ratio for the reinsurer in each case and hence determine the type of reinsurance cover that is more beneficial to Pioneer.

(6)

- iii) Estimate the ceded percentage for the proportional cover that would result in the same average net claim amount for Pioneer as would be under the XOL cover.

(2)

- iv) Outline how you would adjudge which reinsurance cover to buy on the basis of loss experience, when both result in the same average net claim amount for Pioneer. You may ignore capital considerations, expenses and commissions on both covers.

(2)

- v) In the wake of recent rise in cyber-attacks, the CEO has suggested that there may be an opportunity to sell cyber insurance. Propose what all coverages could be provided in a cyber-insurance policy going forward.

(4)

[24]

- Q. 4)** The Government of country 'LongLive' has introduced a legislation mandating the settlement of all bodily injury claims in the form of a series of regular payments rather than as a single lump sum. Company ABC is a personal lines general insurer selling motor cover for the past several years in this country.
- i)** Detail the risks and challenges that this new regulation presents to ABC General Insurance Company. (22)
- ii)** Explain the concept of 'unwinding of the discount rate' and how it should be accounted for in an insurer's financials. How does it impact reserves held for such long-term series of payments? (4)
- [26]

- Q. 5)** The launch of Pradhan Mantri Fasal Bima Yojna (PMFBY) for crop insurance in India is a significant event in the general insurance industry.
- i)** Outline the salient features of the PMFBY such as, but not limited to, product and coverage, operation details, role of stakeholders involved etc. (6)
- ii)** Outline some of the operational challenges the stakeholders of this scheme might be facing. (5)

You are the Appointed Actuary of a general insurance company in India which is 7 years old and has Rs. 1,000 Crore Gross Direct Premium Income. The company has not underwritten any crop insurance business till date. The CEO has asked you to prepare a note on the points the company should consider while entering into this business.

- iii)** Describe briefly the points you will mention in the note.  
(You are only expected to describe the points to be considered. The exact current scenario in India for such points is not required to be provided.) (17)

The CEO asked you to prepare a note on underwriting and pricing considerations for each cluster which comes for bidding.

- iv)** Discuss the underwriting and pricing considerations you will include in the note. (4)

The CEO has called you to discuss the reinsurance strategy for crop insurance line of business.

- v)** Discuss the points you will make while discussing the suitable reinsurance strategy for crop insurance and recommend a suitable reinsurance structure. (4)
- [36]

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