INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

November 2026

SP7 - General Insurance Reserving and Capital Modelling

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

Q.1) XYZ Insurance company is a medium sized company underwriting in multi-line of business. As the market is offering deep discounts, XYZ is also reducing its prices for similar risk to be in the competition. Assume that the business mix remains same and there is no inflation year on year. The paid claims triangle, price for similar risk and Earned Premium for its Fire line of business as on 31st March 2026 for the last 5 Underwriting years, is provided below:

UWY	Price for Similar Risk	Earned Premium
2022	250,000	1200
2023	200,000	1350
2024	164,000	1500
2025	100,000	1700
2026	50,000	900

UWY/ Development Year	1	2	3	4	5
2022	500	600	660	700	720
2023	600	750	800	850	
2024	750	900	1000		
2025	1000	1200			
2026	1200				

i) Compute the value of reserves using Bornhuetter-Ferguson method, stating any assumption used. **[8]**

ii) Describe the risks faced by XYZ of underestimating the degree of market softness. **[6]**

iii) Discuss the Investment strategy XYZ should follow in the current situation. **[3]**

[17 Marks]

Q.2) ABC General Insurance Company underwrites two classes of business: Property and Motor. The asset side bifurcation (amount in Rs. Crores) as at 31st March 2026 is given below:

Particulars	**Amount**
Bonds	1,100
Equity	150
Other Assets	50
Total Assets	**1,300**

Further information related to the assets are:

- Bonds are zero-coupon government bonds maturing on 31st March 2031 whose nominal bond value is Rs.1,350 Cr and book value is Rs. 1,100 Cr.

- Equity portfolio beta is 1.10.
- Expected correlations between Equity and Bond is 50%
- Risk appetite of ABC is to remain solvent in 199/200 scenarios

Percentile	0.5%	5%	25%	50%	75%	95%	99.5%
10-year Govt. ZCB rate	5%	6%	7%	8%	9%	10%	11%
Equity Market Return	–12%	–8%	0%	10%	15%	20%	24%

i) Define Liquidity risk. State the factors to be considered while assessing the liquidity risk. **[5]**

ii) Compute the Market risk capital in capital modeling process for ABC. **[5]**

[10 Marks]

Q.3) Company, Z is planning to launch a new product named Eye Wear Insurance for retail consumers purchasing Eye glasses.

i) List any 4 perils and 6 exclusions to be offered in the product. **[5]**

ii) State with reasons the appropriate reinsurance cover for this product. **[2]**

iii) After a year of launching Eye Wear Insurance, the product is unable to generate volume. Investigate the reasons for low sales. **[8]**

iv) Outline the method to be used to compute the reserves for this product. **[3]**

[18 Marks]

Q.4) Insurance Company, Z, provides coverages for Marine Cargo since last 3 years.

i) Define Minimum and Deposit Premium in context of Marine Insurance. **[2]**

ii) State the claim characteristics of the Marine Cargo likely to be experienced by the Insurer. **[3]**

The Company, Z, is planning to enter into a new treaty of Individual Excess of Loss arrangement with the Reinsurer, A.

iii) Outline the data that Z would be required to provide to the Reinsurer, A to enable A to establish its pricing. **[6]**

iv) The Company Z has decided to enter into a second surplus treaty of 6 lines with Reinsurer A which applies after a surplus treaty with Reinsurer B of 4 fixed lines wherein the Z's retention is fixed at 10 crores. Compute the net loss sustained by the Z in both the scenario:

a) Scenario1: EML is Rs. 50 crores and loss amount is Rs. 40 crores
b) Scenario2: EML is Rs. Rs. 80 crores and loss amount is Rs. 50 crores

[4]

[15 Marks]

Q.5) A company, L, is planning to acquire a General Insurance Company, M, which undertakes in Motor, Health and Crop line of business. Outline the risks faced by the company, L, in acquiring this business. **[8 Marks]**

Q.6) The Company focusses in Health and Commercial line of business. It is performing reserving based on annual incurred claims triangle. The data is available for the last 5 years.

i) As a part of the Reserving team, you are contemplating to use quarterly claims triangle. Outline factors to be considered by you to use quarterly triangles. **[7]**

ii) In few of the development pattern, negative Incurred amount has been observed. List down the possible reasons for the Incurred amount to be negative. **[3]**

iii) Discuss how to account for the negative values while performing the reserving exercise. **[4]**

[14 Marks]

Q.7)

i) Describe any two methods to separate reserves between IBNR and IBNER. **[3]**

ii) A recent judgment passed by the Court has recognized the economic value of unpaid services of household persons at a notional amount of Rs. 30,000 per month in case of motor death compensation claims. State the impact on this judgement on the reserves of the Company. **[4]**

[7 Marks]

Q.8) An Insurance Company, Z, is underwriting Employer's Liability book since many years. The Head of Actuarial has suggested to account for Latent Claims separately while modelling the capital requirement. As a senior member of the Actuarial team, discuss the approach that you might consider while modelling Latent Claims for capital purpose.

[6 Marks]

Q.9)

i) State the conditions under which payment under an Industry Loss Warranty gets triggered. **[2]**

ii) Discuss the main considerations required in purchasing Industry Loss Warranty verses Catastrophe reinsurance. **[3]**

[5 Marks]

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