INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

November 2026

SP8 - General Insurance : Pricing

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

Q.1)

i) Explain the working of Marine Cargo insurance? What are the key perils covered under it? **[2]**

ii) What exposure measure is appropriate for Marine Cargo Insurance and why? **[2]**

iii) What rating factors have to be considered while creating cohorts for pricing or monitoring this product? **[2]**

[6 Marks]

Q.2)

i) Why does an Insurance Company need to hold reserves? **[1]**

ii) What is the difference between Claim reserves and Premium Reserves? **[2]**

iii) Is it ideal to have higher reserves or lower reserves for an Insurance Company? **[2]**

[5 Marks]

Q.3)

i) What are the main types of frauds that are encountered in a General Insurance Company? **[9]**

ii) What are the controls and mitigation techniques to prevent or detect these frauds? **[5]**

[14 Marks]

Q.4) Below is the data available to you as a Pricing Actuary for Private Car Insurance for current Financial Year. Identify the data issues in this dataset:

Policy Number	Location	Premium	Type of Car	Policy Start Date	Manufacturer Name
011	Mumbai	100000000000	Sedan	1/4/2026	Maruti
045	Delhi	25087	SUV	1/4/2026	Maruti
135	Pune	0.1	Sedan	1/4/2026	Maruti
296		Lucknow	587392	SUV	15/5/2026
Maruti					
349	Pune	38749	Hatchback	1/14/2026	
364	Tamil Nadu	10000	Van	15/5/2026	
235	Punjab	23456	Truck	1/1/2026	.
654	West	53211	Van	15/5/2026	Hyundai
654	Mumbai	156788	SUV	1/4/2026	Tata
9ab	Chennai	54222	Sedan	15/5/2026	Tata
635	Maharashtra	345677	SUV	1/4/2026	Tata

Claim Number	Policy Number	Date of Loss	Sum Insured	Paid Amount	Status
abc	349	25/3/2026	3,00,000	250,000	Rejected
adg	654	1/3/2026	15,00,000	50,00,000	Paid
hfd	123	1/5/2026	25,00,000	10,00,000	Settled

[14 Marks]

Q.5) A famous musician is visiting India for the first time for a large music concert. His organising team has reached out to your Sales team to understand the insurance products they should purchase for various risks their event may be exposed to. Detail the comprehensive insurance framework, discussing various risks and perils that need to be covered.

[8 Marks]

Q.6) You are being interviewed for an experienced Pricing actuary position in a General Insurance Company, which underwrites all types of insurance products. For the technical round of the interview, the Company shares various pricing scenarios with data, to test your pricing skills.

i) Pricing for Out Patient Department product (OPD) per family:

a) Following is the experience of OPD cover of the insurer:

No. of families - 100

Per family frequency - 50%

Sum Insured (SI) - 5,000

Avg. SI utilisation - 80%

Operational Expenses - 5% of GWP

Commission - 10% of GWP

Tax - 20%

Please estimate the final annual premium per family chargeable to the policyholder for this OPD cover, assuming there is no profit margin and any other loading. **[2]**

b) Now, reprice the above OPD policy assuming 80% Loss Ratio. **[1]**

c) Suppose in this OPD policy, average family size is 2.5 lives. Now, for a particular family X, which is covered under this policy, one family member deceased after 6 months of policy inception. There has not been any claim during the 6 months. What is the refund payable, assuming the tax and other loadings are also refunded, ignoring any other consideration. Please consider the premium computed in (b) above for the purpose of computing the refund. **[2]**

ii) Pricing for a Group Personal Accident Policy

a) Following is the experience of Group Personal Accident policy of the insurer:

Policy Period - 1st Apr 2026 to 31st Mar 2027 for lives 100 at beginning of the year

Cumulative Paid Claims as on 31st of December 2026 - Rs 5 Cr

Outstanding Claims as on 31st of December 2026 - Rs 2 Cr

Non Payable Claims as on 31st of December 2026 - Rs 1 Cr

As on 31st of December, 2026, number of lives in the policy are 120.

IBNR as on expiry of policy - 10% of Total claims

Lives expected at Renewal - 120

Inflation - 8%

Please estimate the expected premium for this group at renewal, ignoring all expenses. **[4]**

b) How will this premium change if you come to know that, out of the paid claims, Rs 1 cr pertains to a single person with a rare ailment, who deceased during the policy period and will not form a part of the renewed policy? **[2]**

iii) Property Policy with a deductible

Client requires a Rs 1 Cr Sum Insured for a property with a Rs 5 lakhs one-time deductible for an annual policy (though the property is worth Rs 2 crore).

The expected loss for this property during the year is estimated to be Rs 50,000 /-

Claims distribution based on relevant internal data is as below:

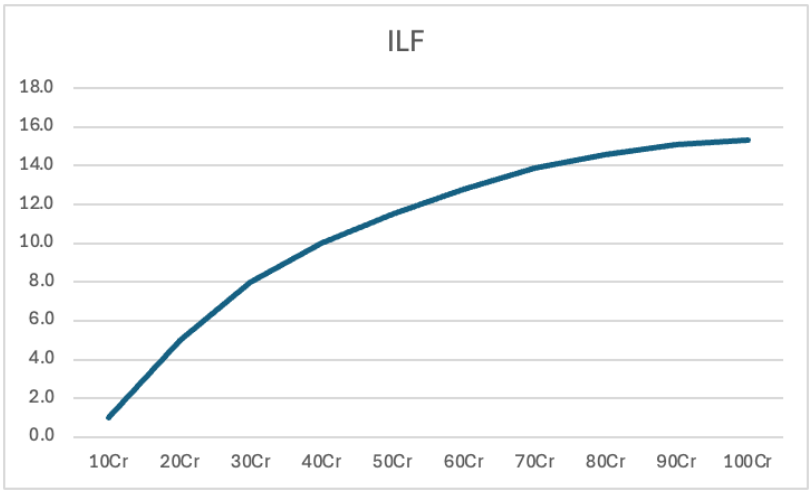
Claim Band (Upper Limit, in Rs)	Incremental Probability of the claim band
2 lakhs	5%
5 lakhs	10%
25 lakhs	30%
70 lakhs	22%
1 Crore	12%
1.05 Crore	2%
1.1 Crore	1%
1.55 Crore	10%
2 Crore	8%

a) Please estimate the premium for this property policy for the aforesaid client. **[3]**

b) Assume that the policy holder claims and exhausts 50% of its cover in the first 3 months of the policy. Please estimate the additional premium to be collected for reinstatement of that cover, assuming there is no explicit charge for underinsurance? **[3]**

iv) Pricing of a Product Liability Cover

The Company has started underwriting Product Liability product only 10 years back and based on internal experience, the insurer has developed the below ILF for pricing purposes.



a) Calculate the premium of a Rs 50 Cr Sum Insured policy with a Rs 10Cr deductible. The Company charges Rs 1 lakh Rs as premium for a policy with Rs 10Cr Sum Insured. **[2]**

b) How will the premium change if Reserving Actuary confirms to you that due to recent Court Awards, all liability claims above Rs 30Cr are expected to double in settlement value? **[3]**

v) Adverse Loss Development of Commercial Vehicle Insurance Portfolio

A reinsurer has offered to cover Adverse Loss Development of 100 Cr Commercial Vehicle Insurance portfolio of the insurer.

The Insurer holds its reserves at 120%

Based on reinsurer's internal assessment, there is 50% chance of this portfolio running off at 140% or 200% each.

Cost of Capital for reinsurer is 10% of Revenue earned.

What is the premium that the Reinsurer will charge?

[4]

vi) Earthquake cover

Following are the details of insurer with respect to Earthquake cover:

The country where the insurer is located has 10 active seisemic zones.

Probability of an earth quake happening is 1 in 100 years with equal probability of happening in any zone.

If such event happens, the expected loss of property is 20%,50% & 80% of Sum insured respectively for a low, medium or high intensity event. Probability of low intensity event is 50% and that of medium intensity event and high intensity event is 25% each.

Insurer has Rs 10 Crores of exposure (Sum insured) in 3 of the seismic zones and Rs 2 Crores of exposure in the rest 7 seismic zones.

Each policy in these zones have a cost sharing arrangement where 20% is borne by the insured.

Please estimate expected loss to the insurer for this cover. **[4]**

[30 Marks]

Q.7) Reinsurance company, Motor Re is entering into a fresh Reinsurance Facultative Arrangement for Motor Insurance Product.

i) List the information & clauses that should be included in Reinsurance Slip (document) that needs to be signed between Motor Re & Cedant? **[7]**

ii) Using credibility theory and following information, please estimate the premium rate that Motor Re should collect.

Last Year rates for a similar book: Private Car: 2.0% per mille ceded, Commercial Vehicle: 5.0% per mille ceded where premium ceded last year was Rs 5Cr & Rs 3Cr respectively for Private Car and Commercial Vehicle respectively. At these rates, the reinsurer under estimated its burn cost by 10% assuming there are no expenses or other loading in the rates due to competition.

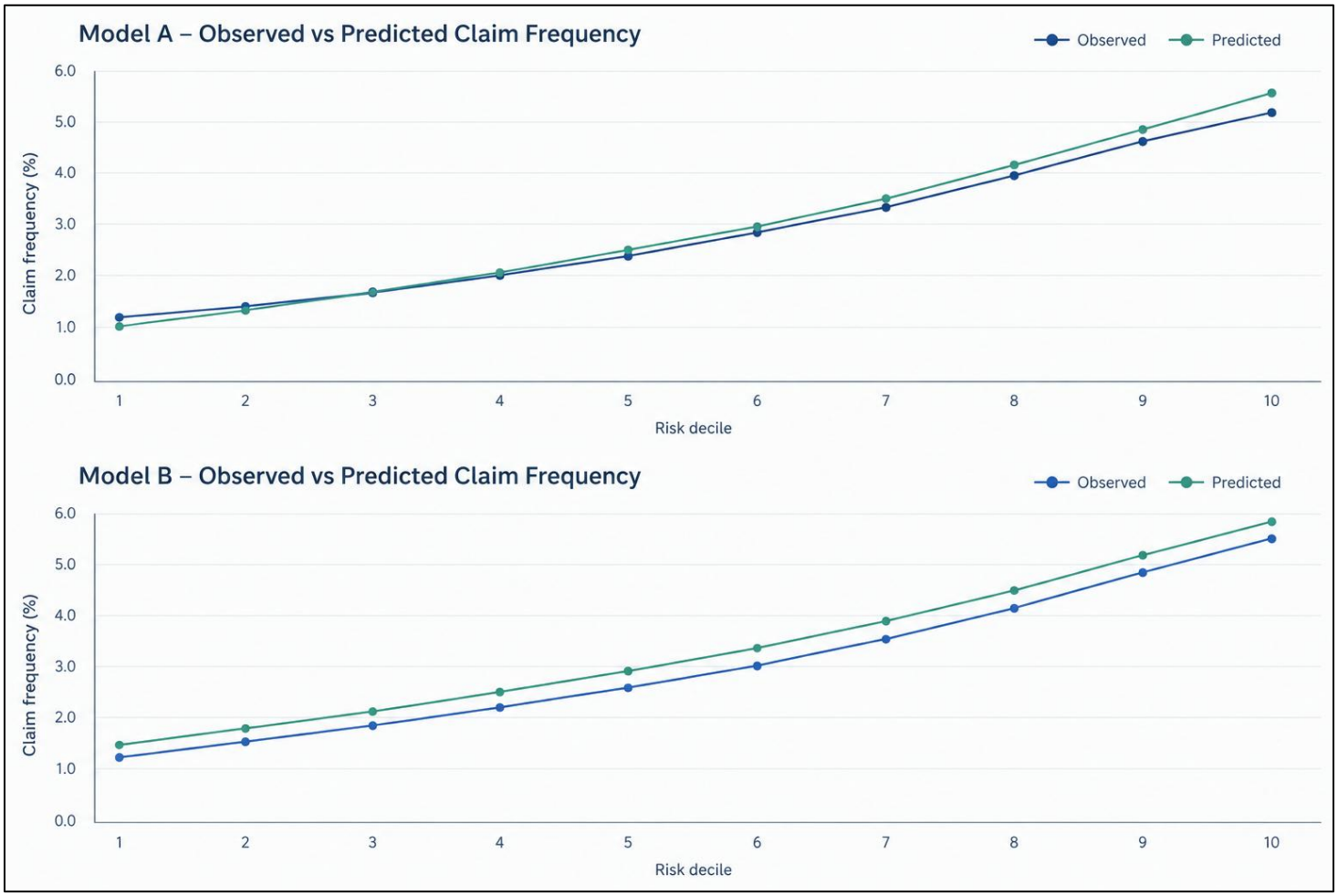
Market intelligence suggests: 4.5% per mille

Considering only 1 year of internal experience is available, 25% weight can be assigned to the internal experience.

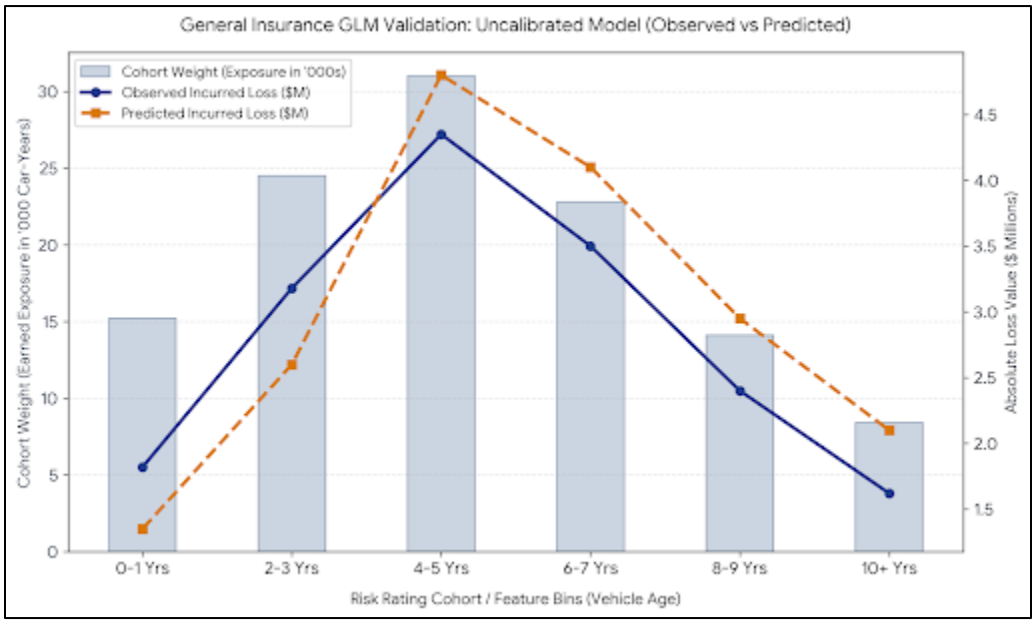
[3]
[10 Marks]

Q.8) Interpret the following graphs:

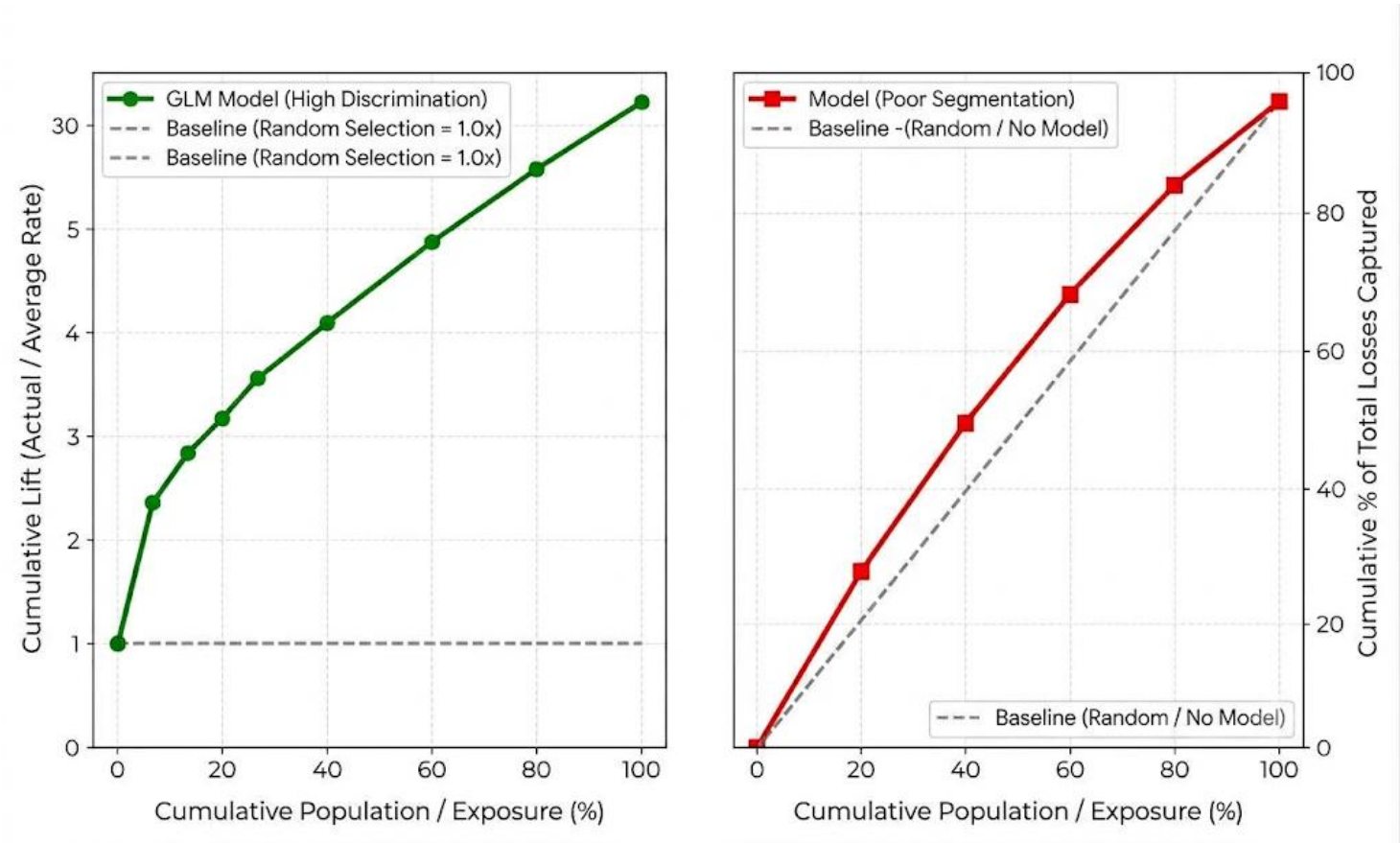
i) Explain what is a Goodness of fit curve. Which one of the following 2 graphs is better and why? **[3]**



ii) What does this graph represent? Is it a good fit? **[5]**



iii) Which of these is a Lift curve & which is a gains curve. Evaluate the goodness of model used. **[5]**



[13 Marks]

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