

"QUESTION PAPER MUST BE ATTACHED ALONGWITH THE ANSWER BOOK."

A-4

November, 2016

SPECIALISED DIPLOMA EXAMINATION

Reg. No.

(CASUALTY ACTUARIAL SCIENCE NON-LIFE)

--	--	--	--	--	--	--	--	--	--

ESTIMATING UNPAID CLAIMS USING BASIC TECHNIQUES

[Time : 3 Hours]

[Total Marks: 100]

Answer EIGHT questions only. Q. No. 10 is compulsory which carries 16 marks.

Any SEVEN questions from Q. No. 1 to Q. No. 9 which carries 12 marks each.

Marks

4 each

Q.1. Answer **any three** of the following :

- Explain the factors taken into account in computing the large loss threshold.
- Outline the factors that should be taken into account in selecting the chain ladder factors for reserving using paid data.
- Describe the different types of loss adjustment expenses giving examples.
- State the key assumptions of paid and incurred chains ladder methods, briefly describing what happens in the reserving process if the assumptions do not hold true.

Q.2. Answer **any three** of the following :

4 each

- Distinguish between IBNR & IBNER
- Explain the difference between claims & Ultimate claims
- Explain importance of data & data verification
- Write short notes on Collateral sources

Q.3. Answer **any three** of the following :

4 each

- Explain the uses of Frequency Severity Techniques.
- How do are analyse unpaid claims for professional liability line of insurance
- Write a short note on Credibility
- Explain difference between Model Risk & Parameter Risks with examples.

Q.4. Answer **any two** of the following :

6 each

For a motor own damage portfolio, you have the following data form a data analysis based on accident quarters:

Development Qtr.	0	1	2	3	4	5	6	7	8
CDF (Incurred)	1.292	1.110	1.051	1.023	1.011	1.006	1.003	1.000	1.000
CDF (Paid)	2.390	1.404	1.184	1.040	1.020	1.011	1.006	1.004	1.001

Underwriting estimates of expected losses is (in INR mn):

Accident Qtr.	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2
(in INR mn)	51.7	54.4	59.4	56.3	59.6	61.0	61.5	62.0
Expected Loss								

Other data in INR mn is:

Accident Qtr.	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2
Incurred claims	54.8	56.3	58.6	57.5	56.9	56.8	54.6	48.8
Paid claims	54.5	55.9	57.8	55.9	53.8	50.7	43.7	27.2

- Using the Bornhuetter Ferguson Method – Calculate the ultimate and IBNR using incurred claims data above.
- Using the Bornhuetter Ferguson Method – Calculate the Ultimate and IBNR using paid claims data above.
- State the advantages, disadvantages & key assumptions of Bornhuetter Ferguson Method.

Q.5. Answer **any two** of the following :

6 each

- What are the circumstances when past data may not be appropriate to estimate future unpaid liabilities?
- How is the treatment of 'Recoveries' in reserving for motor business?
- Given that:

Reported Claim Count

AY	12 Months	24 Months	36 Months
2014	280	274	270
2015	300	290	
2016	265		

Reported claims Amounts (in INR mn)

AY	12 Months	24 Months	36 Months
2014	11.06	12.33	12.38
2015	11.74	13.01	
2016	13.97		

Assuming 2014 is fully developed. Use the frequency severity method to estimate ultimate claim cost for all accident years (AYs above)

Q.6. Answer **any two** of the following :

6 each

- State key assumption of Frequency Severity Technique and describe the method.
- Discuss Cape COD techniques of estimating unpaid claims and discuss situations where this methods are appropriate.
- Given the following information

Accident Year	Earned Premium	Expected Claim Ratio	Reported Claim	Reported CDF to ultimate
2015	1980	40%	690	1.4
2016	1890	50%	580	1.7
2017	2120	60%	320	3.1

Estimate unpaid claims amount as on Dec 31, 2017 using Benktander Technique with 1000 iterations for 2012

- [illegible]

End