PGDM (IBM), 2020-22

Sub.: Insurance Analytics

Paper Code: INS-406

Trimester – IV, End-Term Examination: September 2021

Time allowed: 2 Hrs 30 Min **Roll No. _____**

Max Marks: 50

Instruction: Students are required to write Roll No on every page of the Answer Sheet. All other instructions on the question paper / notifications should be followed meticulously.

Sections	No. of Questions to attempt	Marks	Total Marks
A	Minimum 3 question with internal choices and CILO (Course Intended Learning Outcome) covered Or Maximum 6 questions with internal choices and CILO covered (as an example)	3*10 Or 6*5	30
B	Compulsory Case Study with minimum of 2 questions	20	20
			50

Section-A

A1(A). An insurer wants to explore potential new products. It would like to access its current customers' social media information to find patterns that might provide ideas for new insurance products. Explain the data science and regulatory issues that could be involved in this project. (5 Marks)

A1(B). Big Data can be Structured and Unstructured Data. Discuss this in relation to insurance industry. Also states how unstructured data act as more valuable resource than structured data. (5 Marks) (CILO 1)

OR

A1(A). The process of data mining has several steps, but the first occurs before the data mining even starts. What do you think that step is? (5 Marks)

A1(B). An insurer might want to learn the percentage of premium increase that would lessen a customer's likelihood of renewing an auto policy. Which data mining technique and how? (5 Marks)

A2(A). An insurer wants to predict which claims to target for fraud investigation. It wishes to do this based on the known fraud indicators: a claimant who threatens to hire an attorney immediately after an accident and a claimant with a history of similar claims. Which data mining technique would the analyst be likely to use? (5 Marks)

A2(B). A national package-delivery organization wants to develop a predictive model for locations and drivers that are most likely to be involved in accidents in order to develop accident-prevention solutions. The organization has employed several data scientists to assist with various business problems. Explain whether another professional in the organization, in addition to the data scientists, should be involved in a team to develop a predictive model and solutions for the accident problem. (5 Marks) (CILO2)

OR

A2(A). Data-driven decision making can solve a variety of business problems. Differing approaches may be required, however, depending on whether the problem to be solved will be recurring or a one-time-only event. Can you name the types of approaches used in each of these instances? (5 Marks)

A2(B). A comprehensive and effective data management program involves processes to understand, cleanse, integrate, govern, and monitor data as a strategic asset. How can all this be accomplished by incorporating all the basic functions of data management. (5 Marks) (CILO2)

A3(A). Analysis provides a means to an end, contributing to a journey from the data to the provision of customer delight. Explain(5 Marks)

A3(B). A property-casualty insurer wants to determine how similar two policyholders, who have both filed claims in the past five years, are. Two of the attributes the insurer is using to compare the policyholders are how long (in years) the policyholders have been with the insurer and the dollar amount of their past claims. Explain the first thing the insurer must do to make sure the distance between the two data points used for both policyholders accurately depict the similarity of the policyholders. (5 Marks) (CILO3)

OR

A3. Big Data and Analytics are for big insurers who have the economy of scale to supplement data external to their organization with a firm foundation of internal information. Discuss the key drivers of following with Analytic Response:

1. General Insurance 2. Reinsurance (10 Marks)

Section-B

Compulsory Case Study :

1. Based on the information given in the table, calculate the following.

Data Table:	
Gross Written Premium	7,500,000
Net Written Premium	6,300,000
Earned Premium	730,000
Outstanding Amount	238,000
Paid Amount	183,000
Ultimate Amount	605,900
Incurred number	1,500
Ultimate number	2,000
Written Exposure	5,000
Earned Exposure	3,000

a) [4 marks] Loss Ratio
b) [4 marks] IBNR
c) [4 marks] Frequency
d) [4 marks] Pure Premium
e) [4 marks] Severity

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