Name of Student: ..... ***Roll No:*** .....

TKM COLLEGE OF ENGINEERING, KOLLAM - 691005
Department of Mechanical Engineering

Internal Assessment (Series Test-I), Oct 2023

Semester**: S7** Class**: S7 open elective (Civil, CSE, EEE, ECE)**
Course with Code**: MET415 Introduction to Business Analytics**

Time: 2 hours Maximum Marks: 50

		Part A **Answer all the questions (5*3=15 Marks)**	**Marks**	**BL**	**CO**
1.		Explain different steps involved in Business Intelligence (BI)	**3**	2	1
2.		List various key components of Business Intelligence (BI)	**3**	1	1
3.		Explain different categories of data readiness level in business analytics.	**3**	1	1
4.		Distinguish between Interval and Ratio data with examples	**3**	2	2
5.		Elucidate various Data Cleaning techniques used during data pre-processing	**3**	2	2
		Part B **Answer any 1 question from each module (17.5*2=35 Marks)**			
		Module 1			
6.	a)	Explain four different levels of business analytics with examples	**9**	2	1
	b)	Elucidate different stages of evolution of Business Intelligence.	**8.5**	2	1
		OR			
7.	a)	Distinguish between OLAP and OLTP with suitable examples.	**9**	2	1
	b)	Explain 5Vs of Big Data with valid examples.	**8.5**	2	1
		Module 2			
8.	a)	A company wants to understand the relationship between its advertising spending on a particular marketing strategy and the corresponding sales of a product. The company has historical data that includes the amount spent on advertising and the corresponding sales figures. Apply simple linear regression and find the regression coefficients (β_0 & β_1) using the dataset given below. Predict the annual sales if the advertising budget allotted is 30 (x).	**9**	3	2

Advertising Budget **x** Spent (in 1000 $)	23	48	34	56	32
Annual Sales **y** (in Million $)	12	22	16	28	15

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	b)	A utility company is interested in predicting monthly energy consumption for the next month to optimize its energy production and distribution. They have historical data on monthly energy consumption for the past five months, and they want to build a time series forecasting model to predict future consumption. Month: 1 | 2 | 3 | 4 | 5 Energy Consumption (in 1000 MWh): 12 | 14 | 13 | 16 | 15 Apply autoregressive method of first order and forecast the energy consumption for 6^{th} and 7^{th} month.	**8.5**	3	2
		OR			
9.	a)	A telecommunications company is facing issues with customer churn, where customers are leaving their service for competitor telecom companies. To mitigate this problem, they want to build a logistic regression based predictive model to identify customers who are at risk of churning due to call drop rate. They have collected historical customer data as shown in the table below Call Drop Rate (%): 1 | 1.5 | 2 | 2.5 | 3 | 4 Probability of Customer Churn (%): 0.32 | 2.4 | 10 | 39 | 93 | 99 Apply logistic regression and calculate the Probability of customer churn (%) for the call drop rate of 2.8%. What should be the preferred Call Drop rate (%) that the company has to maintain if the probability of customer churn (%) has be maintained below 25%.	**11**	4	2
	b)	The percentage of cotton in material used to manufacture 24 men's shirts is shown below. Calculate the median Q1, Q2, Q3 and IQR these data. 34.2 37.8 33.6 32.6 33.8 35.8 34.7 34.6 33.1 36.6 34.7 33.1 34.2 37.6 33.6 33.6 34.5 35.4 35.0 34.6 33.4 37.3 32.5 34.1	**6.5**	3	2