BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH. **SEMESTER : V**
BRANCH: AI **SESSION : MO/2025**

SUBJECT: AI353 FEATURE ENGINEERING

TIME: 02 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Explain the role of Feature Engineering in Machine learning domain with some example.	[2]	1	1
Q.1(b)	Explain the Model driven and Data driven feature engineering approaches. Compare both of them by their merits and demerits.	[3]	1	1
Q.2(a)	Explain the term Multi-collinearity in context of feature Engineering. Give some example.	[2]	1	2
Q.2(b)	In Exploratory Data Analysis explain the use of Histogram and Correlation matrix using suitable example with sketch.	[3]	1	2
Q.3(a)	Explain how can you detect the missing values in the given feature of a dataset and how will you handle it to clean the dataset?	[2]	2	3
Q.3(b)	Explain the IQR (Inter Quartile Range) based method of outliers detection by taking some suitable example.	[3]	2	3
Q.4(a)	Explain the situation where there is a need of Binarization of a feature in a given dataset. And How can you implement it?	[2]	2	2
Q.4(b)	Explain the following with suitable example. i) Equal width Binning ii) Custom width Binning iii) Equal Frequency Binning	[3]	2	3
Q.5(a)	Explain the Min-Max Scaling by taking a suitable example.	[2]	3	3
Q.5(b)	Explain Box-Cox transformation for features transformation. What kind of problem it solves in feature engineering?	[3]	3	3

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