

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MBA
BRANCH: MBA**

**SEMESTER : IV
SESSION : SP/2025**

SUBJECT: MT549R1 DATA MINING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----|----|----------------|-------|-----|---------|-----|---------|-----|------------|-----|-----|
| Q.1(a) What is Data Mining? Elaborate on the process of Knowledge discovery in databases. | [5] | 1 | 1 | | | | | | | | | | |
| Q.1(b) What are different attributes of data? With the help of a flowchart explain the feature subset selection process. | [5] | 2 | 1 | | | | | | | | | | |
| Q.2(a) Elaborate on the role of Data Mining Techniques for Customer Relationship Management. | [5] | 2 | 2 | | | | | | | | | | |
| Q.2(b) Consider the following two vectors x and y with five numeric attributes.
X = (0,2,1,3,4)
Y = (2,0,4,1,3)
Find : $\cos(X, Y)$, correlation (X, Y) , Euclidean distance (X, Y) , H(X, Y), I (X, Y) | [5] | 3 | 3 | | | | | | | | | | |
| Q.3(a) Write notes on (a) Incremental Algorithm and (b) Border Algorithm. [2 + 3] | [5] | 3 | 2 | | | | | | | | | | |
| Q.3(b) Consider the following table | [5] | 3 | 3 | | | | | | | | | | |
| <table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Transaction ID</th> <th style="padding: 5px;">Items</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">100</td> <td style="padding: 5px;">1, 3, 4</td> </tr> <tr> <td style="padding: 5px;">200</td> <td style="padding: 5px;">2, 3, 5</td> </tr> <tr> <td style="padding: 5px;">300</td> <td style="padding: 5px;">1, 2, 3, 5</td> </tr> <tr> <td style="padding: 5px;">400</td> <td style="padding: 5px;">2,5</td> </tr> </tbody> </table> | | | | Transaction ID | Items | 100 | 1, 3, 4 | 200 | 2, 3, 5 | 300 | 1, 2, 3, 5 | 400 | 2,5 |
| Transaction ID | Items | | | | | | | | | | | | |
| 100 | 1, 3, 4 | | | | | | | | | | | | |
| 200 | 2, 3, 5 | | | | | | | | | | | | |
| 300 | 1, 2, 3, 5 | | | | | | | | | | | | |
| 400 | 2,5 | | | | | | | | | | | | |
| If Minimum Support = 50% , and
Threshold Confidence = 70%
Generate the Association rules | | | | | | | | | | | | | |
| Q.4(a) How web mining is useful for Business? Elaborate. | [5] | 5 | 4 | | | | | | | | | | |
| Q.4(b) What is K - means clustering algorithm? With the help of an example show how it works. | [5] | 4 | 5 | | | | | | | | | | |
| Q.5(a) Explain the steps for web structure mining. | [4] | 5 | 4 | | | | | | | | | | |
| Q.5(b) How does fuzzy clustering method work? Elaborate. | [6] | 4 | 5 | | | | | | | | | | |

:::29/04/2025:::E