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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Eighth Semester, B.E. - Information Science and Engineering

Semester End Examination; June-2016

Data Mining

Time: 3 hrs *Max. Marks: 100*

Note: *Answer any **FIVE** full questions, selecting at least **TWO** full questions from each **part.***

PART - A

1. a. Briefly explain the process of knowledge discovery in databases (KDD). 5

   b. With example, explain the different types of attributes. 8

   c. Discuss general characteristics of Data sets. 7

2 a. Give a note on measures of Similarity and Dissimilarity between data objects. 6

   b. For the following vectors, X and Y, calculate the SMC and Jaccard similarity coefficients.

   X = (1, 0, 0, 0, 0,0, 0, 0, 0, 0)

   Y = (0, 0, 0, 0, 0,0, 1, 0, 0, 1) 6

   c. Discuss the Architecture for feature subset selection with the necessary flowchart. 8

3 a. State and explain algorithm for decision tree induction with an example. 10

   b. Write and explain K-nearest neighbor classification algorithm and also discuss the characteristics of Nearest- neighbor classifiers. 10

4 a. Illustrate frequent itemset generation using the Apriori algorithm. 10

   b. Construct FP-tree for the following database which has the five transactions. Explain in detail. 10

TID	Items
1	{a, b}
2	{b, c, d}
3	{a, c, d, e}
4	{a, d, e}
5	{a, b, c}

PART - B

5 a. Define following terms :

   (i) Correlation Analysis (ii) IS measure (iii) Interest Factor. 6

   b. Discuss the properties of objective measures with suitable example. 6

   c. Explain sequential patterns. 4

   d. Discuss the different support counting methods available for counting the support of a candidate K-sequence from a database of sequences. 4

Contd…2

6. a	Define cluster analysis. Explain different types of clustering.	8
b.	Explain Agglomerative hierarchical clustering algorithm, with an example.	8
c.	Discuss the key issues in hierarchical clustering	4
7 a.	What kind of associations can be mined in multi-media data? Explain in detail.	8
b.	Explain Audio and video data mining.	6
c.	Briefly discuss the basic measures for text retrieval.	6
8 a.	Explain the applications of data mining in Telecommunication Industry.	6
b.	Briefly discuss the theoretical foundations of data mining.	6
c.	Discuss the key challenges or the trends in data mining.	8

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