

# CBCS SCHEME

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15CS651

## Sixth Semester B.E. Degree Examination, June/July 2018 Data Mining and Data Warehousing

Time: 3 hrs.

Max. Marks: 80

**Note:** Answer any FIVE full questions, choosing one full question from each module.

### Module-1

- 1 a. What is data warehouse? Elaborate data warehouse using multi-tier architecture with a neat diagram. (10 Marks)  
b. Explain star schema and snow flake schema with examples. (06 Marks)

OR

- 2 a. What is data cube measure? How it is categorized? Explain. (05 Marks)  
b. Explain data warehouse model with neat diagram. (07 Marks)  
c. Briefly elaborate on typical OLAP operations on multidimensional data. (04 Marks)

### Module-2

- 3 a. With respect to indexing, explain Bitmap Index and Join Index. (04 Marks)  
b. Describe the servers involved in implementation of a warehouse server. (08 Marks)  
c. How data mining tasks are categorized? Explain. (04 Marks)

OR

- 4 a. Describe the challenges that motivated the development of data mining. (10 Marks)  
b. What are the properties necessary to describe attributes? Explain different types of attributes. (06 Marks)

### Module-3

- 5 a. Describe frequent item set generation in Apriori algorithm with example. (08 Marks)  
b. Explain the uses of Hash Tree in support counting. (08 Marks)

OR

- 6 a. Describe alternative methods for generating frequent item sets. (09 Marks)  
b. Consider the following transaction dataset. Describe the construction of FP-Tree in FP-Growth algorithm. (07 Marks)

Tid	Items
1	{a, b}
2	{b, c, d}
3	{a, c, d, e}

**Module-4**

- 7 a. Illustrate hunt's algorithm to develop a decision tree. Consider the following training set and derive the decision tree. (09 Marks)

Tid	Home Owner	Marital Status	Annual Income	Defaulted Borrower
1	Yes	Single	125 K	No
2	No	Married	100 K	No
3	No	Single	70 K	No
4	Yes	Married	120 K	No
5	No	Divorced	95 K	Yes
6	No	Married	60 K	No
7	Yes	Divorced	220 K	No
8	No	Single	85 K	Yes
9	No	Married	75 K	No
10	No	Single	90 K	Yes

- b. What are the characteristics of decision tree induction algorithms? (07 Marks)

OR

- 8 a. What are the characteristics of Nearest Neighbor classifiers? (06 Marks)  
 b. How Bayes theorem can be used for solving a classification problem? Explain. (10 Marks)

**Module-5**

- 9 a. Describe different types of clustering mechanisms. (06 Marks)  
 b. Explain DBSCAN algorithm. How the parameters are selected? (06 Marks)  
 c. List out important issues for cluster validation. (04 Marks)

OR

- 10 a. Illustrate Grid-based clustering algorithm. How clusters are formed from Dense-Grid cells? (12 Marks)  
 b. Develop DENCLUE algorithm for kernel density estimation. (04 Marks)

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