

510110A - Business Intelligence and Data Mining
M.E. (Computer Engineering)

(Elective - II) (2013 Course)

Time : 3 Hours

Max. Marks: 50

Instructions to the candidates:

- 1) Draw labeled diagrams if necessary.
 - 2) Assume suitable data if necessary.
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- Q 1. a) What is Business Intelligence? Explain Business Intelligent System components 4
- b) With the help of suitable example explain a decision support system for business? 4

OR

- Q 1. a) What is a need of Data warehouse. Explain ETL process in detail. 4
- b) State difference between Operational Database system and Data Warehouse 4

- Q 2. a) Explain Data Warehouse design process. What is *combine approach* in Data Warehouse design. 3
- b) Explain three tier Data Warehousing Architecture. 3

OR

- Q 2. Draw and explain in detail 3 tier Data Warehousing architecture . 6

- Q 3. For the result analysis system of an engineering college draw a multidimensional cube. What specific OLAP operations should you perform for the following operations? 10
- a. List the total students pass and fail.
 - b. List the total students in distinction.
 - c. List the students who scored highest in each subject.
 - d. List branch whose overall passing is highest among all branches
 - e. Average result of each branch.

OR

Q 3. Compare Star, Snowflake, and Fact Constellations schemas. Consider the example of Sales department of an electronic goods. 10

Q 4. What is a rule? How are association rules mined from large databases? 10

OR

Q 4. Describe following terms in detail. 10

1. Frequent Pattern
2. Supervised learning
3. Close and maximal pattern
4. Support
5. Confidence

Q 5. a) List the major steps of decision tree classification 4

b) Explain Bayesian classification and Rule based Classification. 4

OR

Q 5. a) What is the role of Ensemble technique for improving the accuracy of classification model? 4

b) What is Information gain and how it is used in ID3 algorithm? 4

Q 6. a) Explain in brief various Clustering methods 4

b) Write BIRCH clustering algorithm and explain it using example. 4

OR

Q 6. Explain k-means algorithm. Consider cluster point (x, y) representing location, represent three clusters where the points are $A_1(2,10)$, $A_2(2,5)$, $A_3(8,4)$, $B_1(5,8)$, $B_2(7,5)$, $B_3(6,4)$, $C_1(1,2)$, $C_2(4,9)$. Assume A_1 , B_1 , and C_1 as the center of each cluster. Using Euclidian distance calculate:

1. the three cluster centers after the first round of execution
2. The final three clusters