

MCA (Revised)
Term-End Examination

07756

June, 2016

**MCS-043 : ADVANCED DATABASE MANAGEMENT
SYSTEMS**

Time : 3 hours

Maximum Marks : 100

*Note : Question number 1 is **compulsory**. Answer any
three questions from the rest.*

1. (a) What are Triggers ? Explain the significance of triggers with the help of an example. 5
- (b) Explain the Log-Based recovery scheme, using deferred database modification approach. Give a suitable example in your explanation. 5
- (c) What are mobile databases ? List the characteristics of mobile databases. Discuss the challenges of implementing mobile databases. 5
- (d) List the index implementation available in PostgreSQL. Explain each index available in PostgreSQL. 5

- (e) What is Data Dictionary ? What is the significance of creating Data Dictionary in DBMS ? Explain the statistics stored in the Data Dictionary. 5
- (f) What are Database Security features ? Discuss with example how Oracle manages database security. 5
- (g) What are web databases ? How do you create them ? List the steps. 5
- (h) What are views ? What is the significance of views in DBMS ? How are views managed in SQL ? Explain with an example. 5
2. (a) How do Database Queries differ from Data Mining Queries ? Explain K-Means Clustering algorithm for Data Mining, with suitable example. 7
- (b) Explain any *two* of the following : 8
- (i) OLAP and its types
- (ii) Spatial Databases
- (iii) Dynamic SQL
- (c) Explain Data fragmentation in distributed DBMS, with the help of an example. 5

3. (a) Discuss the term 'Association rule mining'. Write the Apriori algorithm for association rule mining. Illustrate it using an example. 8
- (b) Explain any *two* of the following with suitable examples : 7
- (i) Semantic Databases
 - (ii) Temporal Databases
 - (iii) Embedded SQL
- (c) Discuss 4NF with suitable example. Is 4NF decomposition dependency preserving ? Justify. 5
4. (a) In PostgreSQL, explain how B-Tree Indexes are different from R-Tree Indexes. 5
- (b) Discuss any *three* of the following with suitable examples : $3 \times 5 = 15$
- (i) UML Class Diagram
 - (ii) Query Optimization
 - (iii) Assertion
 - (iv) Multiversioning
5. (a) What are checkpoints ? How are checkpoints used in log-based recovery ? Explain with the help of an example and a diagram. 7

- (b) What are control files in Oracle ? What does a control file contain ? What is the role of control file in starting an instance of Oracle ? Discuss the role of redo log file in starting an instance of Oracle. 8
- (c) Describe ID3 algorithm for classifying datasets, with suitable example. 5
-