

MCA (Revised)
Term-End Examination
June, 2015

09333

**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 is multivalued dependency ?
How is 4NF related to multivalued
dependency ? Is 4NF decomposition
dependency preserving ? Justify your
answer. 5

- (b) Differentiate between Assertions and
Views. Discuss each with a suitable
example. 5

- (c) What is UML ? How does UML have an
edge over the other database designing
tools ? Describe database designing by
using a UML class diagram. 5

- (d) What do you mean by the term database
transaction ? Briefly discuss the properties
of database transactions performed in a
concurrent environment. 5

- (e) Describe the reference architecture of a distributed DBMS, with the help of a block diagram. 5
- (f) How does database differ from a data warehouse ? How does processing in database differ from that in data warehouse ? 5
- (g) What is a Datagrid ? Describe the structure of datagrid, with the help of a block diagram. Why is the datagrid required ? 5
- (h) What do you mean by tuning of SQL ? Briefly discuss each step involved in the tuning of SQL. 5
2. (a) Describe the phases of Query processing by using a block diagram. Discuss the process of Query optimization, by using suitable example. 10
- (b) Compare and contrast the following : 10
- (i) Inclusion dependencies and Template dependencies
 - (ii) XML and HTML
 - (iii) Centralized 2PL and Distributed 2PL
 - (iv) K-Means clustering and Nearest Neighbour clustering
3. (a) Discuss classification as a tool in Data Mining. Describe the ID 3 algorithm for classifying data sets with a suitable example. 10

- (b) What do you mean by Multiversioning ? What are the various schemes available for multiversioning ? Describe any two schemes in detail. 10
4. (a) How does PostgreSQL perform storage and indexing of tables ? Briefly discuss the types of indexes involved in PostgreSQL. 10
- (b) What is SQLJ ? What are the requirements of SQLJ ? Briefly describe the working of SQLJ. "Can SQLJ use dynamic SQL ?" If yes, then how ? Otherwise, specify the type of SQL it can use. 10
5. (a) Write short notes on any *two* of the following : 5
- (i) JDBC
- (ii) PJNF
- (iii) Spatial Databases
- (b) What do you mean by Multilevel Security ? Discuss the methods involved in the support of multilevel security. 5
- (c) What is Audit trail ? Give four benefits provided by Audit trail in the context of DBMS. 5
- (d) Discuss the constraints associated with Generalization in an E-R Model. 5
-