

PGDCA/MCA (I Year)

Term-End Examination

December, 2008

CS-06 : DATABASE MANAGEMENT SYSTEM

Time : 3 hours

Maximum Marks : 75

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

1. (a) A chemical testing laboratory has several chemists who work on one or more projects. Chemists may have a variety of equipment on each project. The laboratory management wants to record the equipment issue date when given equipment item is assigned to a particular chemist working on a specified project. A chemist must be assigned to atleast one project and one equipment item. A given equipment item need not be assigned and a given project need not be assigned either a chemist or an equipment item. Design and draw an ER diagram, clearly indicating the entities, attributes, keys, the cardinality and participation constraints. 10

Note : Make necessary assumptions.

- (b) What is CODD's Rules ? Explain the Integrity Rule and the View Updating Rule. 5
- (c) Describe the Client / Server Architecture and its main components. Explain its need and advantages. 5
- (d) Write syntax of the following SQL commands. Provide an example of each : 10
- (i) CREATE
 - (ii) ALTER
 - (iii) REPLACE
 - (iv) DELETE
 - (v) INSERT
2. (a) Draw and explain the three-level architecture of a Database Management System. 5
- (b) Describe the JOIN operations and its various types with the help of examples. 5
- (c) Compare Relational Database Management System with Object Oriented Database Management System. 5
3. (a) What is meant by Distributed Computing Environment ? What are the three possible methods by which we can integrate the distributed RDBMS applications. 5

- (b) Explain the problems of database inconsistency and redundancy of data. How can this problem be solved in the relational model. Support your answer with an example. 5
- (c) Explain atleast five responsibilities of a Database Manager. 5
4. (a) Explain the Hierarchical Model. How are following functions performed in this model :- 9
- (i) Representation of many-to-many relationship.
 - (ii) Accessing of data records.
 - (iii) Implementing of the Hierarchical Data Model.
- (b) What are Database anomalies ? Explain the three types of anomalies that may exist in a database. 6
5. (a) What is Normalization ? Explain the conditions under which a relation needs to be normalised to 3 NF to BCNF, with the help of suitable example. 9
- (b) Explain any six reasons as to why organisations resist from using DBMS tools. 6

