

MCA (Revised)
Term-End Examination
June, 2007

**MCS-043 (S) : ADVANCED DATABASE
DESIGN**

Time : 3 hours

Maximum Marks : 100

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

1. (a) What are Triggers, Cursors and Alerts ? What is their requirement in DBMS ? How are Triggers different from stored procedures ? 6
- (b) Describe the life cycle of development of any database application. 4
- (c) How does Embedded SQL differ from Dynamic SQL ? With the help of example, describe the implementation of Cursors and Triggers. 5
- (d) What are Hash joins ? Write algorithm for determining the Hash join of two relations. Describe the method for calculating the cost of Hash join. 8

- (e) What do you mean by Deadlock in a transaction system ? How can you detect the situation of deadlock ? Suggest the technique that can be used to prevent deadlock. 8
- (f) What do you mean by Database Granularity ? Does granularity have any relation with Database security ? Justify your answer. 4
- (g) Describe the protocols used to manage a concurrent environment of a Distributed database. Can we use 2-phase commit protocol to manage concurrent environment ? If your answer is yes then describe how, otherwise suggest the suitable protocol which can be used to manage concurrent environment. 5
- 2.** (a) Distinguish between the following : 8
- (i) Time stamping and 2-phase locking
 - (ii) Schemas and DTDs
 - (iii) DOM Parser and SAX Parser
 - (iv) Serial schedule and Serializable schedule
- (b) What is Datawarehousing ? Describe steps involved in designing and implementation of Datawarehouse. 7
- (c) What are Semantic databases ? Describe the process of searching the knowledge in any semantic database, with the help of a block diagram. 5

3. (a) Define Datamining. What are the various approaches to perform datamining ? Discuss the steps of ID3 algorithm for creating the decision tree of given training data. 8
- (b) Write short notes on : 6
- (i) OLAP
 - (ii) Semantic Databases
 - (iii) DKNF
- (c) What is ODBC ? What are the requirements of ODBC ? Describe the components required for implementation of ODBC. 6
4. (a) What is PostgreSQL ? Discuss the salient features of PostgreSQL. What are the processes involved in the working of PostgreSQL ? 8
- (b) Can we perform mobile use of database centric application by using Oracle ? If your answer is no then specify the other software that can be used to do the task, else name the tool that can be used. Also mention the key components of the tool. 5
- (c) How does data dictionary differ from data directory ? Describe the features of any data dictionary. Give any two disadvantages of data dictionary. 7

5. (a) Define Shadow paging. How can Shadow paging be used as a recovery tool ? Give three disadvantages of Shadow paging. 5
- (b) Briefly discuss the failures encountered by DBMS in general. 5
- (c) What do you mean by Statistical database security ? How can you protect your database from Statistical Query attacks ? 5
- (d) How do Distributed databases differ from Centralised databases ? Briefly describe the functions of Distributed databases. 5