

MCA (Revised)
Term-End Examination
December, 2014

05494

**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) How do UML diagrams help in designing the database ? Discuss with the help of an example. 5
- (b) How does data granularity affect the performance of concurrency control ? Do you think that data granularity and database security are interrelated ? Justify your answer. 5
- (c) Compare and contrast the distributed DBMS environment with the centralised DBMS environment. 5
- (d) What are semantic databases ? List the features of semantic databases. Explain the process of searching the knowledge in these databases. 5
- (e) What is shadow paging ? Give two advantages and two disadvantages of shadow paging. 5

- (f) What is a data warehouse ? Describe the process of ETL for a data warehouse. 5
- (g) What are data marts ? Briefly discuss the method of creating the data marts. 5
- (h) Explain the role of Query Optimizer in Oracle. 5
2. (a) Explain the algorithm and cost calculation for Simple Hash Join. 10
- (b) Differentiate between the following : 10
- (i) Embedded SQL and Dynamic SQL
- (ii) XML and HTML
- (iii) 2 PC and 3 PC Protocol
- (iv) Data Warehousing and Data Mining
3. (a) Give suitable example to discuss the Apriori algorithm for finding frequent itemsets. 10
- (b) Write a short note, with suitable example, for each of the following : 10
- (i) Vendor-Specific Security
- (ii) Multilevel Security
4. (a) What are cursors, stored procedures and triggers ? Give SQL syntax for each and discuss the utility aspect of each. 10
- (b) Explain Join-Dependency with the help of an example. With which normal form is it associated ? Functional dependency and Multivalued dependency are special types of join dependencies. Justify. 10

5. (a) What do you mean by Deadlock ? How can we prevent Deadlock ? Write an algorithm that checks whether the concurrently executing transactions are in deadlock or not. 10
- (b) Compare and contrast Relational DBMS with Object-Relational DBMS and Object-Oriented DBMS. Suggest one application for each of these DBMS. 10
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