

22640

M.Tech 1st Semester (CSE) CBCS Scheme

Examination, December-2017

ADVANCED DATABASE MANAGEMENT SYSTEM

Paper-MTCSE21 C3

*Time allowed : 3 hours]*

*[Maximum marks : 100*

*Note : Question No. 1 is compulsory. Attempt any four questions from the remaining four units, selecting at least one question from each unit.*

1. (a) Define object-oriented database. What are its characteristics ?
- (b) What do you mean by Data Replication ? Explain.
- (c) Differentiate between primary key, candidate key and super key.
- (d) What do you mean by normalization ? Explain. 20

**Unit-I**

2. (a) Describe briefly the following operators of Relational Algebra : 10
  - (i) Natural Join
  - (ii) Select and Project
  - (iii) Extended Cartesian Product
- (b) Describe various Data Models in detail. 10

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3. What do you mean by query processing ? Explain the various steps of query processing with a detailed diagram. 20

#### Unit-2

4. (a) What is concurrency control ? Explain Two-Phase locking techniques for concurrency control. 10  
 (b) Explain timestamp ordering algorithm for concurrency control. 10
5. (a) Explain the concept of recovery in a database system. How it is performed ? 10  
 (b) Explain the concept of shadow paging technique for recovery in database system. 10

#### Unit-3

6. (a) What is object-oriented database ? Explain its features. How it is different from traditional databases ? 10  
 (b) What is object query language ? Explain with example. 10
7. (a) What is distributed database ? Write additional functions of distributed databases over centralized database. 10

- (b) Explain various types of replication techniques in distributed database. 10

#### Unit-4

8. (a) What is data warehouse ? Explain in detail the three tier architecture of data warehouse. 10  
 (b) List the preprogrammed functionalities that are available in a data warehouse transactional environment. 10
9. (a) What are object relational databases ? Explain with the help of an example. What are their advantages over traditional databases ? 10  
 (b) Explain the various features of enhanced SQL and contrast them with standard SQL. 10