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MCS–043

MASTER OF COMPUTER APPLICATION (REVISED) (MCA)

Term-End Examination

June, 2025

MCS-043 : ADVANCED DATABASE MANAGEMENT SYSTEM

Time : 3 Hours *Maximum Marks : 100*

Note : *Question No.* ***1*** *is compulsory and carries 40 marks. Attempt any* ***three*** *questions from Question Nos.* ***2*** *to* ***5****.*

1. (a) How does recovery algorithm ensure database consistency, transaction atomicity and durability despite failures ? Write and explain any *one* algorithm along with an example. 10

   (b) Discuss the ETL component of a Data Warehouse in detail. 10

(c) What are Multimedia Databases (MMDB) ? With reference to MMDB, explain the following : 10

(i) Contents of MMDB

(ii) Applications of MMDB

(iii) Challenges in designing MMDBs

(d) Describe the different types of join operations used in query processing. 10

2. (a) Explain join dependencies and the Fifth Normal Form (5NF) with an example. 10

(b) Explain inheritance and its types in object-relational database system. 10

3. (a) Describe the role of XML Schema in defining the structure of XML documents. 5

(b) What is table access control and how does it enhance database security ? 5

(c) Write short notes on the following : 5×2=10

(i) Spatial Databases

(ii) Mobile Databases

4. (a) Discuss the different approaches to data mining problems. 6

   (b) What are XML Namespaces and why are they important ? Discuss how they are implemented with the help of an example. 8

   (c) Explain deadlock management and how locking protocol causes deadlocks. 6

5. Write short notes on the following : 5×4=20

   (i) Data Marts

   (ii) Three Phase Commit (3PC)

   (iii) GNOME Databases

   (iv) Enhanced-Entity Relationship Diagram

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