CBCS SCHEME

USN | | | | | | | | | | |

18MCA31

Third Semester MCA Degree Examination, Jan./Feb. 2021
Database Management System

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Define database management system. Explain its characteristics. **(10 Marks)**
b. With suitable diagram, explain the main phases of database design. **(10 Marks)**

OR

2 a. Explain with proper diagram the 3-schema architecture of DBMS. **(10 Marks)**
b. What are the different types of attributes? Explain with example. **(10 Marks)**

Module-2

3 a. Explain unary operation SELECT and prove it is commutative. **(10 Marks)**
b. With example explain JOIN operation in relational algebra. **(10 Marks)**

OR

4 a. Explain in detail ER – to – Relational mapping algorithm. **(10 Marks)**
b. With example explain schema update operations. **(10 Marks)**

Module-3

5 a. Explain the structure of CREATE TABLE command with suitable example. **(10 Marks)**
b. What are views in SQL? Explain. **(10 Marks)**

OR

6 a. Explain with suitable example the basic structure of SQL query. **(10 Marks)**
b. What are aggregate functions? Explain. **(10 Marks)**

Module-4

7 a. Discuss informal design guidelines for relational schema. **(10 Marks)**
b. What is normalization? What are the advantages of it? **(10 Marks)**

OR

8 a. Discuss the different inference rules for functional dependencies. **(10 Marks)**
b. Explain with suitable example the Boyce – Codd Normal Form (BCNF). **(10 Marks)**

Module-5

9 a. Explain ACID properties of transaction in detail. **(10 Marks)**
b. Write in detail about crash recovery algorithm. **(10 Marks)**

OR

10 a. Enumerate on anomalies due to inter-leaved execution. **(10 Marks)**
b. Discuss on lock-based concurrency control issue in DBMS transaction processing. **(10 Marks)**

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