Roll No. .....

67059

MCA 2nd Semester CBCS Scheme
w.e.f. 2016-17
Examination – May, 2018

DATA BASE MANAGEMENT SYSTEM

Paper : 16MCA32C4

Time : Three Hours] *[Maximum Marks : 80*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all. Question No. 1 is ***compulsory*** questions, attempt ***four*** more questions selecting ***one*** question from each Unit.

1. Compulsory Question :

(a) What four main types of actions are involved in database ?

(b) What is a participation role ? When is it necessary to use role names in relationship types ?

(c) Why are duplicate tuples not allowed in a relation ?

(d) Discuss the meanings of existential quantifier and universal quantifiers.

(e) What is the difference between WHERE and HAVING clause ?

(f) What undesirable dependencies are avoided when a relation is in 3NF ?

(g) What is timestamp ? How does the system generate timestamps ?

(h) Differentiate between Function and procedure in PL/SQL.

UNIT – I

2. Discuss the three schema architecture. What is mapping and why mapping and data independence are needed between schema levels ? How do different schema languages support this architecture ?

3. Define recursive relationship, degree of relationship, relationship as attribute and identifying relationship type with example in context of E-R model. Also discuss participation constraints for relationship.

UNIT – II

4. (a) What are the conditions to be fulfilled for two relations to be involved in UNION operation ? Why do UNION, INTERSECTION and DIFFERENCE operations require the operand relations to be UNION compatible? Justify the answer.

   (b) Explain about Domain constraints and Referential integrity constraints with example.

5. (a) Differentiate between relation schema and relation state. When is a relation state said to be valid state. Discuss with example.

   (b) How does tuple relational calculus differ from domain relational calculus ? Also discuss the expressive power of domain relational calculus.

UNIT – III

6. (a) Discuss the six clauses in the syntax of SQL retrieval query ? What type of construct can be specified in each clause ? Which of the six clauses are required and which are optional ?

   (b) What is BCNF ? If a relation is in BCNF, is it guaranteed that it will be in 1St, 2nd, and 3rd normal forms as well ? Explain.

7. (a) Discuss how NULLs are treated in comparison operators in SQL. How are NULLs treated when aggregate functions are applied in SQL query and if they exist in grouping attributes?

(b) What is a minimal set of functional dependencies ? Does every set of dependencies have a minimal equivalent set ? Is it always unique or not? Explain.

UNIT – IV

8. (a) How two-phase locking is related to serializability ? Discuss the role of two-phase locking in deadlock detection and avoidance.

(b) What are the needs of packages ? How a package can be created and invoked in PL/SQL ?

9. (a) Describe levels of isolation in SQL. Also discuss possible violations based on levels of isolation with example.

(b) Differentiate between statement level and row level trigger. How a trigger can be created, updated and deleted ?