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MCA-11/ MSc(IT)-12 (Master of Computer Application/ Master of Science in Information Technology)

Forth Semester Examination-2015

MCA-13/M.SC.(IT)-14

Advance Database Management System

Time : 3 Hours **Maximum Marks :** 60

Note : This paper is of sixty (60) marks divided into three (03) sections A, B, and C. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section - A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long-answer-type questions of fifteen (15) marks each. Learners are required to answer any two (02) questions only. (2×15=30)

1. What do you mean by Good and Bad decompositions? Explain different anomalies you remove while going from 1 NF to 2 NF and then from 2 NF to 3 NF. What do you mean by Boyce Codd Normal Form?

2. Explain basic structure of SQL. Write down complete syntax of create, insert, delete and modification commands supported by SQL. Explain 'group by' SQL query with example.

3. Create a database with attribute emp-no., emp-name, emp-designation, dept-no., emp-net-sal and write the command for:

   (1) List the name of all employees who belongs to the dept no 10.

   (2) List the dept no. where the number of employee are more than five.

   (3) List the name of employees who withdraw the net salary more than Rs. 10,000.

4. What is E-R diagram? Draw E-R diagram for any of the a Hospital, after determining, the entities of interest and the relationships that exist between these entities.

Section - B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short-answer-type questions of five (05) marks each. Learners are required to answer any four (04) questions only. (4×5=20)

1. What are the Codd's rule? Discuss the Codd's rule for the designing an efficient Database.

2. What is data model? Explain Hierarchical data model.

3. Explain the 3-tier architecture of DBMS? Explain the advantage of 3-tier architecture of DBMS over 2-tier architecture of DBMS.

4. What are the characteristics of SQL? What is the difference between embedded SQL and dynamic SQL?

5. What is Functional Dependency? Explain six inference rules for functional dependencies.

6. What is Transaction processing? Explain characteristics schedule based on recoverability and serializability.

7. What do you understand by the concurrency control? Explain two phase locking techniques for concurrency control.

8. What are the database security issues? Explain discretionary access control based on grant and revoking privilege.

Section - C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective-type questions of one (01) mark each. All the questions of this section are compulsory. (10×1=10)

Write True or False :

1. Overall logical structure of a Database can be expressed graphically by ER diagram.

2. Software that defines a database , stores the data, supports a query language, produces reports and creates data entry screens is a Database Management System.

3. Any table that meets the definition of a relation is said to be in first normal form.

4. A key is a group of one or more attributes that uniquely identifies a row.

5. A functional dependency is a relationship between or among attributes.

6. The separation of the data definition from the program is known as data independence.

7. A candidate key is a determinant that determines all the other columns is a relation.
8. The primary key is referred to as a unique entity identifier.
9. The relational database was created by E.F. Codd.
10. An advantage of database approach is the creation of maximum data redundancy.