CBCS Scheme

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

16MCA23

Second Semester MCA Degree Examination, June/July 2017
Database Management System

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. List the advantages of DBMS over traditional file system. Briefly explain them. **(06 Marks)**

b. Define and explain the importance of database catalog. Explain the internal storage format of a catalog with an example. **(06 Marks)**

c. What are the responsibilities of DBA? **(04 Marks)**

OR

2 a. Explain the operations for a two tier client – server architecture for DBMS. **(06 Marks)**

b. What is meant by "Persistant storage for program objects"? Explain. **(04 Marks)**

c. Describe the various steps of an algorithm for ER to relational mapping with the help of Company relational database schema. **(06 Marks)**

Module-2

3 a. Define the following terms : i) Join ii) Division iii) Cartesian product iv) Union v) Set difference. **(10 Marks)**

b. Consider the following relations and write relational algebra queries :
EMPLOYEE (Fname , SSN , Salary , Super_SSN , Dno) ;
WORKSON (ESSN, Pno , Hours) ;
DEPARTMENT (Dname, Dnumber, Mgr_SSN) ;
DEPENDENT (ESSN , Dependent_name) ;
i) Retrieve the highest salary paid in each department.
ii) Retrieve the name of managers who have more than two dependents.
iii) Retrieve the number of employee's and their average salary working in each department. **(06 Marks)**

OR

4 a. What are Integrity constraints? Discuss the various update operations on relations and the type of integrity constraints that must be checked for each update operation. **(10 Marks)**

b. Explain SELECT and PROJECT operation with suitable example. **(06 Marks)**

Module-3

5 a. Discuss insertion , deletion and updation anomalies by taking suitable examples. **(08 Marks)**

b. Explain i) Aggregate functions ii) Embedded SQL. **(08 Marks)**

OR

6 a. How is a view created and dropped? What problems are associated with updating of views? **(08 Marks)**

b. Explain SQL data definition and data types in brief and explain DROP and ALTER command. **(08 Marks)**

Module-4

7 a. Define Functional dependency. Explain 1NF , 2NF and 3NF, with example for each . **(08 Marks)**

b. What is a Trigger? Explain DML trigger, with an example. **(08 Marks)**

OR

8 a. Explain the Informal guidelines for the relational schema. **(08 Marks)**

b. A relation R has four attributes A B C D. For each of the following sets of FD, identify the candidate key and weight normal form.

i) $C \rightarrow D$, $C \rightarrow A$, $B \rightarrow C$ ii) $B \rightarrow C$, $D \rightarrow A$. **(08 Marks)**

Module-5

9 a. What is Transaction? In what ways it is different from an ordinary program? **(06 Marks)**

b. Explain all the phases involved in ARIES algorithm, with an example. **(10 Marks)**

OR

10 a. Explain i) ACID properties ii) Strict two phase locking. **(08 Marks)**

b. Explain the database recovery technique based on different update. **(08 Marks)**

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