2012

MCA

3rd SEMESTER EXAMINATION

DBMS

PAPER—MCA-301

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Q. No. 1 is compulsory and attempt any *four* from the rest.

1. Answer any *five* :   2×5

   (a) What is daugling pointer ?

   (b) Explain non-key attribute.

   (c) "Weak entity set is existence dependent on the identifying set" — explain.

   (d) Explain derived attribute.

   (e) What is multivated dependency ?

(f) What is full replication ?

(g) Define data-isolation property.

2. (a) Write short notes on the following (any *three*) : 3×4

   (i) BCNF ;

  (ii) DBA ;

  (iii) Aggregate functions ;

  (iv) ACID property in transaction management system.

  (v) E–R diagram.

(b) Describe the disadvantages of using file processing system.   3

3. (a) Explain rename operation with example.   4

(b) Describe the Date's rules about DDBMS.   5

(c) What is alternate key ?   2

(d) State the difference between tuple relational calculus and domain relational calculus.   4

4. (a) What is non-trivial dependency ? Explain with example.   3

(b) Explain 3NF with example.   4

(c) Describe the state diagram of transaction management system.   4

(d) Prove that reflexivity, augmentation and transitivity rules, assuming only the basic definition of functional dependence.   4

        (Continued)

5. (a) What is data fragmentation ? Explain different types of data fragmentation with example. 1+5

(b) Write down the difference between instance and schema. 3

(c) Explain non-loss decomposition with example. 3

(d) Describe the ADSI properties of a transaction in distributed system. 3

6. Emp (E_name, street, city)

Works (E_name, C_name, Salary)

Comp (C_name, city)

Manager (E_name, Manager_name)

Write the following query and get the result :

(i) Find the name of all employee who works for TCS.

(ii) Find the name and cities of residence of all employee who works for IBM.

(iii) Find the name, street and cities of residence of all employees who works for WIPRO and earn more than ₹ 1,00,000.

(iv) Find all employees in the database who live in the same cities as the companies for which they work.

(v) Find all employees in the database who live in the same cities and on the same streets as do their managers.

7. Consider the Database schema solve the following query using SQL : 4+4+4+3

Flights (F_no, from, to, distance, departs, arrive, fare)
Aircraft (A_id, A_name, Crusing_range)
Employees (E_id, E_name, Salary)
Certified (E_id, A_id)

(a) Identify the flights that can be plotted by every pilot whose salary is more than ₹ 1,00,000.

(b) List the names and salary of the employees whose salary is more than the average salary.

(c) For all aircraft with the Cruising_range over 1000 mile, find the name of the aircraft and the average salary of pilots.

(d) Find the names of pilots who can operate planes with a range greater than 3000 miles but are not certified on any Boeing Aircraft.

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