V Semester B.E. (CSE/ISE) Degree Examination, December 2016
(2K11 Scheme)
CI 51 : DATABASE MANAGEMENT SYSTEMS

Time : 3 Hours   Max. Marks : 100

Instruction : Answer **any five full** questions, choosing atleast **two** from **each** Part.

PART – A

1. a) Explain the architecture of DBMS with a neat diagram.   **8**

   b) Write the classification of Database Management System.   **6**

   c) Write a note on DBMS languages.   **6**

2. a) Explain the following with an example for each :
      i) Weak entity
      ii) Complex attribute
      iii) Cardinality ratio
      iv) Foreign key
      v) Null values.   **10**

   b) Write the ER-to-Relational Mapping procedure, explaining each step with an example.   **10**

3. a) Explain the following relational algebra operations with an example for each :
      i) Cartesian product
      ii) Join operation
      iii) Division operation.   **12**

   b) Consider the following relational schema :
      Emp (eid, ename, age, sal)
      Works (eid, pid, no-of-hrs, did)
      Dept (did, dname, mgrid)
      Project (pid, pname)
      Write the relational algebra statements to
      i) Give every employee of did = '6' a 20% raise in salary.
      ii) Add 'John' as an employee with eid = '99' and age = '30' and salary = 15000.
      iii) Delete the 'Research' department and explain what happens when this statement is executed.   **8**

4. a) Consider the following relations :
   Works (Pname, Cname, Salary)
   LIVES (Pname, Street, City)
   LOCATED-IN (Cname, City)
   MANAGER (Pname, Mgrname)
   Where Pname = Person name
           Cname = Company name
           Mgrname = Manager name
   Write the following in SQL :
     i) List the names of the people who work for the company 'WIPRO' along
        with the cities they live in.
     ii) Find the names of persons who live and work in the same city.
     iii) Find the persons whose salary is more than that of all the 'Oracle'
        employees.
     iv) Find the names of the companies that are located in every city where the
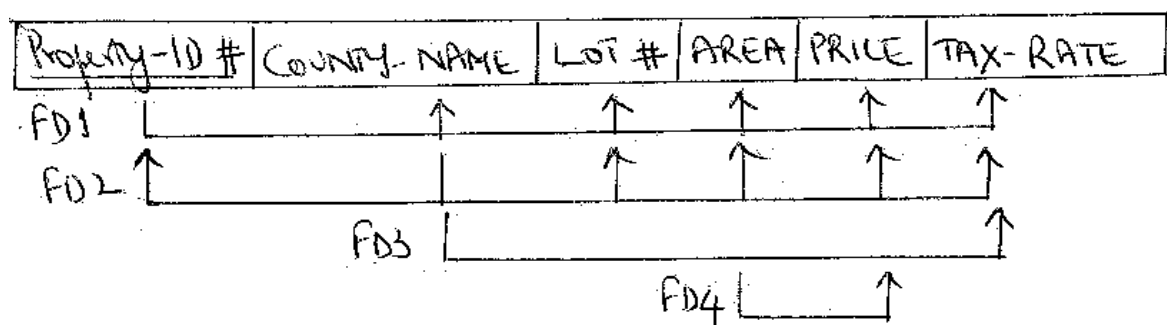   company 'Infosys' is located. **12**

   b) What is a new in SQL ? How is it defined ? Discuss the problems that may
   arise when one attempts to update a view. How are views typically
   implemented ? **8**

PART – B

5. a) Consider the relation schema LOTS and its functional dependences FD1
   through FD4 shown in figure.

   {COUNTY_NAME, LOT #} – Candidate Key
   {Property_ID #} – Primary Key
   Put the relation in 3 NF. Explain. **10**

b) Define 4 NF based on multivalued dependency with an example, show how a relation can be brought to 4 NF. **10**

6. a) Explain the RAID technology in secondary storage. **10**

   b) Differentiate between single-level and multi-level indexes. **10**

7. a) Explain the Oracle Architecture with a neat diagram. **10**

   b) Discuss the various features of MS-Access. **10**

8. a) What are the different ways of describing knowledge during data mining ? **10**

   b) Write notes on : **10**

   i) Multimedia databases

   ii) Parallel databases.

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