INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular/Supplementary) - July, 2018

Regulation: IARE–R16

ADVANCED DATABASE MANAGEMENT SYSTEM

(CSE)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Explain the difference between logical and physical data independence.   **[7M]**

   (b) A university database contains information about professors (identified by a social security number) and courses (identified by a course ID). Each of the following situations concerns the relationship set between the teacher and the student. Draw an ER diagram that describes it (assuming that no further constraints hold).   **[7M]**
      i. Professors can teach the same course in several semesters, and each offering must be recorded.
      ii. Each professor teaches exactly one course.
      iii. Each professor teaches at least one course, and some professors may teach multiple courses.
      iv. Each professor teaches at least one course and some professors must teach all the courses.

2. (a) Briefly answer the following questions based on this schema: Emp(eid: integer, ename: string, age: integer, salary: real) Works(eid: integer, did: integer, pct time: integer) Dept(did: integer, budget: real, managerid: integer).
      i. Give an example of a view on Emp that could be automatically updated by up- dating Emp.
      ii. Give an example of a view on Emp that would be impossible to update (auto- matically) and explain why your example presents the update problem that it does.   **[7M]**

   (b) Consider the following tables Works (Pname, Cname, Salary) Lives (Pname, Street, City) Locatedin (Cname, City) Manager (Pname, Mgrname) Where Pname = Person name, Cname = Company name, Mgrname = Manager name Write the SQL for the following
      i. List the names of the people who work for company Wipro along with the cities they live in.
      ii. Find the people who work for the company "Infosys" with salary more than Rs. 50000/-. List the names of the people, along with the streets and city addresses.
      iii. Find the names of the persons who live and work in the same city.
      iv. Find the names of the person who do not work for "Infosys".
      v. Find the persons whose salaries are more than that of all of the 'Oracle' employee.
      vi. Find the names of the companies that are located in every city where the company 'Infosys' is located.   **[7M]**

UNIT – II

3. (a) Give the comparison among object identity and foreign keys. **[7M]**

   (b) Illustrate different phases in improved parallel join hash join operation. **[7M]**

4. (a) Illustrate the concept of Speed-up and Scale-up factors in parallel datbases. **[7M]**

   (b) Explain the process of Parallelizing Sequential Operator Evaluation Code . **[7M]**

UNIT – III

5. (a) What is fragmentation in DDBMS and discuss different types of fragmentation that can be achieved in DDBMS. **[7M]**

   (b) Give the comparison among centralised databases and distributed databases. **[7M]**

6. (a) List and briefly discuss the advantages and disadvantages of distributed database management systems. **[7M]**

   (b) Give the classification of distributed database management systems. **[7M]**

UNIT – IV

7. (a) Briefly discuss different rules to define the result of applying the operations of relational algebra to qualified relation during transforming global queries into fragmentation queries. **[7M]**

   (b) Enumerate the working of group-by relation GBG, AF R by taking an example. **[7M]**

8. (a) Illustrate the usage of CUT in a parametric query for the following relation. **[7M]**
   $\mathrm{SL}_{\mathrm{DEPTNUM}} = \$XORDEPTNUM = \$Y^{SUPPLY}$

   (b) What are the aims of fragmentation during distributed database design and the information is used to decide fragmentation. **[7M]**

UNIT – V

9. (a) Consider the following relations and illustrate various strategies for computing.
   Sailors(sid: integer, sname: string, rating:integer, age: real)
   Reserves(sid: integer, bid: integer, day: date, rname: string) **[7M]**

   (b) Distinguish the major differences of DBMS and IR Systems. List few applications of each. **[7M]**

10. (a) Write the syntax and example for the following XML Query clauses: FOR, LET, WHERE and RETURN **[7M]**

    (b) What are signature files? Explain how to query a signature file by taking an example? **[7M]**

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