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Roll No.

IT-403

B. E. (Fourth Semester)
EXAMINATION, June, 2012

(Grading/Non-Grading)

(Information Technology Engg. Branch)

DATABASE MANAGEMENT SYSTEM

(IT-403)

Time : Three Hours

Maximum Marks : $\begin{cases} GS : 70 \\ NGS : 100 \end{cases}$

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Explain three level architecture. What are its objectives ?
- (b) Develop an ER diagram for library management system.

Or

- (a) Explain the distinction between specialization and generalization concepts.
 - (b) What are the different types of entities and relationships in railway reservation system ?
2. (a) Explain the distinction between representation of association, relationship and basic operation in data models.

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- (b) What are the integrity rules ? Explain the significance of primary key and foreign key in employee database.

Or

- (a) What is the significance of using the views ? Write a command to create the view.
- (b) A relation consists of attributes A, B, C, D, E, F, G and H :
- (i) No single attribute has unique values.
 - (ii) The combination of attributes A and E is unique.
 - (iii) The combination of attributes B and G is unique.
- Select primary key for this relation and indicate any alternate keys.

3. Solve the following on the given database. Write the SQL and Relational Algebra for given Queries :

S (SNo, Sname, City, States)

P (Pno, Pname, Color, Weight)

SP (Sno, Pno, QTY)

- (i) Get supplier name who supply atleast one red part.
- (ii) Get supplier number who supplies maximum quantity.
- (iii) Get supplier number who supply quantity greater than average quantity.
- (iv) Increase the quantity of Part P₁ by 10%.
- (v) Change the color of Red Parts supplied by Ajay to Green.

Or

Solve the following with pure tuple calculus and Quick tuple calculus. Consider the following database :

EMP (empno, ename, Job, mgr, hiredate, sal, comm, deptno)

DEPT (deptno, dname, loc)

- (i) Get full detail of employee in relation EMP.
 - (ii) Get employee number for department number 10.
 - (iii) Get employee names that belong deptno 40 and having salary > 1000
 - (iv) Get employee number and name who are working in "Sales" department.
 - (v) Decrease the salary by 100 for all employee in "Account" department.
4. (a) What are the anomalies occurred due multi-value dependence and had the anomalies are rectified ?
- (b) Explain the cases where 4th normal form is applicable. How does it remove the anomalies ?

Or

- (a) Normalize the following database :
(empno, ename, Job, sal, doj, mgr, deptno, dname, loc)
 - (b) What is meant by projection dependency ?
5. (a) What is meant by forward and backward recovery techniques ?
- (b) What are advantages and disadvantages of object oriented database mean ?

Or

Describe the follwing terms :

- (i) System privileges
- (ii) Database privileges
- (iii) Object privileges
- (iv) Privacy of data