Total No. of Questions :6]

SEAT No. :

P68

[Total No. of Pages :3

Oct./TE/ Insem. - 187
T.E. (Computer Engg.)
DATABASE MANAGEMENT SYSTEMS
(2015 Course) (Semester-I)

Time : 1 Hour] *[Max. Marks :30*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) Assuming you as a part of design and development team of an organization, propose E-R model using E-R diagram for the following data requirements. Also convert and represent E-R model into tables: **[10]**

- Company organized into DEPARTMENT. Each department has unique name and a particular employee who manages the department. Start date for the manager is recorded. Department may have several locations.
- A department controls a number of PROJECT. Projects have a unique name, number and a single location.
- Company's EMPLOYEE name, ssno, address, salary, sex and birth date are recorded. An employee is assigned to one department, but may work for several projects (not necessarily controlled by her dept).
- Number of hours/week an employee works on each project is recorded.
- Employee's DEPENDENT are tracked for health insurance purposes (dependent name, birthdate, relationship to employee).

OR

Q2) a) While reducing E-R Model into tables, whether the table to be created for relationship or not is depend on mapping cardinality between entity sets i.e decisions needs to be taken considering mapping cardinality is one to one, one to many, many to one or many to many. Explain in detail the decision taken during the above situations. **[5]**

b) Distinguish between Super key, candidate key and primary key. **[5]**

P.T.O.

Q3) a) Consider the following database schema: **[5]**

Emp(E_number,E_name,Dept_no)

Dept(Dept_no,Dept_name)

Address(Dept_name,Dept_location)

Write SQL queries for following requirements (any 2)

i) Display the name of department for the employee having E_number 'E1011'.

ii) Display the location of department where employee 'Ramesh' is working.

iii) Display total no. of employees working in each department.

b) Elaborate the need of database views. Also explain the situations where in the view created are updateable views. **[5]**

OR

Q4) a) Write Pl/SQL block of code for following requirement: **[5]**

Student_fees(PRN,S_name,class,fees_paid)

Accept the PRN of student from user, check the fees paid by student, if fees paid is less than 30,000 then display the message on screen Not paid full fees, and display the total fees due. If fees_paid is greater than or equal to 30,000 then display message no fees due.

b) Emp(E_number,E_name,Dept_no) **[5]**

Dept(Dept_no,Dept_name)

Consider the schema given above. Consider above tables are created without considering the Dept_no as primary key in Dept table and foreign key in Emp table. Assuming tables are already created write SQL queries for following requirements.

i) Create primary key in dept table considering above situations

ii) Create foreign key considering EMP as child table and Dept as master table also consider the above situation.

iii) Add column salary with appropriate data type in EMP table.

Q5) a) Consider a table having structure Student (Roll_no, Branch_code, Marks_obtained, Exam_name, Total_marks) **[7]**

Note following points:

i) Composite Primary key for student table is (Roll_no,Branch_code)

ii) Branch_code columm stores the code of branch for which students have taken admission.

iii) Exam_name attribute is depend on both Roll_no & Branch_code

iv) Total_marks attribute is depend on Exam_name attribute

Considering above requirement state whether the table created is in Third Normal form or not? Why? If not in Third normal for propose the database design for above requirements which is in Third Normal Form.

b) Twelve rules are proposed by codd, which according to him, a database must obey in order to be regarded as a true relational database. One of the rule is Comprehensive Data Sub-Language Rule. A database can only be accessed using a language having linear syntax that supports data definition, data manipulation, and transaction management operations. Explain in brief above rule. Also state its significance. **[3]**

OR

Q6) a) Explain why Database normalization is required for good relational database design? Explain with example requirements of Second Normal Form. **[7]**

b) Explain in brief with suitable example Full functional dependency & partial dependency. **[3]**

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