

2016

MCA

3rd Semester Examination

DBMS LAB.

PAPER—MCA-308

(Practical)

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.

Answer any one question.

1. Consider the following relation schema

Employee (Employee_no, Employee_name, designation, Salary, Hiredate, Department_no, Manager_name)

Department (Dnumber, Dname, Location)

(a) Create the above database using SQL.

(b) Find the minimum, maximum and average salaries of all employees.

(Turn Over)

- (c) To calculate the average salary for each different job.
- (d) To display minimum salary for each department.
- (e) Do a case insensitive search for a list of employees with a job that the user enters.
- (f) To show all employees hired on June 4, 1984 (non-default format) (February 22, 1981).
- (g) List lowest paid employees working for each MANAGER. Sort the output by salary.

2. Relation schema :

Employee (Employee_no, Employee_name, designation, Salary, Hiredate, Department_no, Manager_name)

Department (Dnumber, Dname, Location)

- (a) Create the above database using SQL.
- (b) List the employee name, job and salary & department name for everyone in the company except clerks. Sort on salary, display the highest salary first.
- (c) Display all employees who earn less than their managers.
- (d) Display the department that has no employees.
- (e) Find the job that was filled in the first half of 1983 and the same job that was filled during the same period in 1984.

- (f) Find all employees who joined the company before their managers.
- (g) To display the jobs in department 10 but those jobs are not in department 20.

3. For the following relation schema :

employee (employee-name, street, city)

works (employee-name, company-name, salary)

company (company-name, city)

managers (employee-name, manager-name)

Give an expression in SQL for each of the following queries :

- (a) Find the names, street address and cities of residence for all employees who work for 'First Bank Corporation' and earn more than \$10,000.
- (b) Find the names of all employees in the database who live in the same cities as the companies for which they work.
- (c) Find the names of all employees in the database who live in the same cities and on the same streets as do their managers.
- (d) Find the names of all employees in the database who do not work for 'First Bank Corporation'. Assume that all people work for exactly one company.
- (e) Find the names of all employees in the database who earn more than every employee of 'Small Bank

Corporation'. Assume that all people work for at most one company.

- (f) Assume that the companies may be located in several cities. Find all companies located in every city in which 'Small Bank Corporation' is located.
- (g) Find the names of all employees who earn more than the average salary of all employees of their company. Assume that all people work for at most one company.

4. Suppose you are asked to design a database system for the management of grants based on the following information.

Each grant is identified by a unique grant ID, a title, the funding source of the grant, the period (starting data and ending date), and the amount of grant. Each grant might be participated by several professors and each professor might also participate in several grants. Each professor is identified by a unique SSN, name and email address. In addition, several graduate students might be supported by a grant as GRAs, although each student can be supported by at most one grant. Each graduate student has exactly one professor as his/her advisor.

- Draw an E-R diagram for the system, in particular, use arrows or thick lines to represent constraints appropriately. Write down your assumptions if necessary.
- Translate the above E-R diagram to a relational model ; in particular, specify your primary key and foreign key constraints clearly.

5. Create the tables described below with the constraints / attributes specified

Table Name : EMP1_XX (XX → Last two digits of your college roll number)

Description : Used to store employee information

| Column Name | Data Type | Size | Constraints / Attributes |
|-------------|-----------|------|---|
| Empno | Number | 4 | Primary key, values between 7000 and 7999 |
| Ename | Varchar2 | 20 | Not null, Name must be in Upper case |
| Deptno | Number | 2 | |
| Job | Varchar2 | 15 | Not null |
| Mgr | Number | 4 | Foreign key references Empno of EMP1_XX, Values between 7000 and 7999 |
| HireDate | Date | | Not null |
| Salary | Number | 5 | Default 0 |

- Select all information from the EMP1_XX table.
- Display all the different job types.
- List the details of the employees in departments 10 and 20 in alphabetical order of name.
- Display names and total remuneration for all employees.

- (e) Display all employees who were hired during 1983.
- (f) List names, employee number & salary of all employees in department 10 (give the department number at run time)

6. Relation schema :

Employee (Employee_no, Employee_name, designation, Salary, Hiredate, Department_no, Manager_name)

Department (Dnumber, Dname, Location)

- (a) Find employees whose commission is greater than 60% of their salaries.
- (b) Find the names of anyone in dept. 20 who is neither manager nor clerk.
- (c) Find the names of employees who earn between 1200/- and 1400/-.
- (d) Find the employees who do not receive commission or whose commission is less than 100/-.
- (e) Find all the employees whose name begins or ends with 'M'.
- (f) Find all the employees who were hired more than 2 years ago.
- (g) List the employee names, department names and salary for those employees who have completed 1 year of service.

Viva — 20

PNB — 10
