

Sub: - File organization and fundamental of database

Class: - F.Y.B.Sc. (Comp.Sci.)

Assignment -6

Issued date: - 31/12/16

**Completion date: - 07/01/17**

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**Q.1) Answer the following : (One Marks each)**

1. Distinguish between Where and Having Clause.
2. What is Query Optimization ?
3. What do you mean by Referential Integrity Constraint ?
4. Explain one-to-one relationship with example.
5. Give syntax and example of 'union' relational operator.
6. What is the difference between Char and Varchar.
7. List five built-in aggregate functions in SQL.
8. What is the basic structure of SQL ?
9. State the different types of outer join operations.
10. What is an Attribute ?
11. Discuss use of 'having' clause.
12. What is Foreign Key ?
13. Explain one-to-many relationship with example.
14. Give syntax and example of Join relational operator.
15. List the datatypes supported by SQL.

**Q.2) Answer the following : ( Five Marks each)**

1. What is Referential Constraint ? Explain in brief.
2. What are key constraints ?
3. What are Integrity Constraints ? How are they classified ?

**4. Consider the following relation :**

Employee (empno, empname, salary, comm..., designation)

Department (deptno, deptname, location)

Employee and Department are related with many to one relationship. Create RDB for above and solve queries in SQL :

- (a) Find out employees who are working at Shrirampur location.
- (b) Find the maximum, minimum and average salary for every designation.
- (c) Update commission for every employee by 5% who belong to Computer Dept.

**5. Consider the following relation :**

Sales\_order (s\_order, s\_order\_date)

Client (client\_no, name, address)

A client can give one or more sales\_orders, but sales\_order belongs to exactly one client. Create RDB for above and solve the following queries in SQL :

- (a) Change the order date of client\_no 'C004' to 11/01/2012.
- (b) Find out the sales\_order of Mr. Ambare client.

(c) List the name of all client in sales\_order\_date.

**6. Consider the following relation :**

Emp (emp\_id, emp\_name, address, bdate)

Investor (inv\_name, inv\_no, inv\_date, inv\_amt)

Emp and Investor one to many relationship, create RDB for above and solve the following SQL queries :

- (a) List the names of employees who are not investors.
- (b) Find the distinct names of customers who are either employees or investor or both.
- (c) Find the Inv\_amt of particular employee whose Inv\_date '10/01/2012'.

**7. Consider the following relation :**

Doctor (dno, dname, address, city)

patient (pat\_no, pat\_name, addr, disease)

Doctor and patient are related with many to many. Create RDB in above and solve the following SQL que.:

- (a) Find the no. of patients suffering from "Asthma".
- (b) Find the no. of patients visited by "Dr. Padhghan".
- (c) Delete all patients record suffering from "Diabetes".

**8. Consider the following relations :**

Game (g\_no, g\_name, no\_of\_players, coach\_name, captain)

Players (p\_no, p\_name).

Game and players are related with many to many relationship:

- (a) List the name of players playing "basketball" and "handball".
- (b) Count the total no. of players whose coach name is "Mr. Ambre".
- (c) List names of players playing cricket and hockey.
- (d) Count no. of players whose coach name is 'Mr. Dev'.
- (e) List names of players playing game basketball.

**9. Consider the following relations :**

Country(Con-code, Name, Capital)

Population(Pop-code, Population)

Country and Population are related with one to one relationship. Create RDB and solve the following queries :

- (i) List highest population country.
- (ii) Give name and population of country whose capital is 'Tokyo'.
- (iii) List names of all countries whose population is greater than 50,00,000.

**10. Consider the following relations :** Item(ino, iname, iqty)

Po(pno, pdate, amt)

Suppliers(sno, sname, saddr)

Item and Po are related with one to many relationship and supplier and po are one to many relationship. Create RDB for above and solve queries :

- (i) Find out p no, p date and supplier name of the Po which is of maximum amount.
- (ii) List names of suppliers to whom po is given for 'Mouse'.
- (iii) List names of suppliers and item name in Po's generated on 30 'Dec. 2010'.

**11. Consider the following relations :**

Doctor(docno, name, specialization)

Hospital(hospno, name, addr)

Doctor and Hospital are related with many to many relation. Create RDB for above and solve queries:

- (i) List names of doctors visiting 'Padghan Hospital' on Monday.
- (ii) List names of Hospitals in 'Pune City' which have more than 10 doctors of 'Surgeon' specialization visiting it.
- (iii) Delete all doctors with specialization 'gynaec'.

**12. Consider the following database :**

Person (ss-no, name, address)

Car (lic, year, model)

Accident (date, driver, damage-amount)

Owns (ss-no, lic)

Log (lic, date, driver)

Write SQL statements for the following :

- (i) Find total no. of people whose cars were involved in accidents in 2000.
- (ii) Find the no. of accidents in which the car belonging to 'Sachin' was involved.
- (iii) Add a new person to the database.

**13. Consider the following relation.**

Employee (empno, empname, salary, comm., desg)

Department (deptno, deptname, location)

Employee and Department are related with many to one relationship.

Solve the following queries :

- (i) Find out employees who are working at Pune location.
- (ii) Find the maximum, minimum and average salary for every designation.
- (iii) Update commission for every employee by 5% who belong to 'Computer dept.'

**14. Consider the following entities and relationships**

Owner (licence\_no, name, address, phone)

Car (carno, model, colour)

Owner and Car are related with one-to-many relationships. Create a RDB for the above and solve following:

- (i) Find the names of the owners of 'Zen' and 'Indica' cars.
- (ii) Insert a record in a car relation.
- (iii) To list the information of all cars in "Pune".
- (vi) Delete all the records of owner relation.
- (v) List all the models of owner "Mr. Shah" having colour 'blue'.

**15. Consider the following relation :**

Person (pnumber, pname, birthdate, income)

Area (aname, area\_type)

An area can have one or more persons living in it, but person belongs to exactly one area.

An attribute 'area\_type' can have values either urban or rural. Convert database in 3NF and solve the following queries :

- (i) List the names of all people living in 'rural' area.
- (ii) List details of all people whose names start with the alphabet 'A' and contain maximum '6' alphabets in them.
- (iii) Give the count of people whose income is below 30,000.
- (iv) List the names of all people whose birthday falls in the month of January.
- (v) List names of all people whose income is between 50,000 to 75,000.

**16. Consider the following relation :**

Machine (m\_no, m\_name, m\_type, m\_cost)

Part (p\_no, p\_name, p\_desc)

Machine and Part are related with one to many relationships. Create RDB and solve the following queries :

- (i) Increase the cost of machine by 10%.
- (ii) Delete all machines having particulars "Wheel".
- (iii) List all machines whose cost > 1,00,000.
- (iv) List all the machines having the part 'register'.
- (v) Find the machines having more than 5 parts.
- (vi) Delete all machines having part "Oil Tank".
- (vii) List all parts of machines whose cost > 1,00,000.

**17. Consider the following relations :**

Person (P\_no, name, address)

Car (C\_no, year, model)

Person and car are related with one to many relationship. Create a relational database in 3NF and

solve the following queries in SQL : (i) List the names of all people who own a 'Indica'.

(ii) Delete all the details of the person 'Mr. Joshi'.

(iii) Find the name of the person who owns maximum no. of cars.

**18. Consider the following relations :**

Supplier (S\_id, sname, address)

Parts (P\_id, Pname, Colour)

Supplier and parts are related with many to many relationship with the descriptive attribute cost. Create a relational database in 3NF and solve the following queries

- in SQL :
- (i) Find the names of suppliers who supply parts which are blue or pink in colour.
  - (ii) Find total cost of all parts supplied by 'Shree Agencies'.
  - (iii) Find the names and addresses of all suppliers who are supplying the item 'Bath towel'.

**19. Consider the following relations :**

Musician (m\_no, m\_name, age, city)

Instrument (i\_no, i\_name)

Musician and instrument are related with a many to many relationship. Create a relational database in 3NF and solve the following queries in SQL :

- (i) List all the 'tabala' players.
- (ii) Find all the musicians who study in Pune and play 'flute'.
- (iii) List all the instruments that are played by more than 3 musicians.

**20. Consider the following relation :**

Customer(cid, cname, caddress, city, state)

Order(oid, odate, oamount)

Customer and Order are related with one-to-many relationship. Create a Relational Database for the above and convert it in 3NF and solve the following queries in SQL :

- (i) List names of customers who belong to Maharashtra State, sorted on city.
- (ii) What are the names of all customers who placed orders between 01-01-2008 to 31-01-2008 ?
- (iii) List names of the customer who gave maximum orders in the month of March.

**21. Consider the following relation :**

Doctor (dno, dname, address, city)

Patient (opdno, pat-name, address, disease)

Doctor and Patient are related with many-to-many relationship. Create a Relational Database for the above and convert it in 3NF and solve the following queries in SQL :

- (i) Find no. of patients visited by "Dr. Pawar".
- (ii) Find no. of patients suffering from "Asthma".
- (iii) Delete all patient's record suffering from "Viral fever".

**22. Consider the following relation :**

Company (cid, cproduct, cname, region, state)

Dealer (dno, dname, daddress, dcity)

Company and Dealer are related with many-to-many relationship.

Create a Relational Database for the above and convert it in 3NF and solve the following queries.

- (i) List Dealer of Company "HCL".
- (ii) Count number of Dealers from city "Mumbai".
- (iii) Delete record of Dealer whose Dealership by "HP".