**Ankit (stats)**

**DBMS (G E). PRACTICALS**

**Q.1 Create a database having two tables with the specified fields, to computerize a library system of a Delhi University College.**

**LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price) 10**

**IssuedBooks (Accession number, Borrower)**

**a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.**

**b) Delete the record of book titled “Database System Concepts”.**

**c) Change the Department of the book titled “Discrete Maths” to “CS”.**

**d) List all books that belong to “CS” department.**

**e) List all books that belong to “CS” department and are written by author “Navathe”.**

**f) List all computer (Department = “CS”) that have been issued.**

**g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.**

**ANSWER 1**

**create database db;**

**use db;**

**create table LibraryBooks(**

**Accession\_number int(10) primary key,**

**Title varchar(40) not null,**

**Author varchar(20) not null,**

**Department varchar(15) not null,**

**PurchaseDate date,**

**Price int(10));**

**create table IssuedBooks(**

**Accession\_number int(10) not null,**

**Borrower varchar(30),**

**foreign key(Accession\_number) references LibraryBooks(Accession\_number));**

**(a) Accession\_number is the primary key for table LibraryBooks and it is the foreign key for table Issued books.**

**insert into LibraryBooks(1027,"Database System Concepts","Ankit ","CS",'2015-02-26',450);**

**insert into LibraryBooks(5468,"Discrete Maths","Mohit Sharma",Science",'2005-03-28',880);**

**insert into LibraryBooks(8234,"Trigonometry","SL Loney","Mathematics",'2010-12-08',490)**

**insert into LibraryBooks(8886,"Neural Networks","Navathe","CS",'2018-11-18',1150);**

**insert into LibraryBooks(7796,"Panchatantra","Vishnu Sharma","Hindi",'2000-11-02',150);**

**insert into LibraryBooks(5048,"Rich Dad Poor Dad","Robert T Kiyosaki","Finance",'2012-11-02',200);**

**insert into LibraryBooks(8236,"Advanced Matrices",Navathe",Mathematics",'2002-11-20',2150);**

**insert into LibraryBooks(2132,"Physics","HC Verma","CS",'2001-10-26',450);**

**insert into LibraryBooks(1897,"Cloud Computing","Navathe","CS",'2011-12-01',2450);**

**insert into LibraryBooks(1556,"Matrices","SC Gupta ","mathematics",'2010-12-10',350);**

**insert into IssuedBooks values(1234,”kishor ”);**

**insert into IssuedBooks values(1556,”sonu Singh”);**

**insert into IssuedBooks values(8856,”Ankit dalal”);**

**insert into IssuedBooks values(5598,”Arpit ”);**

**insert into IssuedBooks values(1897,”sourav kumar”);**

**(b)**

**set foreign\_key\_checks=Off;**

**delete from issuedbooks where accession\_number=21826.46;. delete from librarybooks where title="Database System Concepts";. set foreign\_key\_checks=on;**

**(c) update Librarybooks**

**set Depatment="CS"**

**where Title="Discrete Maths";**

**(d) select \* from librarybooks**

**where Department="CS";**

**(e) select \* from librarybooks**

**where Department="CS" and Author="Navathe";**

**(f)**

**select \* from LibraryBooks as L,IssuedBooks as I**

**where L.Department="CS" and L.Accession\_number=I.Accession\_number;**

**(g) select \* from Librarybooks**

**where price < 500 and purchasedate between '1999-01-01' and '2004-01-01';**

**Q.2 Create a database having three tables to store the details of students of Computer Department in your college, as per the given schema.**

**Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)**

**Paper Details (Paper code, Name of the Paper)**

**Student’s Academic and Attendance details (College roll number, Paper code, Attendance, Marks in home examination).**

**a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table. b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper 2.**

**c) List all students who live in “Delhi” and have marks greater than 60 in paper 1.**

**d) Find the total attendance and total marks obtained by each student.**

**e) List the name of student who has got the highest marks in paper 2.**

**ANSWER 2**

**use db;**

**create table std\_info(**

**Roll\_no int(10) primary key,**

**Name varchar(30) not null,**

**dob date,**

**Address varchar(50),**

**Marks int(3),**

**Phone\_number varchar(10));**

**create table Paper\_details(**

**Paper\_code int(10) primary key,**

**Paper\_name varchar(20));**

**create table Academic\_details(**

**Roll\_no int(10),**

**Paper\_code int(10) not null,**

**Attendance int(10) not null,**

**homeexam\_marks int(3)**

**primary key(Roll\_no,Paper\_code));**

**(a) Roll\_no is the primary key for the table std\_info, Paper\_code is the primary key of table Paper\_details and Roll\_no,Paper\_code is the primary key of table Academic\_details.**

**Academic\_details have two foreign keys viz. Roll\_no and Paper\_code.**

**Insert into std\_info values (2344, 'Pulkit', '2001-02-28', 'Palam', 86, '9865785264');**

**Insert into std\_info values (2206, 'Rajesh', '1999-03-19', 'Lucknow', 96, '8745698512');**

**Insert into std\_info valued (3258, 'Nikhil', '2001-03-12', 'Noida', 88, '7896589658');**

**Insert into std\_info values (1327, 'Ankit', '2001-07-16', 'Delhi', 91, '8825394198');**

**Insert into std\_info values (1245, 'piyush', '2001-07-19', 'Gaziabad', 89, '7598412365');**

**Insert into paper\_details values (, 'Algebra');**

**Insert into paper\_details values (552, 'Probability');**

**Insert into paper\_details values (604, 'DBMS');**

**Insert into paper\_details values (129, 'EVS');**

**Insert into paper\_details values (566, 'Economics');**

**Insert into academic\_details values (2344, 100, 85, 96);**

**Insert into academic\_details values (2206, 129, 65, 96);**

**Insert into academic\_details values (3258, 604, 96, 84);**

**Insert into academic\_details values (1327, 566, 94, '69);**

**Insert into academic\_details values (1245, 552, 80, 75);**

**(b) select pd.paper\_code, pd.paper\_name, pi.Name from paper\_details as pd, std\_info as p where paper\_code=2 and p.roll\_no In(select roll\_no from academic\_details where paper\_code=2 and attendance>75 and marks>60);**

**(c) select \* from std\_info where**

**Address="Delhi" and Marks>60;**

**(d) select name, Attendance, marks, homeexam\_marks**

**from std\_info as s, Academic\_details as a**

**where a.Roll\_no=s.Roll\_no;**

**(e) select name from std\_info where Roll\_no In(**

**select Roll\_no from academic\_details where homeexam\_marks in(select max(homeexam\_marks) from academic\_details));**

**Q.3 Create the following tables and answer the queries given below:**

**Customer (CustID, email, Name, Phone, ReferrerID) Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo) BicycleModel (ModelNo, Manufacturer, Style) Service (StartDate, BicycleID, EndDate)**

**a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table. b) List all the customers who have the bicycles manufactured by manufacturer “Honda”.**

**c) List the bicycles purchased by the customers who have been referred by customer “C1”.**

**d) List the manufacturer of red colored bicycles.**

**e) List the models of the bicycles given for service.**

**ANSWER 3**

**create table Customer(**

**CustID varchar(10) primary key,**

**email varchar(20) not null,**

**Name varchar(30) not null,**

**Phone varchar(10) not null,**

**ReferrerID varchar(10) not null);**

**create table Bicycle(**

**BicycleID varchar(10) primary key,**

**DatePurchased date,**

**Color varchar(20),**

**CustID varchar(10) not null,**

**ModelNo varchar(10),**

**foreign key(CustID) references Customer(CustID));**

**create table BicycleModel(**

**ModelNo varchar(10) primary key,**

**Manufacturer varchar(20) not null,**

**Style varchar(10) not null);**

**create table service(**

**BicycleID varchar(10) primary key,**

**startdate date,**

**enddate date,**

**foreign key(BicycleID) references Bicycle(BicycleID));**

**alter table Bicycle**

**add constraint foreign key(ModelNo) references BicycleModel(ModelNO);**

**(a)**

**Primary keys**

**Customer: CustID**

**Bicycle: BicycleID**

**BicycleModel: ModelNo**

**Service: BicycleID**

**Foreign keys**

**Bicycle: CustID, ModelNo**

**Service: BicycleId**

**Insert into customer values ('ANK123', 'ankit@gmail.com', Ankit', '8825394198', '256');**

**Insert into customer values ('SAH564', 'sahil@gmail.com', 'Sahil', '9832015040', '256');**

**Insert into customer values ('RAM698', 'ram@gmail.com', 'Ram', '9321456856', '2368');**

**Insert into customer values ('SON999', 'sohan@gmail.com', 'sohan', '8965475695', '998');**

**Insert into customer values ('PIY699', 'piyush@gmail.com', 'Piyush', '9654789569', '1456');**

**Insert into BicycleModel values ('9969', 'Hero', 'sprint');**

**Insert into BicycleModel values ('9586', 'Honda', 'Classic');**

**Insert into BicycleModel values ('6144', 'Suzuki', 'Access');**

**Insert into BicycleModel values ('2345', 'Honda', 'mountain');**

**Insert into BicycleModel values ('7687', 'Suzuki', 'Classic');**

**Insert into Bicycle values ('78669', '2019-03-23', 'Red', 'RAN123', '9333');**

**Insert into Bicycle value ('12345', '2020-01-29', 'Blue', 'Ran123', '5234');**

**Insert into Bicycle valued ('22222', '2018-02-15', 'White', 'Roh698', '2577');**

**Insert into Bicycle values ('23654', '2019-12-12', 'black', 'pra564', '8569');**

**Insert into Bicycle values ('56743', '2015-03-26', 'Red', 'MUJ699', '9966');**

**Insert into Service values ('78669', '2019-03-23', '2020-03-23');**

**Insert into Service values ('22222', '2015-03-26', '2016-03-26');**

**Insert into Service values ('23654', '2019-12-12', '2020-12-12');**

**Insert into Service values ('12345', '2018-02-15', '2019-02-15');**

**Insert into Service values ('56743', '2020-01-29', '2021-01-29');**

**(b)**

**select \* from customer where CustID in(select CustID from Bicycle**

**where ModelNo in(select ModelNo from BicycleModel where**

**Manufacturer="Honda"));**

**(c)**

**select \* from Bicycle where CustID in(**

**select CustID from Customer where**

**ReferrerID="256");**

**(d) select distinct(Manufacturer) from BicycleModel where**

**ModelNo in(select ModelNo from Bicycle**

**where color="Red");**

**(e)**

**select modelNo from Bicycle where BicycleID in(**

**select bicycleID from Service);**

**Q.4 Create the following tables, enter at least 5 records in each table and answer the queries given below.**

**EMPLOYEE ( Person\_Name, Street, City )**

**WORKS ( Person\_Name, Company\_Name, Salary ) COMPANY ( Company\_Name, City ) MANAGES ( Person\_Name, Manager\_Name )**

**a) Identify primary and foreign keys. b) Alter table employee, add a column “email” of type varchar(20). c) Find the name of all managers who work for both Samba Bank and NCB Bank. d) Find the names, street address and cities of residence and salary of all employees who work for “Samba Bank” and earn more than $10,000. e) Find the names of all employees who live in the same city as the company for which they work. f) Find the highest salary, lowest salary and average salary paid by each company. g) Find the sum of salary and number of employees in each company.h) Find the name of the company that pays highest salary.**

**ANSWER. 4**

**create table Employee(**

**Person\_name varchar(20) primary key,**

**Street varchar(20),**

**City varchar(20));**

**create table Works(**

**Person\_name varchar(20) primary key,**

**Company\_name varchar(20) not null,**

**Salary int(6),**

**foreign key(Person\_name) references Employee(Person\_name));**

**create table company(**

**Company\_name varchar(20) primary key,**

**city varchar(20));**

**create table Manages(**

**Person\_name varchar(20) primary key,**

**Manager\_name varchar(20)**

**foreign key(Preson\_name) references Employee(Person\_name));**

**alter table works**

**add constraint foreign key(Company\_name) references Company(Company\_name);**

**insert into employee values("Ankit","23/34 B block","Delhi");**

**insert into employee values("Sahil","454/4 V block","Gurgaon");**

**insert into employee values("Rohan","65/6 A block","Noida");**

**insert into employee values("Sohan","87/2 D block","Palan");**

**insert into employee values("Ram","74/2 F block","Gaziabad");**

**insert into employee values("Saurav","54/2 G block","Noida");**

**insert into employee values("Piyush","347-5 A block","Noida");**

**insert into employee values("Pulkit","65/8 V block","Rohini");**

**insert into employee values("Nikhil","62/7 d block","Pitampura");**

**insert into employee values("Gaurav","91/8 C block","Gaziabad");**

**insert into company values("Samba Bank","Delhi");**

**insert into company values("NCB Bank","Gurgaon");**

**insert into company values("Canara Bank","Noida");**

**insert into company values("SBI bank","Palam");**

**insert into company values("Kotak Bank","Gaziabad");**

**insert into works values("Sahil","Samba Bank", 20000);**

**insert into works values("Ram","NCB Bank",25000);**

**insert into works values("Ananya","Samba Bank",10000);**

**insert into works values("Rohan","SBI Bank",8000);**

**insert into works values("Gaurav","canara Bank",10000);**

**insert into works values("Saurav","NCB Bank",20000);**

**insert into works values("Sohan","Kotak Bank",25000);**

**insert into works values("Pulkit","canara Bank",20000);**

**insert into works values("Nikhil","SBI Bank",12000);**

**insert into works values("Neha","Kotak Bank",15000);**

**insert into manages values("Ankit","Rohan");**

**insert into manages values("Sohan","Sahil");**

**insert into manages values("Gaurav","pulkit");**

**insert into manages values("Saurav","Shri");**

**insert into manages values("Piyush","Ramesh");**

**(a)**

**Primary keys**

**Employee: Person\_name**

**Works: Person\_name**

**Company: Company\_Name**

**Manages: Person\_name**

**Foreign keys are**

**Works: Person\_name, Company\_name**

**manages: Person\_name**

**(b) alter table employee**

**add column email varchar(20) not null;**

**(c) select Manager\_name from manages where person\_name in(**

**select person\_name from works where company\_name="Samba bank" and company\_name="NCB bank");**

**(d) select em.person\_name , street, city, salary from employee as e,works as w**

**where e.Person\_name=w.Person\_name and**

**w.Company\_name="Samba Bank" and w**

**.Salary>10000;**

**(e)select em.Person\_name from employee as e , company as c, works as w where**

**e.Person\_name=w.person\_name and w.company\_name=c.company\_name**

**and e.city=c.city;**

**(f) select company\_name,max(salary) as Highest\_Salary, min(salary) as Lowest\_salary,avg(salary) as Average\_salary from works**

**group by company\_name;**

**(g select company\_name,sum(salary), count(person\_name) from works**

**group by company\_name;**

**Q5. Create the following tables, enter at least 5 records in each table and answer the queries given below.**

**Suppliers (SNo, Sname, Status, SCity) Parts (PNo, Pname, Colour, Weight, City) Project (JNo, Jname, Jcity) Shipment (Sno, Pno, Jno, Qunatity)**

**a) Identify primary and foreign keys.**

**b) Get supplier numbers for suppliers in Paris with status>20.**

**c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.**

**d) Get suppliers names for suppliers who do not supply part P2.**

**e) For each shipment get full shipment details, including total shipment weights.**

**f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.**

**g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.**

**h) Get the names of cities that store more than five red parts.**

**i) Get full details of parts supplied by a supplier in London.**

**j) Get part numbers for part supplied by a supplier in London to a project in London.**

**k) Get the total number of project supplied by a supplier (say, S1).**

**l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).**

**ANSWER 5**

**create table Suppliers(**

**SNo int(10) primary key,**

**Sname varchar(20) ,**

**status varchar(20),**

**SCity varchar(20));**

**create table Parts(**

**PNo varchar(10) primary key,**

**Pname varchar(20),**

**Color varchar(10),**

**Weight int ,**

**city varchar(20));**

**create table project(**

**JNo varchar(10) primary key,**

**Jname varchar(20),**

**Jcity varchar(10));**

**create table Shipment(**

**SNo int(10),**

**PNo varchar(10),**

**JNo varchar(10),**

**Quantity int,**

**foreign key(SNo) references Suppliers(SNo),**

**foreign key(PNo) references Parts(PNo),**

**foreign key(JNo) references Project(JNo),**

**primary key(SNo,PNo,JNo));**

**insert into suppliers values(450,"S1",30,"London");**

**insert into suppliers values(123,"S2",19,"New York");**

**insert into suppliers values(345,"S1",22,"Paris");**

**insert into suppliers values(124,"S2",70,"Los Angeles");**

**insert into suppliers values(105,"S2",70,"Los Angeles");**

**insert into parts values( "501","P1","Black",16,"Paris");**

**insert into parts values( "502","P2","Red",40,"London");**

**insert into parts values( "503","P3","Gray",20,"London");**

**insert into parts values( "504","P2","Green",60,"Singapore");**

**insert into parts values( "505","P2","Black",10,"New York");**

**insert into project values("222","J1","London");**

**insert into project values("1112","J2","New York");**

**insert into project values("9008","J3","New York");**

**insert into project values("1004","J4","Singapore");**

**insert into project values("2005","J4","Delhi");**

**insert into shipment values(450,"504","1112",250);**

**insert into shipment values(345,"505","9008",100);**

**insert into shipment values(105,"502","9008",500);**

**insert into shipment values(450,"503","2223",300);**

**insert into shipment values(123,"501","2005",750);**

**insert into shipment values(450,"501","1112",100);**

**(a)**

**Primary keys are**

**Suppliers: SNo**

**Parts: PNo**

**Project: JNo**

**Shipment: SNo,PNo,JNo**

**(b) select SNo from suppliers where Scity="Paris" and status>20;**

**(c) Select \* from suppliers where Sno in(**

**select Sno from shipment where Pno in(**

**select Pno from parts where Pname="P2")) Order by sno;**

**(d) Select Sname from suppliers where Sno in(**

**Select sno from shipment where Pno in(**

**select Pno from parts where Pname!="P2"));**

**(e) select s.Sno, s.Pno, s.Jno, s.Quantity,**

**s.quantity\*p.weight as "Total\_shipment\_weight" from shipment as s,parts as p where s.pno=p.pno;**

**(f) Select \* from shipment where quantity between 300 and 750;**

**(g)**

**select Pno from parts where weight>16 or pno in(**

**select pno from shipment where sno in(**

**select s.sno from shipment as s, suppliers as su where s.sno=su.sno and su.sname="S2"));**

**(h) select city from parts where colour="Red" and Pno in(select pno from shipment where quantity>5);**

**(i) select \* from parts where pno in(**

**select Pno from shipment where sno in(**

**select sno from suppliers where Scity="London"));**

**(j) select Pno from shipment where sno in(select sno from suppliers where scity="London") and Jno in(Select jno from project where Jcity="London");**

**(k) select count(distinct(Jno)) as "No. of Project Supplied by supplier S1" from shipment where sno in(select sno from suppliers where Sname="S1");**

**(l) select count(\*) from parts where Pno in(Select Pno from shipment where sno in(select Sno from suppliers where sname ="S1")) and Pname="P1";**