Bahria University, Islamabad Campus
Department of Computer Sciences
Mid-Term Examination
Class/Section: BSCS(4A+4B)
(Spring 2021 Semester)
Paper Type: Descriptive

Course:	**Database Management Systems**	Date: 17-05-21
Course Code:	CSC-220	Time: 1500 to 1630 Hrs
Faculty's Name:	Dr. Q. Abbas/Dr. M. Imran	Max Marks: 20
Time Allowed:	1.5 Hours	Total Pages: 2 (including this)

INSTRUCTIONS:
I.   All questions are compulsory.
II. There are total three questions.
III. Use blue, black or blue-black ink only. Do NOT use lead pencil especially.
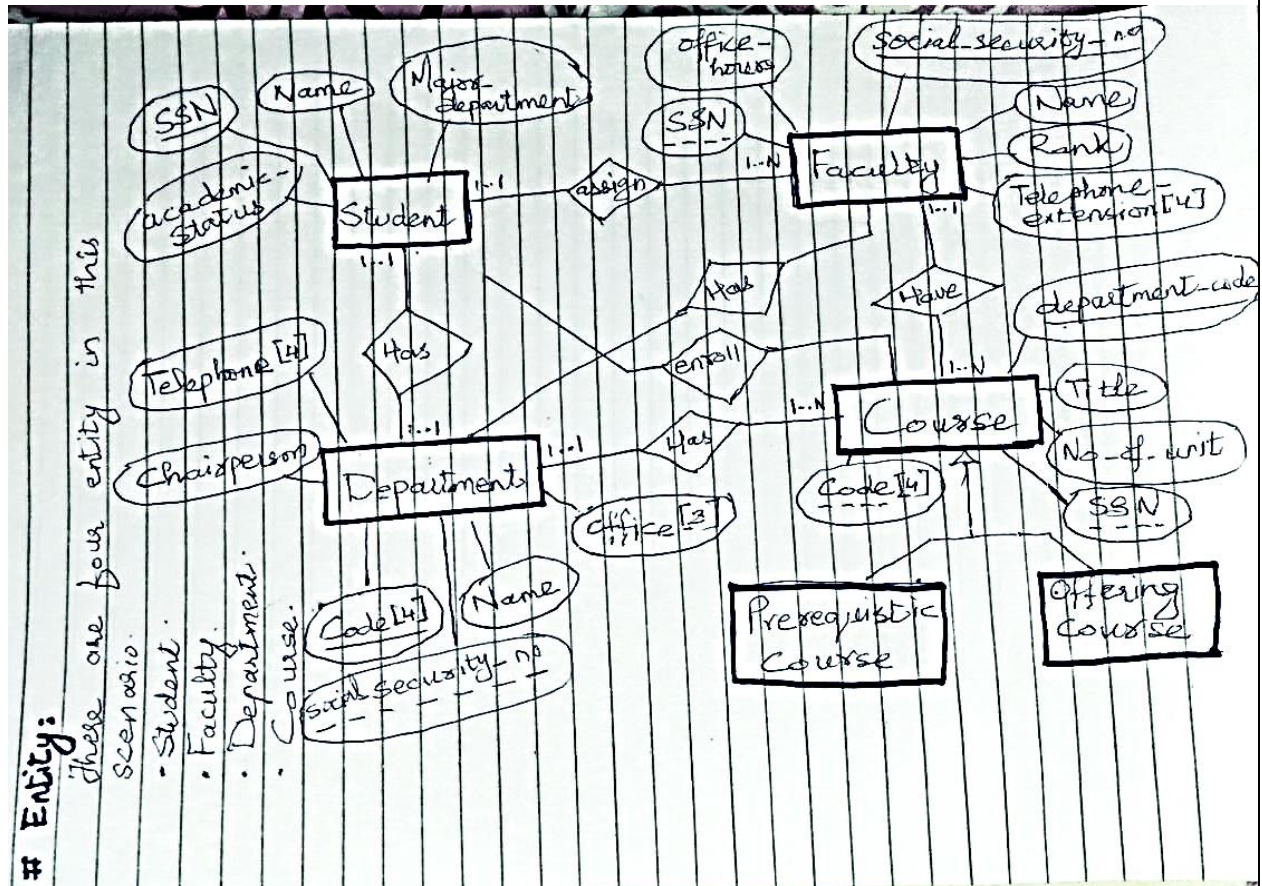
Question#1:

Consider the below scenario and identify the entities and their relationships and then draw and ER diagram and then its physical design:

Consider the following environment of a university. There are academic departments. Each department is identified by a 4 letter code, and has a name, a chairperson, an office and a telephone extension. Each department offers a set of courses. Each course is identified by the department code and a 3 digit number, and has a title and number of units; each course may require any number of prerequisite courses. Certain courses are currently offered; an offering of a course is called a class. A class is identified by a 9 digit class number, is taught by a particular faculty, and meets 1-3 times a week at the particular location. Each faculty is assigned to a single department. Each faculty is identified by a social security number, and has a name, a rank (e.g., assistant professor, associate professor, full professor), and a telephone extension and a set of office hours. The chairperson of a department is always assigned to that department. Each student is identified by a SSN, and has a name, a major department, and an academic status (e.g., undergraduate, graduate, non-degree). Each student is currently enrolled in a number of classes. For each course that the student had taken in the past, a letter grade is available. All locations and office consist of a 3 letter building code and a 3 digit room number. All telephone extensions are 4 digits   [8]

Answer:

Entity:
These are four entity in this scenario.
- Student
- Faculty
- Department
- Course

Question#2: [6]

Suppose you are assigned a task to design database schemas of any commercial bank providing various financial services to customers in Pakistan, you are assigned to design a sample External level schema and Conceptual level schemas database schemas in order to process
i) Customer information
ii) Product/services information
iii) Employee information

External View 1
Customer_Info(Cname:string,Cpasscode:int)

External View 2
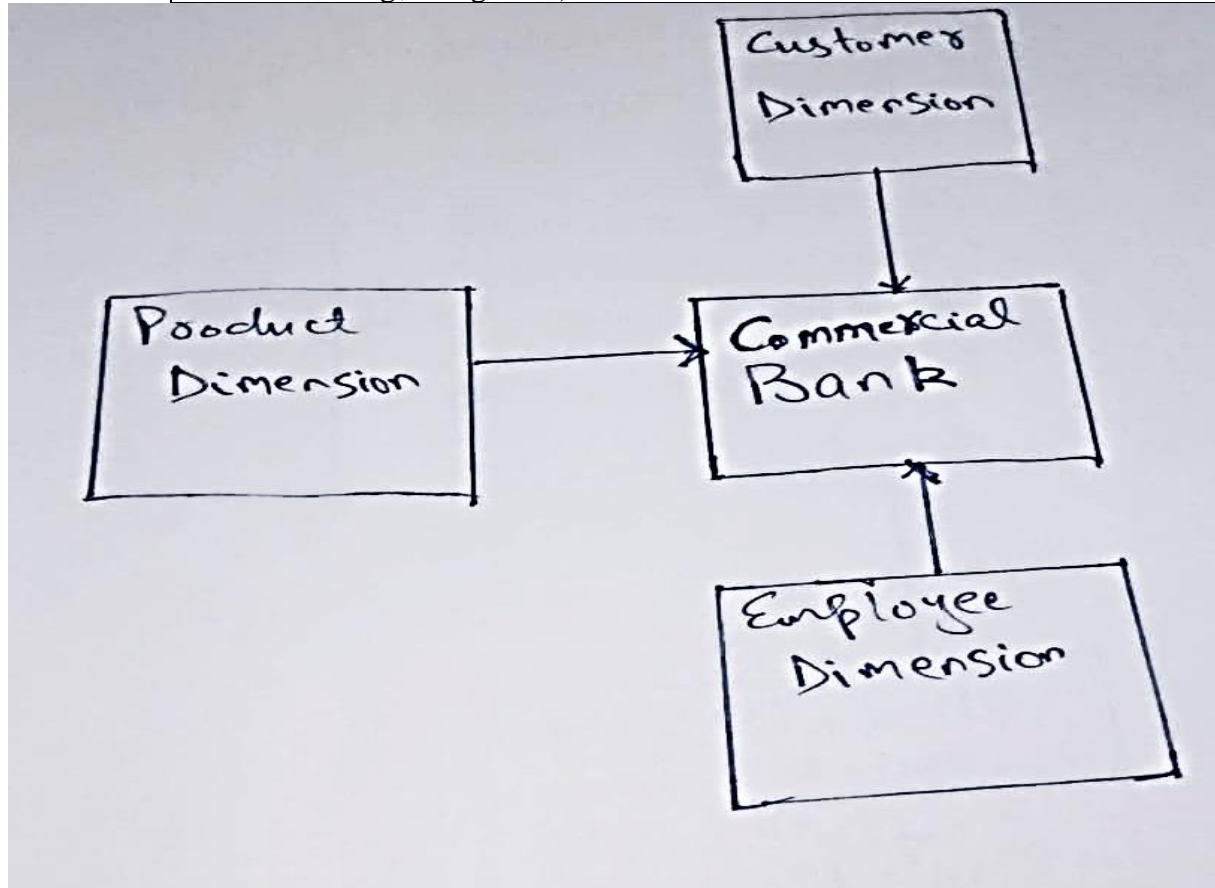Product_Info(P_ID:string,pcode:int,p_name:string)

External View 3

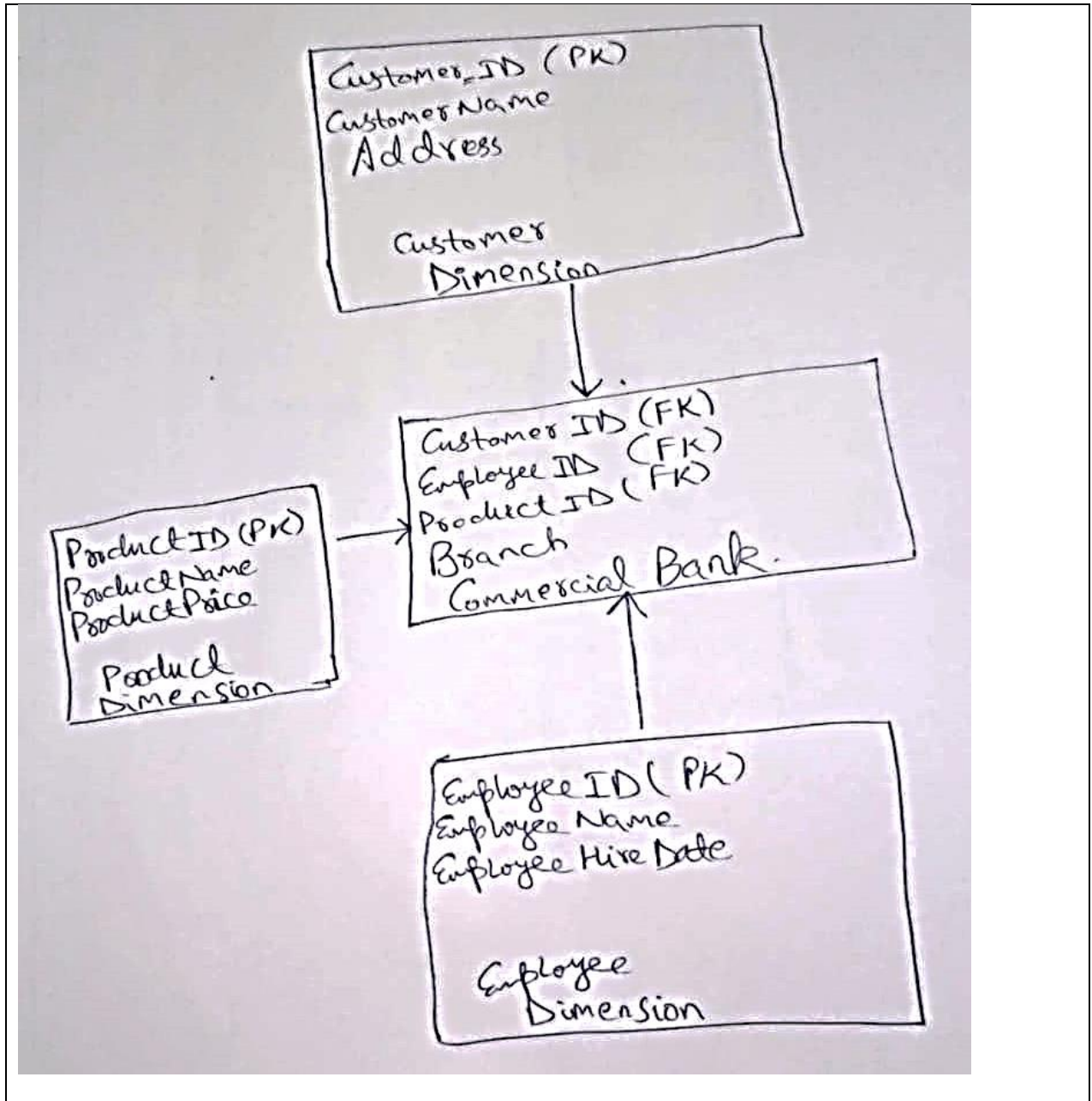Employee_Info(eName:string,eID:int)

Conceptual Schema View 1

Customer (eID:string, :string,c_Login:string,c_name:string ,c_address:string)

Product(P_ID:int,p_name:string,p_price:int)
Employee(e_ID:string, e_name:string,e_login:string, e_Rank:string,e_Age:int)

Question#3: Consider the relation of Employee_Branch given as follows   [6]

EmployeeID	Name	Designation	Salary	Company_ Branch_Code	Branch_ Address	Contact #
101	Maryam	Writer	50000	1023	I-8, ISB	12345
102	Sajjad	Cashier	25000	1320	H-10, ISB	54321
103	Ali	HR- manager	75000	1023	I-8, ISB	12456
104	Aziz	Cashier	25000	1023	I-8, ISB	65421
105	Zahra	Staff	20000	1320	H-10, ISB	14725
106	Waleed	Staff	20000	1320	H-10, ISB	52741

```
SQL> create table Employee_Branchh(
  2  EmployeeID number(3) NOT NULL,Name varchar(50) NOT NULL,Designation varchar(50) NOT NULL,Salary
 number(5) NOT NULL,company_branch_code number(4), branch_address varchar(20), contact number(5) );

Table created.

SQL> /*
SQL> Malik Zohaib Mustafa
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_ad
dress,contact)
  2  values(101,'MARYAM','WRITER',50000,1023,'I-8,ISB',12345);

1 row created.

SQL> insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_ad
dress,contact) values(102,'Sajjad','Cashier',25000,1320,'H-10, ISB',54321);

1 row created.

SQL> insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_ad
dress,contact) values(103,'Ali','HR- manager',75000,1023,'I-8, ISB',12456);

1 row created.

SQL> insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_ad
dress,contact) values(104,'Aziz','Cashier',25000,1023,'I-8, ISB',65421);

1 row created.

SQL>
SQL>  insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_a
ddress,contact) values(105,'Zahra','Staff',20000,1320,'H-10, ISB',14725);

1 row created.

SQL>
SQL>  insert into Employee_Branchh(EmployeeID,Name,Designation ,Salary,company_branch_code, branch_a
ddress,contact) values(106,'Waleed','Staff',20000,1320,'H-10, ISB',52741);

1 row created.
```

Apply the following queries on the above relation

a. Find the ID and name of all employees located in I-8, Islamabad. Also write the output table.

```
SQL>
SQL>  Select EmployeeID,NAME
  2   FROM Employee_Branchh
  3   Where branch_address=  'I-8, ISB';

EMPLOYEEID NAME
---------- --------------------------------------------
       103 Ali
       104 Aziz
       101 MARYAM
```

b. Find list of all employees whose designation is Cashier. Don't Forget to write output table.

```
SQL> Select * from Employee_Branchh Where Designation= 'Cashier';

EMPLOYEEID NAME
---------- -------------------------------------------------
DESIGNATION                                      SALARY COMPANY_BRANCH_CODE
------------------------------------------------ ---------- -------------------
BRANCH_ADDRESS       CONTACT
------------------- ----------
       102 Sajjad
Cashier                                            25000                1320
H-10, ISB            54321
       104 Aziz
Cashier                                            25000                1023
I-8, ISB             65421

EMPLOYEEID NAME
---------- -------------------------------------------------
DESIGNATION                                      SALARY COMPANY_BRANCH_CODE
------------------------------------------------ ---------- -------------------
BRANCH_ADDRESS       CONTACT
------------------- ----------
```

c. Select Salary and Branch Address of employees whose salary is greater or equal to 25000, also write out put table.

```
SQL> Select Salary,Branch_Address from Employee_Branchh  where Salary>=25000;

    SALARY BRANCH_ADDRESS
---------- --------------------
     50000 I-8,ISB
     25000 H-10, ISB
     75000 I-8, ISB
     25000 I-8, ISB
     50000 I-8, ISB

    .
```

The End of Question Sheet