Unique Paper Code		62341201
Name of the Course	:	B.A. (Prog.) Computer Applications (Old Course)
Name of the Paper:		Database Management Systems
Semester	:	II
Duration	:	2 Hours
Maximum Marks	:	75

Instructions for Candidates:

Attempt any four questions. All questions carry equal marks.

Q1. Consider the following table EMPLOYEE. Identify the types of problems that may occur while performing insert, delete or update operations in the table. Give suitable examples for each of the problem.

EMPLOYEE

Emp_id	Emp_Name	Emp_Address	Emp_Dept
101	Rick	Delhi	D001
101	Rick	Delhi	D002
123	Maggie	Agra	D890
166	Glenn	Chennai	D900
166	Glenn	Chennai	D004

Q2. Consider the following table BOOKS:

BOOKS

Bookid	Title	Author	Price
101	DBMS	Varuna	600
102	Computer Fundamentals	Brijesh	650
103	Python	Swati	450
104	C++	Vaani	500

Give the output that will be produced on execution of the following SQL Commands:

SELECT COUNT(*) FROM BOOKS;

SELECT Title , SUM(Price) FROM BOOKS GROUP BY Title;

UPDATE BOOKS SET PRICE=700 WHERE Author= "Varuna ,;

INSERT INTO BOOKS VALUES (105,"OS", "KELVIN",700);

ALTER TABLE BOOKS ADD Publisher;

SELECT Title, Author FROM BOOKS WHERE Price BETWEEN 400 AND 600;

Q3. Consider the following relation instances R1 and R2:

R1

Roll No.	Name
1001	Amit
1002	Sunil
2001	Ojas
2002	Radha

R2

Roll No.	Name
1004	Ankit
1005	Sunil
2002	Radha
1001	Amit

Display the result of following operations:

R1 UNION R2, R1 PRODUCT R2, R1 INTERSECTION R2, R1 DIFFERENCE R2, R1 JOIN R2, and R1 LEFT JOIN R2.

Q4. Consider the following table Work_Allocation:

Stud_id, Stud_Name, Collge, Project_id, Project_Name, Project_marks

Following are the functional dependencies for the above table:

Stud_id → Stud_Name, College

Project_id → Project_Name

RollNo, Project_id → Project_marks

Reduce the table Work_Allocationin the Ist normal form (1NF) into third normal form (3NF) and identify the primary key in each of the resulting tables.

Q5. Consider the following table STUDENT with following attributes:

Attribute	Data Type
Stud_id	INTEGER(6), UNIQUE, NOT NULL
Name	VARCHAR (12), NOT NULL
Address	VARCHAR (15)
Course_id	INTEGER (2), NOT NULL
University_rollno	INTEGER(6), UNIQUE, NOT NULL

Identify the candidate keys in the table STUDENT.

Give SQL command to create the table STUDENT using suitable data types and constraints, define a suitable primary key for the table.

Populate the table STUDENT with information of four students.

Display the names of students whose Course_id is "Computer Science" and name starts from "A".

Add a column "Phone_no".

Update "Phone_no" of all the students with suitable values in the table.

Q 6. A Company maintains the following tables for its Database :

Table	Attributes
Executive	E_Id, Name, Address, Salary, Date_of_Joining,
Product	P_Id, Name, Price
Customer	C_Id, Name
Order	Invoice_No, Date_of_Purchase, P_Id, E_Id, C_Id, Quantity

Construct an ER diagram where an invoice is given by the executive. Each executive can write many invoices but each invoice is written by only one executive. The invoice is written for a single customer but each customer can have many invoices.