Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to calculate area and perimeter of a rectangle. [5 marks]

ii Write a 'C' program to calculate the sum of factors of a number. [10 marks]

OR

Q 1) A Write a 'C' program to check if a matrix is upper triangular. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Room (room_no,room_name,room_type,charges)

Guest(Guest_code, Gname,city)

The relationship is as follows: Room-Guest: **one-to-one.** room_type can have values as either 'AC' or 'NonAC'.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the details of the rooms having charges between 5000 and 10000.
ii. List the names of the guests in the sorted order by city name.
iii. List the minimum charges of a room.
iv. Increase the charges of all AC rooms by 15%.
v. List the names of all the NONAC rooms whose charges are more than 10000.

C Write a query to List the name of the guest to whom the room with highest charges is allotted. [4 marks]

OR

Create a view to list the names of all the NonAC rooms that have their charges greater than at least one of the 'AC' room.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a character and check if it is uppercase or lowercase [5 marks]

ii. Write a 'C' program to display n terms of the Fibonacci series. [10 marks]

OR

Q 1) A Write 'C' program to find the maximum number from an array of n integers. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Employee(eno,ename,designation,salary)

Department(dno,dname,location)

The relationship is as follows: Employee-Department: **many-to-one.**

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Give a 5% raise in salary to all the employees.
ii. Display average salary of an employee.
iii. List the details of all the departments located at _____city.
iv. Display the details of employees whose names ends with an alphabet___.
v. Display the location of 'HR' department.

C Write a query to List the details of employees who do not work in any of the departments located at 'Calcutta'. [4 marks]

OR

Create a view to list the names of employees whose salary is greater than all the employees working in 'HR' department.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept two integers from the user and interchange them. Display the interchanged numbers. [5 marks]

ii. Write 'C' program to accept a single digit and display it in words. For example, Input = 9 Output = Nine [10 marks]

OR

Q 1) A Write a 'C' program to add two matrices of order mXn [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Person (pnumber, pname, birthdate, income)

Area (aname, area_type,pincode)

The relationship is as follows: Person-Area: **many-to-one.**The 'area_type' can have values as either 'urban' or 'rural'.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the details of all people whose name starts with the alphabet 'R'.
ii. List the names of all people whose birthday falls in the month of 'July'.
iii. Display the details of people in the sorted order of their income.
iv. Display the count of areas of 'urban' type.
v. Change the pincode of 'kalyaninagar' to 411036.

C Write a query to List the names of people who live in 'Camp' area and have income less than at least one person who lives in 'kalyaninagar' area. [4 marks]

OR

Create a view to list the details of the person with second maximum income.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept three dimensions length (l), breadth(b) and height(h) of a cuboid and print surface area (surface area=2(lb+lh+bh) [5 marks]

ii. Write a 'C' program to accept an array of n float values and display them in the reverse order. [10 marks]

OR

Q 1) A Write a menu driven program to perform the following operations on an integer. Write separate functions. [15 marks]

1. Check if is even or odd
2. Check if it is prime
3. Exit

Section II : Database Management Systems [15 marks]

Consider the following database

Policy (pno,pname,premium_amt,policy_type)

Customer(cno,cname.city, agent_name)

The relationship is as follows: Policy-Customer: **many-to-one.** The 'policy_type' can have values as 'Yearly', 'Half-yearly' or 'Monthly'.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the details of all customers who live in _____city.
ii. Display the average premium amount.
iii. Count the number of customers who have taken 'Jeevan Anand' policy.
iv. Increases the premium amount for 'Monthly 'policies by 10%.
v. Display the policy_type wise count of policies.

C Write a query to List the name of a policy_type with highest average premium amount. [4 marks]

OR

Create a view to list the name of the customer who has taken highest number of policies.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to check whether the given year is leap year or not. [5 marks]
ii. Write a 'C' program to display all numbers between two given numbers. [10 marks]

OR

Q 1) A Write 'C' program to subtract two matrices of order mXn [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Doctor (dno, dname, city)

Patient (pno, pat_name, city, disease)

The relationship is as follows: Doctor-Patient: **many-to-many** with Fee as a descriptive attribute .

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the details of all the doctors from _____ city.
ii. Display count of patients.
iii. List the names of the patients suffering from 'cancer' disease.
iv. Change the city of 'Dr. Patil' to Pune.
v. List the names of patients that starts with alphabet 'A'

C Write a query to Find the number of patients suffering from "Asthama" and have been charged a fee of Rs 200,by "Dr. Kumar". [4 marks]

OR

Create a view to find the name of a doctor who treats maximum number of patients

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to find maximum of two numbers. [5 marks]

ii. Write a recursive function in 'C' to calculate factorial of a number. Use this function in main. [10 marks]

OR

Q 1) A Write a 'C' program with menu to perform the following operations on a character. [15 marks]

1. Check uppercase or lowercase
2. Display its ASCII value
3. Display its next and previous character
4. Exit

Section II : Database Management Systems [15 marks]

Consider the following database

Student (rno,name,city)

Teacher(tno,tname,phone_no,salary)

The relationship is as follows: Student-Teacher: **many-to-many** with subject as a descriptive attribute .

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the names of students from_____city.
ii. Display the count of students from 'Mumbai'city.
iii. Change the phone number of 'Prof. Patil' to '9822131226'
iv. List the details of the teachers in the sorted order of their name.
v. List the names of the teachers who have salary less than 50000.

C Write a query to List the names of all teachers who do not teach any subject that is taught by 'Mr. Patil' [4 marks]

OR

Create a view to list the details of students who have taken 'DBMS' subject.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to calculate area and circumference of a circle. [5 marks]

ii. Write a 'C' program to accept a character and check if it is alphabet, digit or special symbol. If it is an alphabet, check if it is uppercase or lowercase. [10 marks]

OR

Q 1) A Write a 'C' program to read a matrix and calculate the sum of its diagonal elements. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Item (item_no, name, quantity)

Supplier (s_no, name, city)

The relationship is as follows: Item-Supplier: **many-to-many** with rate as a descriptive attribute .

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Change the quantity for item 'Mouse' to 80.
ii. List the details of the suppliers whose name begins with the alphabet 'M'.
iii. Display the count of items.
iv. List the names of suppliers who do not live in _____city.
v. List the names of items with quantity less than 10.

C Write a query to Display the names of all suppliers who do not supply 'CD' and 'Mouse'. [4 marks]

OR

Create a view to display supplier-wise list of items.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept an integer and check if it is divisible by 3 and 5. [5 marks]

ii. Write a function in 'C' to calculate sum of digits of an integer. Use this function in main [10 marks]

OR

Q 1) A Write a 'C' program to accept n integers in an array and search for a specific number. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Student-Teacher database

Student (sno , s_name, s_class) s_class can be either "FY", "SY" or "TY"

Teacher (tno , t_name, yrs_experience)

The relationship is as follows: Student-Teacher: M-M with descriptive attribute Subject.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List teachers having > 5 yrs of experience.

ii. List all students studying in "FY.

iii. Count the number of teachers who teach subject "____"

iv. Delete record of student whose sno "_____"

v. Add designation column in teacher table

C Write a query to List the names of all teachers with their subjects along with the total number of students they are teaching [4 marks]

OR

Create a View to find the teacher teaching maximum number of subjects

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to interchange two numbers and display the interchanged nunbers. [5 marks]

ii. Write a function in 'C' to reverse an integer. Use this in main. [10 marks]

iii. OR

Q 1) A Write a 'C' program to accept n integers in an array and count the frequency of each element of an array. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Student-Teacher database

Student (sno , s_name, s_class) s_class can be either "FY", "SY" or "TY"

Teacher (tno , t_name, yrs_experience)

The relationship is as follows: Student-Teacher: M-M with descriptive attribute Subject.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Give class-wise number of students.

ii. List all students studying in class "TY".

iii. Count the number of students who have taken subject "____"

iv. Delete record of student whose sno "_____"

v. Add designation column in teacher table

C Write a query to List the names of all teachers with their subjects along with the total number of students they are teaching [4 marks]

OR

Create a View to find the teacher teaching maximum number of subjects

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to check whether a given number is even or odd. [5 marks]

ii. Write a 'C' program to accept n integers in an array and display the array in reverse order. [10 marks]

OR

Q 1) A Write a 'C' function to check if a number is prime. Use this function to display all prime numbers between 100 and 500. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Person (pnumber, pname, birthdate, income),

Area(aname,area_type).

There exists a one-to-many relationship between Area and Person. The attribute 'area_type' can have values as either urban or rural.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the details of persons having income > 10000.
ii. Transfer all people living in 'Pune' to 'Delhi'.
iii. Count number of area's having type 'urban'.
iv. Give the count of people who are born on "_____".
v. List the names of all people living in '_____' area.

C Write a query to Count the total number of people staying in "urban" area and having average income. [4 marks]

OR

Create a View to print the person details along with their area name.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i.Write a 'C' program to find whether a given year is a leap year or not. [5 marks]
ii.Write a 'C' program to accept an integer and display its sum of digits. [10 marks]

OR

Q 1) A Write a 'C' program to accept a matrix of size m x n and display transpose of a given matrix. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Emp(<u>eno</u>, ename, designation, sal)

Dept(<u>dno</u>, dname, dloc)

There exists a one-to-many relationship between Dept and Emp.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Increase salary of "managers" by 15%;
ii. Delete all employees of department no 30;
iii. Count the number of employees in dept no ____.
iv. List the details of employees having salary between 30000 and 50000.
v. Display the average salary of employee.

C Write a query to display the name of the department having maximum employees. [4 marks]

OR

Create a View to print the employee names along with their department details.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to read the age of a candidate and determine whether the candidate is eligible for casting his/her own vote. [5 marks]

ii.Write a 'C' program to check if a number is perfect (number = sum of its factors) [10 marks]

OR

Q 1) A Write a 'C' program to accept real number x and integer n and calculate the sum of first n terms of the series x+ x/3!+ x/5!+ x/7!+… [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Person (pnumber, pname, birthdate, income),

Area(aname, area_type).

There exists a one-to-many relationship between Area and Person. The attribute 'area_type' can have values as either urban or rural.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Delete the record of "Mr. Kumar".
ii. Transfer all people living in 'Mumbai' to 'Pune'.
iii. Count number of area's having type 'urban'.
iv. Give the count of people who are living in "_____".
v. Calculate the average income of people in "Pune".

C Write a query to Give details of persons staying in "rural" area and having income > 100000 [4 marks]

OR

Create a View to print the person details in "urban" area.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to which accepts a character from the user and display its ASCII value. Also display its next and previous integer. [5 marks]

ii. Write a 'C' program to display multiplication tables of n having 10 multiples. [10 marks]

OR

Q 1) A Accept two numbers and perform the following operations till the user selects Exit. [15 marks]

i. Maximum
ii. Display all numbers between the two
iii. Sum and average
iv. EXIT

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).
Account (acct_no ,acct_type, balance, branch_name)
Customer (cust_no, cust_name, cust_city)
Relationships : Customer-Account :1-M
Constraints: acct_type can be "saving" or "current", balance > 0

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Display information of all saving accounts having balance > ____
ii. Count customers in city "_____".
iii. Find the total balance at branch "M.G.Road".
iv. Delete the record whose cust_name is "_____".
v. Change city of customer "_____" to "Pune"

C Write a query to Find the number of account holders for each city. [4 marks]

OR

Create a View to print the account details along with customer and their branch details.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a number and check if it is positive, negative or zero. [5 marks]

ii. Write 'C' program to accept a single digit number and display it in words. For example, Input = 9 Output = Nine [10 marks]

OR

Q 1) A Write a 'C' program to copy one matrix to another. Display the copied matrix. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Emp (eno, ename, salary)

Project (pno, pname, budget)

Relationships:

Emp– Project : M – M with descriptive attribute no-of-hrs.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the maximum budget.
ii. Increase the salary of all employees by 10%
iii. Count the number of projects having duration > 100 hrs.
iv. List all employees whose name ends with "a".
v. Add column contact_number to employee table.

C Write a query to List the names of employees who are not working on any project. [4 marks]

OR

Create a view to list the project details having maximum number of hours.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to perform all arithmetic operations on two integers. [5 marks]

ii. Write a 'C' program to calculate the factorial of a number using function. [10 marks]

OR

Q 1) A Write a 'C' program to accept two matrices of size m x n and calculate Addition of Matrices. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Sales_order(s_orderno, s_order_date, order_amt)

Client(client_no, name, address)

There exists a one-to-many relationship between Client and Sales_order

Constraints: order_amt > 0

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Update the client address of all clients from "Nagpur" to "Aurangabad".
ii. Delete all sales order whose client number is 30;
iii. Display all sale records having order date before "_____".
iv. Display sales order having maximum order amount.
v. Add column order_status to the Sales_order table.

C Write a query to Display client details having maximum sales orders. [4 marks]

OR

Create a view to list names of clients having more than 2 sales orders.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i.Write a 'C' program to find the area and perimeter of rectangle. [5 marks]

ii.Write a 'C' program to display n lines of the following pattern. [10 marks]

```
1
2 3
4 5 6
```

OR

Q 1) A Write a 'C' program to find the transpose of a mXn matrix. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Bus (Bus_no , capacity ,depot_name)

Route (Route_no ,source ,destination ,no_of_stations)

Relationship :

Bus-Route : M-1

Constraint :

Bus capacity is not null

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List all buses at depot "_____".
ii. Delete Bus whose Bus number is "_____".
iii. List all buses on route number 41.
iv. List the route details having number of stations > 10.
v. List all routes starting from "Station".

C Write a query to Create a view to List all bus and route details starting from "Airport". [4 marks]

OR

Delete all the buses on routes in which total stations are less than 3.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a number and check number is positive or negative. [5 marks]

ii. Write a 'C' program to accept a single digit number from the user and display it in words. Input = 9, output = Nine. [10 marks]

OR

Q 1) A Write a 'C' program to calculate occurrences of a number in an array of n integers. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the followingDoctor - Patient database (Primary keys are underlined)

Doctor (doctor_code,doctor_name, specialization, address, phone_no)

Patient (Patient_code, Patient_name, symptoms)

There exists a one-to-many relationship between Doctor and Patient.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the names of all Patients which start with "M".
ii. Count the number of doctors who are Neurologists.
iii. Give the list of all patients who are suffering from "Fever"
iv. Find the specialization and phone numbers of all doctors from Sadashiv Peth.
v. Modify address of Dr. ____ to "Camp".

C Write a query to display the list of all patients who are treated by doctors staying in ____ area with the specialization "Orthopedic". [4 marks]

OR

Create a View to find all Patients staying in "____" and having the symptoms "vomiting" and treated by doctor "Mr. Sagar"

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to Accept dimensions of a cylinder and print the surface area and volume. (surface area = $2\pi r^2 + 2\pi r h$, volume = $\pi r^2 h$) [5 marks]

ii. Write a 'C'program to Accept two integers x and y and calculate the sum of all integers between x and y. [10 marks]

OR

Q 1) A Write a 'C' program to accept two matrices of size m x n and find multiplication of Matrices. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Game (gname, noofplayers, coachname, captain_name)

Player (pno, pname)

There exists a one-to-many relationship between Game and Player. Add constraint uppercase to captain_name

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the names of players playing "hockey".
ii. Give the average number of players.
iii. Delete the records of players playing 'kho kho'.
iv. List names of players not playing "cricket".
v. Update the coach name from "_____" to "_____" for game "hockey".

C Write a query to Display the game details with maximum number of players. [4 marks]

OR

Create a View to print game-wise list of Players along with their game name.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept two integers and perform all arithmetic operations. [5 marks]

ii. Write a 'C' program to check if a character is an alphabet, digit or a special symbol. If it is an alphabet, check if it is uppercase or lowercase. [10 marks]

OR

Q 1) A Write a 'C' program to multiply two matrices. Write separate functions to accept, display and multiply the matrices. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Student-Teacher database

Student (sno ,s_name, s_class)s_class can be either "FY", "SY" or "TY"

Teacher (tno ,t_name, yrs_experience)

The relationship is as follows: Student-Teacher: M-M with descriptive attribute Subject.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List teachers having > 5 yrs of experience.
ii. Count all students who have taken subject ____
iii. List all students whose name ends with "Singh"
iv. Change experience of teacher name ____ to 20.
v. Display classwise details of students.

C Write a query to List the names of all teachers with their subjects along with the student names to whom they are teaching [4 marks]

OR

Create a View to find the teacher teaching maximum number of subjects

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept radius of circle and calculate area and circumference. [5 marks]

ii. Write a function in 'C', which accepts a character and integer n as parameter and displays the next n characters. [10 marks]

OR

Q 1) A Write a 'C' program to accept n integers and sort them. Display the sorted elements. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Property – Owner database (Primary keys are underlined)

Property (Property_no, area, location, city)

Owner (owner_name, address, phone)

The relationship is as follows: Property – Owner are related with M-1 relationship

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Give the list of all properties in Nashik city.
ii. Give the names of owners whose property is greater than 2000sq feet.
iii. Find the number of properties owned by "Mr. Kumar".
iv. Count all properties having area < _____.
v. Delete all properties in "Pune" city owned by "Mr. Singh"

C Write a query to Find the names of all owners who own a property in Pune city, located in Kothrud area and which has an area > 10000. [4 marks]

OR

Create a View to find the owner wise list of properties.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A Write a C program to check whether number is positive or not [5 marks]

B Write a C program to accept n float values in an array and display them in the reverse order. [10 marks]

OR

Q 1) A Write a program to perform the following operations on a character till user chooses EXIT. [15 marks]

1. Check if it is alphabet or digit.
2. Display next n characters
3. Display its ASCII value.

EXIT

Section II : Database Management Systems [15 marks]

Consider the following Property – Owner database (Primary keys are underlined)

Property (Property_no, area, city, price)

Owner (owner_name, address)

The relationship is as follows: Property – Owner are related with M-1 relationship

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Give the list of all properties in _____ city.
ii. Count the number of properties having area > ____ sq.ft.
iii. Find the total price of properties owned by "Mr. Kumar".
iv. Delete all properties in "Pune" city owned by "Mr. Singh"
v. Add phone number column to Owner table.

C Write a query to Find the names of all owners who own a property in Mumbai city, located in Bandra area and which has an area > 10000. [4 marks]

OR

Create a View to find the owner wise list of properties.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to calculate area and circumference or a circle. [5 marks]

ii. Write a 'C' function to calculate the sum of digits of a number. Use this function in main to accept a number and print sum of its digits. [10 marks]

OR

Q 1) A Write a 'C' program to accept an array and a number and count occurrence of a number in the array. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Student (rno,name,city)

Teacher(tno,tname,phone_no,salary)

The relationship is as follows: Student-Teacher: **many-to-many** with subject as a descriptive attribute .

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the students from_____city.
ii. Find the maximum salary of teachers.
iii. Change the phone number of teacher '____' to _____
iv. List the details of the teachers in the sorted order of their name.
v. Count the number of students who have taken subject "DBMS".

C Write a query to List the names of all students who are taught by teacher "____" [4 marks]

OR

Create a view to list the details of students who have not taken '____' subject.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to interchange two numbers. [5 marks]

ii. Write a 'C' program to accept a character and check if it is alphabet or digit. If it is alphabet, check if it is a vowel or consonant. [10 marks]

OR

Q 1) A Write a 'C' program to accept an array of n integers and find the maximum and minimum. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Student-Teacher database

Student (sno , s_name, s_class) s_class can be either "FY", "SY" or "TY"

Teacher (tno , t_name, yrs_experience)

The relationship is as follows: Student-Teacher: M-M with descriptive attribute Subject.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List teachers having > 5 yrs of experience.

ii. Count the number of students studying in "FY.

iii. List all subjects taught by teacher no 10.

iv. Delete record of student whose sno is _____

v. Add designation column in teacher table

C Write a query to List the names of all teachers with their subjects along with the total number of students they are teaching [4 marks]

OR

Create a View to find the teacher teaching maximum number of subjects

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to interchange two numbers. [5 marks]

ii. Write a 'C' program to accept an array of n integers and display them in the reverse order. [10 marks]

OR

Q 1) A Write a 'C' program to accept a matrix A of size m X n. Store its transpose in matrix B. Display matrix B. [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

order(s_order_no, s_order_date, amount)

Client(client_no, name, address)

A client can give one or more orders, but an order belongs to exactly one client.

Order amount should be > 0

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL. (any 3) [6 marks]

i. Change order date of client_no '04' to '12/4/19'.
ii. Display all orders given in the month of October.
iii. Display all orders in descending order of amount.
iv. Delete all the clients of Mumbai.
v. Count the number of orders having amount > ____.

C Write a query to Display the client name who has given maximum number of orders. [4 marks]

OR

Create a view to list names of clients having more than 2 sales orders.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept the character from the keyboard and display its previous and next character with ASCII values. . [5 marks]

[10 marks]

ii. Write a 'C' program to accept two numbers in variable x and y from user and perform the following operation.

Options	**Actions**
1. Equality	Check if x is equal to y.
2. Less Than	Check if x is less than y.
3. Swap	Interchange x and y.

OR

Q 1) A Write a function in 'C' to check if a number is prime. Use this function to display the first 20 prime numbers. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Customer – Account database (Primary keys are underlined)
Customer (cust_no, cust_name, cust_city)
Account (acc_no, acc_type , balance) Account type can be either "Saving" or "Current"
There exists a one-to-many relationship between Customer and Account.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the names of all Customers staying in "Delhi".
ii. Give the total balance of all Saving accounts.
iii. Find the maximum balance of an account.
iv. Increase the balance of account no 101123 by Rs 10,000/-
v. Add column "AADHAR number" to customer table.

C Write a query to find the names and phone numbers of all Customers of Current accounts, having balance greater than 10,00,000/- [4 marks]

OR

Create a View to list details of all customers having saving account and not staying in city ____.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept initial velocity (u) , acceleration (a), and time (t). Print the final velocity (v). (Use formula v = u + at) [5 marks]

ii. Write a 'C' function isPrime, which accepts an integer number as parameter and returns 1 if the number is prime and 0 otherwise. Use this function to check if a number is prime. [10 marks]

OR

Q 1) A Write a 'C' program to check if a nXn matrix is symmetric. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Bus – Driver database (Primary keys are underlined)

Bus (bus_no, capacity, depot_name)

Driver (driver_no, driver_name, license_no, address, age, salary)

The relationship is as follows: Bus and Driver are related with M-M relationship with the descriptive attribute Date_of_duty.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the number of buses having capacity more than 20.
ii. Count number of drivers who did duty on "15/01/2017"
iii. Give the names of all drivers starting with 'S'.
iv. Calculate the average salary of a driver.
v. Find all details of driver named "____".

C Write a query to find the names of all drivers who were driving buses from "Kothrud Depot" on 12/2/2009. [4 marks]

OR

Create a View to find all details of buses which are driven by drivers whose age is less than 25 years.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to calculate the area and perimeter of a rectangle. [5 marks]

ii. Write a 'C' program to accept real number x and integer n and calculate the sum of first n terms of the series x+ 3x+5x+7x+… [10 marks]

OR

Q 1) A Write a 'C' program to perform the following operations on an integer till user chooses EXIT. [15 marks]

1. Check if it is even or odd.
2. Display its last digit
3. Display all positive numbers below the number
4. EXIT

Section II : Database Management Systems [15 marks]

Consider the following database

Employee(<u>eno</u>,ename,designation,salary)

Department(<u>dno,</u>dname,location)

The relationship is as follows: Employee-Department: **one-to-many.** Add constraint employee salary > 5000

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Change designation of employee " ___" to Manager.
ii. Display the minimum salary of an employee.
iii. List the details of all the departments located at _____city.
iv. Display the details of employees whose names starts with ___.
v. List the department number wise count of employees.

C Write a query to List the department name-wise total salary. [4 marks]

OR

Create a view to display the department details having maximum employees.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to calculate area and perimeter of a rectangle. [5 marks]

ii. Write a 'C' program, which accepts two integers and an operator as a character (+ - * /), performs the corresponding operation and displays the result. [10 marks]

OR

Q 1) A Write a 'C' program to find the largest and smallest number from an array of n integers. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Customer – Account database (Primary keys are underlined)
Customer (cust_no, cust_name , cust_city)
Account (acc_no,acc_type , balance) Account type can be either "Saving" or "Current"
There exists a one-to-many relationship between Customer and Account.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Count the number of customers whose names end with "Singh".
ii. Give the average balance of all Current accounts.
iii. Display details of accounts in sorted order of balance.
iv. Increase the balance of all accounts of customer no ____ by Rs 1000.
v. Add column "phone no" to customer.

C Write a query to list the city-wise customer names having minimum balance. [4 marks]

OR

Create a View to list details of customers in Pune having maximum balance in saving account.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept temperatures in Fahrenheit (F) and print it in Celsius (C) Formula C=5/9(F-32) [5 marks]

ii. Write a recursive 'C' function to calculate sum of digits of a number. Example : Input : 345 Output : 12 [10 marks]

OR

Q 1) A Write a 'C' function to calculate x^y. Use this function to calculate the sum of first n terms of the series $x + x^3/3 + x^5/5 + ...$ [15 marks]

Section II : Database Management Systems [15 marks]

Create the following tables (primary keys are underlined).

Bus (Bus_no , capacity ,depot_name)

Route (Route_no ,source ,destination ,no_of_stations)

Relationship :

Bus-Route : M-1

Constraint :

Bus capacity is not null

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Count total buses at depot "_____".
ii. Delete all buses having capacity < 20.
iii. List all buses on route number 41.
iv. Find the maximum number of stations.
v. List all routes from "Station" to "Airport".

C Create a view to find the route having maximum number of stations and the buses which run on that route. [4 marks]

OR

Write a query to Delete all the buses on routes in which total stations are less than 3.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a character and check if is uppercase or not. [5 marks]

ii. Write a 'C' program to display the first n fibonacci numbers. [10 marks]

OR

Q 1) A Write a 'C' function to calculate x^y. Use this function to calculate the sum of first n terms of the series $x + x^3/3 + x^5/5 + ...$ [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Employee – Project database (Primary keys are underlined)

Employee (emp_no, emp_name, city, designation, salary)

Project (project_no, project_name, status, start_date)

There exists a many-to-one relationship between Employee and Project. Add constraint status as "Complete", "In progress"

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the names of all Employees working on project no ___.
ii. Count the number of Projects which are "in progress".
iii. Change start date of project "Insurance" to 15/12/2019.
iv. Increase the salaries of all employees working on project 10 by 5%.
v. Delete records of all completed projects.

C Write a query to display the project names on which more than 3 employees are working. [4 marks]

OR

Create a View to find all Employees who are working on projects which have started on 1/1/2015 and status is "in progress".

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a lowercase character from user and checks if character is vowel or not. [5 marks]

ii. Write a 'C' program, which accepts annual basic salary of an employee and calculates and displays the Income tax as per the following rules. [10 marks]

Basic: < 1,50,000 Tax = 0
1,50,000 to 3,00,000 Tax = 20%
> 3,00,000 Tax = 30%

OR

Q 1) A Write a 'C' program to sort an array of n integers in ascending order. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the followingCar - Customer database (Primary keys are underlined)

Car (car_code, c_name, c_price, color_type)

Customer (cust_code, cust_name, cust_address)

There exists a one-to-many relationship between Customer and car. color_type can be "metallic" or "solid"

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Find the names of all Customers whose name start with "B".
ii. Count the number of "metallic" cars.
iii. Give the list of all customers staying in ShivajiNagar.
iv. Increase the price of all "Ferrari" cars by 15%.
v. Add column "model" to car.

C Write a query to display the customer name having maximum number of cars in Pune city. [4 marks]

OR

Create a View to find all details of Customers who have bought metallic colored cars having price in the range 100000 to 500000.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a character from keyboard and check whether it is vowel or consonant. [5 marks]

ii. Write a 'C' program to accept two numbers X and n and calculate X^n. [10 marks]

OR

Q 1) A Write a 'C' program for sorting an array of n elements. [15 marks]

Section II : Database Management Systems [15 marks]

Customer (cust_no, cust_name, city)
Loan (loan_no, loan_amt)
Relation between Customer and Loan is Many to Many
Constraint: Primary key, loan_amt should be > 0.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Count all customers who have taken a loan.
ii. List all customers whose name starts with 'A'.
iii. Display the maximum loan amount.
iv. Change city 'Pune' to 'Mumbai' for customer 'joshi'
v. Display city-wise customer names.

C Write a query to display customer details having maximum loan amount. [4 marks]

OR

Create a view containing all customer and their loan details sorted by amount.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept an integer and check if it is even or odd. [5 marks]

ii. Write a recursive 'C' function to calculate factorial of a number. Use this function in main to calculate factorial of a number. [10 marks]

OR

Q 1) A Write a 'C' program to display all prime numbers below 100. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following database

Room (room_no,room_name,room_type,charges)

Guest(Guest_code, Gname,city)

The relationship is as follows: Room-Guest: **one-to-one.** room_type can have values as either 'AC' or 'NonAC'.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. List the names of the guests in the sorted order by city name.
ii. Find the maximum charges of a room.
iii. Increase the charges of all AC rooms by 10%.
iv. List the names of all the NONAC rooms whose charges are more than 10000.
v. List all guests whose name starts with "S"

C Write a query to List the name of the guest to whom the room with lowest charges is allotted. [4 marks]

OR

Create a view to list the names of all the NonAC rooms that have their charges greater than at least one of the 'AC' room.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to find maximum of two numbers. [5 marks]

ii. Write a 'C' program to accept a number and reverse it. [10 marks]

OR

Q 1) A Write a 'C' program to perform the following operations on a character till user selects Exit. [15 marks]

1. Display its ASCII value
2. Check if it is vowel
3. Check if it is uppercase
4. Display its next 5 characters
5. Exit

Section II : Database Management Systems [15 marks]

Consider the following Property-Owner database

Property (pno, desc, area, rate)
Owner (owner_name, addr, phno)
Relation between owner and Property is One to Many.
Constraint: Primary key, rate should be > 0

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Display all the properties from Mumbai owned by "Mr. Patil".
ii. Update the phone Number of "Mr. Mule" to 9923323366.
iii. List the names of owner having property in "pune" area.
iv. List the name of owners that ends with letter 'a'.
v. Alter table by modifying addr to varchar(50));

C Write a query to Find property details with maximum rate in 'pune' area. [4 marks]

OR

Create a view to display the owner details having more than 2 properties..

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept dimensions of a cylinder and print the surface area and volume (surface area = $2\pi r^2 + 2\pi rh$, volume = $\pi r^2 h$) [5 marks]

ii. Write a 'C' program to calculate the GCD of two numbers. [10 marks]

OR

Q 1) A Write a 'C' program to calculate the transpose of a mXn matrix. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following relations

Person (pnumber, pname, birthdate, income)

Area(aname,area_type).

Relation between Area and Person is **One to Many**.
The attribute 'area_type' can have values as either urban or rural.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i.Give the count of people who are born on '06/12/1988'

ii. List names of all people whose income is between 20,000 and 35,000

iii.List the sum of incomes of people living in 'Mumbai'

iv.List the minimum income of people.

v.List the details of people, sorted by person number

C Write a query to Find person details whose income is greater than average income. [4 marks]

OR

Create a view to list the details of all persons from 'urban' area.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept three numbers and check whether first number is between other two or not. [5 marks]

ii. Write a 'C' program to accept marks of 5 subjects of a student and calculate the grade using rules: [10 marks]

> 90 grade = O
between 75 and 90 grade = A
between 60 and 75 grade = B
between 40 and 60 grade = C
< 40 grade = F

OR

Q 1) A Write a function in 'C' to calculate x^y. Use this function to calculate the sum of first n terms of the series $x + x^3/3 + x^5/5 + ...$ [15 marks]

Section II : Database Management Systems [15 marks]

Consider the relations

Book (Book_no, title, author, price, year_published)
Customer (cid, cname, addr)
Relation between Book and Customer is Many to Many with quantity as descriptive attribute.
Constraint: Primary key, price should be >0.

Q 2) A Create the above database in PostGreSQL and insert sufficient records. [5 marks]

B Execute the following queries in PostGreSQL (any 3) [6 marks]

i. Display customer details from 'Mumbai'.
ii. Display author wise details of book.
iii. Display the average price of a book.
iv. Change the price of 'JAVA Programming' book to_____.
v. Display book names having price between 100 and 200 and published in the year 2013.

C Write a query to find the book names purchased by customer 'Kale'. [4 marks]

OR

Create a view containing customer details who have purchased 'C Programming' book.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to check if given year is leap year or not. [5 marks]

ii. Write a 'C' program to calculate the GCD of two numbers. [10 marks]

OR

Q 1) A Write a 'C' program to accept two numbers in variables x and y from the user and perform the following operations till user selects EXIT [15 marks]

1. Equality -Check if x is equal to y
2. Less Than -Check if x is less than y
3.Maximum of x and y
4 EXIT

Section II : Database Management Systems [15 marks]

Consider the following Project-Department **Database**

Project (pno, pname, start_date, budget, status) Project Status Constraints: C – completed,

P-Progressive, I-Incomplete

Department (dno, dname, HOD)

The relationship is as follows: Project- Department Many to One.

Q2) A. Create a Database in PostGreSQL and insert sufficient records. [5 Marks]

B. Execute the following queries in PostGreSQL (any 3) [6 Marks]

i. List the project names that are 'Incomplete'.
ii. Display the total budget of projects.
iii. Display the HOD name of _____ department
iv. Find the names of projects that have budget greater than 50000 .
v. Display the project names that have start date as 12/6/2019.

C. Write a query to Display the department name having less than 2 projects. [4 marks]

OR

Create a View to display department wise total budget.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to accept a character as input and check whether it is digit.(check if it is in the range '0' to '9' both inclusive) [5 marks]

ii. Write a 'C' program to display array elements in the reverse order. [10 marks]

OR

Q 1) A Write a 'C' program to accept two matrices and multiply them. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Property-Owner **Database**

Property (pno, desc, area, rate)

Owner (owner_name, addr, phno)

The relationship is as follows: Property-Owner Many to one.

Q2) A. Create a Database in PostGreSQL and insert sufficient records. [5 Marks]

B. Execute the following queries in PostGreSQL (any 3) [6 Marks]

i. Display area wise property details.
ii. Display the properties owned by 'Mr.More'.
iii. Display owner wise property detail.
iv. Display the average rate of a property.
v. Update the rate of property by 15% in 'Saswad' area

C. Write a query to Display the owner details who do not have any property in Chinchwad area. [4 marks]

OR

Create a View to Display owner name having maximum no. of properties.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program which checks if a number is divisible by 3 and 5. [5 marks]

ii. Write a 'C' program to count the number of even and odd numbers in an array of n integers. [10 marks]

OR

Q 1) A Write a 'C' program to calculate the sum of diagonal elements of a nXn matrix. [15 marks]

Section II : Database Management Systems [15 marks]

Consider the following Wholesaler - Product Database

Wholesaler (w_no, w_name, city)

Product (product_no, product_name, rate) rate should be > 0

The relationship is as follows: Wholesaler - Product Many to Many with quantity as descriptive attribute.

Q2) A. Create a Database in PostGreSQL and insert sufficient records. [5 Marks]

B. Execute the following queries in PostGreSQL (any 3) [6 Marks]

i. Display the wholesalers from 'Pune' city .
ii. Display the total number of wholesalers from _____city.
iii. Display the product names that have rate greater than 500.
iv. Decrement rate of all products by 5%.
v. Display the details of wholesalers whose name starts with letter 'A'

C. Delete all records of Wholesaler who sell product 'keyboard' [4 marks]

OR

Create a View to Display total quantity of each product sold by 'Mr. Kumar'.

Q 3) Viva [5 marks]

Duration: 3 Hours Maximum Marks: 35

Section I : Problem Solving using Computer and 'C' Programming [15 marks]

Q 1) A i. Write a 'C' program to find the maximum among two numbers. [5 marks]

ii. Write a 'C' program, which accepts annual basic salary of an employee and calculates and displays the Income tax as per the following rules. [10 marks]

Basic: < 1,50,000	Tax = 0
1,50,000 to 3,00,000	Tax = 20%
> 3,00,000	Tax = 30%

OR

Q 1) A Write a 'C' program to accept real number x and integer n and calculate the sum of first n terms of series : x+x/3!+x/5!+x/7!+…. [15 marks]

Section II : Database Management Systems [15 marks]

Q.2) **Consider the following Customer-Loan Database**

Customer (cust_no, cust_name, address, city)
Loan (loan_no, loan_amt) loan_amt should be > 0

The relationship is as follows: Customer-Loan M-M.

Q2) A. Create a Database in PostGreSQL and insert sufficient records. [5 Marks]

B. Execute the following queries in PostGreSQL (any 3) [6 Marks]

i. Find details of all customers who live in _____city.
ii. List all customers whose name starts with S'.
iii. List the details of all customers in descending order of their name.
iv. Calculate total of all loan amount.
v. Increase all loan amounts by 5%.

C. Write a query to List the Customer wise Loan Details for customers from City 'Pune'. [4 marks]

OR

Create a View to display customer details having maximum loan amount

Q 3) Viva [5 marks]