QP_CODE : 0923FN01 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Create a class **Student** with three data members *name*, *age* and *address* and member functions *read*(), *display*() and *getAge*(). Write a C++ program to read the data of n students and display the details of students whose age greater than the average age.

Q2. TABLE 1 : **BOOK**

COLUMN NAME	DATA TYPE	CONSTRAINTS
BookId	Varchar(5)	Primary Key
Book_Name	Varchar(20)	Not Null
Author_Name	Varchar(20)	
Price	Number(5)	

TABLE 2: **PUBLISHER**

COLUMN NAME	DATA TYPE	CONSTRAINTS
Pub_Id	Varchar(5)	Primary Key
Pub_Name	Varchar(20)	Not Null
BookId	Varchar(5)	Foreign Key

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Display the details of book published by "PHI".
4. Delete all books having price greater than 5000.
5. List the details of books and its publishers in ascending order of their price.

QP_CODE : 0923FN02 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1.Create a class **Time** with data members *hour*, *minute* and *second* and member functions *readTime*(), *displayTime*() and an overloaded operator '+'. Write a C++ program to find the sum of two **Time** objects. [use 24 hours format].

Q2. TABLE 1 : **COLLEGE**

COLUMN NAME	DATA TYPE	CONSTRAINTS
COLL_CODE	NUMBER(5)	PRIMARY KEY
COLL_NAME	VARCHAR(25)	NOT NULL
COLL_PLACE	VARCHAR(25)	
STARTING_DATE	DATE	
CONTACT_NUMBER	VARCHAR(10)	

TABLE 2 : **COURSE**

COLUMN NAME	DATA TYPE	CONSTRAINTS
COURSE_CODE	NUMBER(5)	PRIMARY KEY
COURSE_NAME	VARCHAR(25)	NOT NULL
DEPARTMENT	VARCHAR(25)	
C_CODE	NUMBER(5)	FOREIGN KEY

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Display the details of all colleges offering BCA course in the ascending order of college name.
4. Delete records of colleges started on or before 01/01/1990.
5. Display the Count of colleges in the same place

QP_CODE : 0923FN03 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Create a class **Rectangle** with data members *length* and *breadth* and member function to calculate the **Area** (length*breadth).
The class has two constructors (1) having one parameter (*assume same values for both length and breadth*) and (2) having two parameters. Write C++ program to create objects of the Rectangle class having one and two parameters and print their area.

Q2. TABLE 1: **DEPARTMENT**

COLUMN NAME	DATA TYPE	CONSTRAINTS
DEPT_ID	VARCHAR(10)	PRIMARY KEY
DEPT_NAME	VARCHAR(15)	NOT NULL

TABLE 2 : **TEACHER**

COLUMN NAME	DATA TYPE	CONSTRAINTS
TEACH_ID	VARCHAR(10)	PRIMARY KEY
NAME	VARCHAR(15)	NOT NULL
DEPT_ID	VARCHAR(10)	FOREIGN KEY
SUBJECT	VARCHAR(15)	

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Update subject of the teacher to 'COMPUTER NETWORK' whose TEACH_ID is "T105".
4. Display the number of teachers in each department.
5. Display the details of all teachers in the Department of Computer Applications.

QP_CODE : 0923FN04 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Design a base class **Person** with data members *name*, *address* and *phone_number*. Derive a class **Employee** with data member *emp_number* from Person. Derive a class **Manager** with data members *designation*, *department_name* and *basic_salary* from Employee. Write a CPP program to accept all details of 'n' managers.

Q2. TABLE 1 : **MANAGER**

COLUMN NAME	DATA TYPE	CONSTRAINTS
Mgr_id	Varchar(5)	Primary Key
Name	Varchar(25)	Not Null
Dept_id	Number(5)	Foreign Key
Contact_No	Number(10)	
Salary	Number(10)	

TABLE 2 : **DEPARTMENT**

COLUMN NAME	DATA TYPE	CONSTRAINTS
Dept_id	Number(5)	Primary Key
Dept_Name	Varchar(10)	Not Null

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Allow an increment of Rs. 2500 for managers whose salary is less than 50000.
4. Display the details of managers who is getting maximum salary.
5. Display the details of manager who are working in sales department.

QP_CODE : 1023FN01 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Write a C++ program to design a class **Shape** with data member *volume* and three overloaded member functions to find the volume of cube, cuboid and cone. Use another member function *display* to print the volume of three shapes. [*volume of cube=side*^{3} , *volume of cuboid=length*width*height, volume of cone* = $\frac{3.14*radius*radius*height}{3}$]

Q2. TABLE 1: **SAILOR**

COLUMN NAME	DATA TYPE	CONSTRAINTS
SAIL_ID	NUMBER	PRIMARY KEY
SAILOR_NAME	VARCHAR(15)	NOT NULL
AGE	NUMBER	

TABLE 2 : **RESERVE_BOAT**

COLUMN NAME	DATA TYPE	CONSTRAINTS
BOAT_ID	VARCHAR(10)	PRIMARY KEY
BOAT_NAME	VARCHAR(15)	NOT NULL
BOAT_COLOR	VARCHAR(10)	RED,BLUE,GREEN
SAIL_ID	NUMBER	FOREIGN KEY

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Display all the boat names ending with "S".
4. Display the details of sailors who have reserved a 'red' and 'green' boat.
5. Create a view contains list of all sailors whose age in between 25 and 45.

QP_CODE : 1023FN02 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Create a class **Vector** contains data members a, *b*, *c* as coefficients of i,j,k and member functions to *read* and *display* vector objects. Write a C++ program to find the difference between two vector objects using the concept operator overloading with friend function.

Eg. $(a_1i + b_1j + c_1k) - (a_2i + b_2j + c_2k) = (a_1 - a_2)i + (b_1-b_2)j + (c_1 - c_2)k$

Q2. TABLE 1 : **PRODUCT**

COLUMN NAME	DATA TYPE	CONSTRAINTS
Product_num	Varchar(6)	Primary Key
Product_name	Varchar(15)	Not null
Qty_in_hand	Number(8)	
Unit_price	Number(8,2)	Not null,cannot be zero

TABLE 2 : **SALES**

COLUMN NAME	DATA TYPE	CONSTRAINTS
Bill_num	Varchar(6)	Primary Key
Quantity	Number(8)	
Product_num	Varchar(6)	Foreign Key

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records in each table.
3. List the Product_num, name and Quantity for the Bill_num 'K101'.
4. Increase the product price of all products by 10%.
5. Display the details of products having highest unit price.

QP_CODE : 1023FN03 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Create classes

Student (*Data members : stud_id, stud_name, stud_age*
Member functions : readstud(), displaystud())
Course (*Data members : course _name, department*
Member functions : readcourse(),displaycourse()) and
Admission (*Data members : adm_no, adm_date*
Member functions : readadm(), displayadm()).

Write a CPP program to inherit **student** and **course** classes to **admission**.

Q2. TABLE 1 : **CUSTOMER**

COLUMN NAME	DATA TYPE	CONSTRAINTS
CUST_ID	VARCHAR(10)	PRIMARY KEY
NAME	VARCHAR(15)	NOT NULL
LOCATION	VARCHAR(15)	
AGE	NUMBER	

TABLE 2 : **ORDERS**

COLUMN NAME	DATA TYPE	CONSTRAINTS
ORDER_ID	VARCHAR(10)	PRIMARY KEY
PRODUCT	VARCHAR(15)	NOT NULL
CUST_ID	VARCHAR(10)	FOREIGN KEY
ORDER_DATE	DATE	
ORDER_AMT	NUMBER	

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Change the location of customer to Kochi whose cust_id is C1100
4. Display the details of younger customer in the group.
5. Display name, location, order_amt and order_date of customer who placed the highest order .

QP_CODE : 1023FN04 Time : 3 Hours

Max Marks : 80 (CPP : 35 marks, SQL : 25 marks, Record : 10 marks, Viva : 10 Marks)

Q1. Write a CPP program to perform addition of two **Matrix** objects by operator overloading using friend function.

Q2. TABLE 1 : **EMPLOYEE**

COLUMN NAME	DATA TYPE	CONSTRAINTS
EMP_NUM	NUMBER(5)	PRIMARY KEY
EMP_NAME	VARCHAR(25)	NOT NULL
DESIGNATION	VARCHAR(20)	
SALARY	NUMBER(5)	

TABLE 2 : **PROJECT**

COLUMN NAME	DATA TYPE	CONSTRAINTS
PROJ_ID	VARCHAR(5)	PRIMARY KEY
PROJ_NAME	VARCHAR(25)	
EMP_NUM	NUMBER(5)	FOREIGN KEY

Write SQL queries for the following:

1. Create the above tables.
2. Insert 5 records into each table.
3. Display the details of employees in alphabetical order of EMP_NAME whose name contains "kumar".
4. List EMP_NUM, EMP_NAME and DESIGNATION of employees who have not assigned any projects.
5. Display the details of project in which MANAGER with highest pay works.