


```

        A=A-B;
    }
    void main()
    {
        int a=4, b=18;
        X(a,b);
        Cout<<a<< ” , “<<b;
    }

```

- f) Write a C++ SUMFUNC() having two arguments Y (of type float) and M (of type integer) with a result type double to find the sum of series given below: 2

$$Y + \frac{Y^2}{2!} + \frac{Y^3}{3} + \dots + \frac{Y^M}{M!}$$

2. a) What do you understand about a base class and a derived class? If a base class and a derived class each include a member function with the same name and arguments, which member function will be called by the object of the derived class if the scope operator is not used? 2

- b) What do you understand about a member function? How does a member function differ from an ordinary function? 2

- c) Define a class Student for the following specification. 4

Private members of the Student are:

roll	integer
name	array of character of size 20
class	integer
mark1, mark2, mark3	integer
average	float

calculate() that calculates overall average marks and returns the average.

Public members of the Student are:

Readmarks() reads marks and invokes the calculate function.

Displaymarks() prints the data.

- d) Write the output of the following program: 4

```

#include<iostream.h>
class counter
{
    private:
        int count;
    public:
        counter()
        {
            count=0;
        }
}

```

```

        void incounter()
        {
            count++;
        }
        int getcount()
        {
            return count;
        }
};
void main()
{
    counter c1,c2;
    cout<< " C1= " <<c1.getcount();
    cout<< " C2= " <<c2.getcount();
    c1.incounter();
    c2.incounter();
    c2.incounter();
    cout<<" C1= "<<c1.getcount();
    cout<<" C2 ="<<c2.getcount();
}

```

e) Consider the following and answer the question given below:

4

```

class School
{
    int A;
protected:
    int B,C;
public:
    void input(int);
    void output();
};
class Dept : protected School
{
    int X, Y;
protected:
    void in(int, int);
public:
    void out();
};
class Teacher : public Dept
{
    int P;
    void display(void);
public:

```

void enter();

};

- i) Name the base class and derived class of the class Dept.
- ii) Name the data member(s) that can be accessed from function out().
- iii) Name the private member function(s) of class Teacher.
- iv) Is the member function out() accessible by the objects of Dept?

3. a) An array A[5][25] is stored in the memory with each element requiring 4 bytes of storage. If the base address of array in the memory is 1000, determine the location of A[5][7] when the array is stored as i) Row major ii) Column major 4
- b) Write a user defined function in C++ to display the sum of row element of two dimensional array A[5][6] containing integer. 3
- c) Evaluate the following postfix expression using a stack and show the contents of the stack after execution of each operation: 5, 6, 9, +, 80, 5, *, -, / 3
- d) Change the following infix expression into postfix expression. 4
 ((((A+B) * C) + (D/E)) - F)
4. a) Write SQL commands for (i) to (vii) on the basis of the table **SPORTS**. 7

Student No	Class	Name	Game1	Grade	Game2	Grade
10	7	Abhishek	Cricket	B	Swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	B	Football	B
13	7	Archana	Tennis	C	Tennis	A
14	9	Arpita	Basket Ball	A	Cricket	A
15	10	Dona	Cricket	A	Athletics	C

- i) Display the name of the students who have grade 'C' in either Game1 or Game2 or both.
- ii) Display the number of students getting grade 'A' in Cricket.
- iii) Display the names of the students who have same game for both Game1 and Game2.
- iv) Display the games taken by the students, whose name starts with 'A'.
- v) Add a new column 'marks'.
- vi) Assign a value 200 for Marks for all those who are getting grade 'B' or grade 'A' in both Game1 and Game2.
- vii) Arrange the whole table in the alphabetical order of Name.

b) Give the output of following SQL statement based on table Student. 5

Roll	Name	Mark1	Mark2	Total
01	A	45	42	87

02	B	49	39	88
03	C	32	38	70
04	D	41	31	72
05	E	26	36	62

- i) Select Min(Mark1) from Student;
- ii) Select Max(Mark2) from Student;
- iii) Select Average(Total) from Student;
- iv) Select * from Student where Mark1<35;
- v) Select * from Student where Roll>03 && Total<70;

5. a) State the associative law and verify the law using truth table. 3
- b) Prove $XY+YZ+YZ'=Y$, algebraically. 3
- c) Obtain the Simplified form of a Boolean expression using Karnaugh map. 3

$$F(X,Y,Z,W) = \sum (0, 1, 4, 5, 7, 8, 9, 12, 13, 15)$$

- d) Write the Product of sum form of the function $F(x, y, z)$. The truth table representation F is given below: 3

x	y	z	F
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	1

6. a) Describe the following in brief: (i) GSM (ii) CDMA (iii) 3G 3
- b) Describe client / server model of networking. 1
- c) Lavanya Industries has set up its new center at Hari Om Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below: 4

**Rudra
Building**

**Xavier
Building**

**Mohan
Building**

**Satnam
Building**

Center to center distances between various buildings is as follows:

Mohan building to Rudra building	50 m
Rudra building to Xavier building	60 m
Xavier building to Satnam building	25 m
Satnam building to Mohan building	170 m
Mohan building Xavier building	125 m
Rudra building to Satnam building	90 m

Number of Computers in each of the buildings is follows:

Mohan Building	15
Rudra Building	150
Xavier Building	15
Satnam Building	25

- (i) Suggest a cable layout of connections between the buildings.
- (ii) Suggest the most suitable place(i.e. building) to house the server of this organization with a suitable reason.
- (iii) Suggest the placement of the following devices with justification:
 - i. Internet connecting Device/Modem
 - ii) Hub
- (iv) The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed?