

Sample Paper -V
Subject – Computer Science

Time: 3Hours

Maximum Marks: 70

Note. (i) All questions are compulsory.

Q.No.1

- | | |
|---|---|
| a. Write the header file for the given function
abs(), isdigit(), sqrt(), setw() | 2 |
| b. Define Microcomputer | 1 |
| c. what is data and what is the output of data processing system | 2 |
| d. what is the function of memory and what are its measuring units | 2 |
| e. what do you mean by language processor. | 2 |
| f. what is the difference between save and save as command. | 2 |
| g. Expand the following:
i)CPU ii) ROM iii)MICR iv)CD-R 2 | 2 |

Q.No.2

- a. Rewrite the following code after removing the syntax error if any. Underline the correction 2

```
#include <iostream.h>
jumpo(int, int )
void main()
{
    first=10, second=20;
    jumpo(first;second);
    jumpo(second);
}
void jumpo(int n1, intn2=20)
{
    n1=n1+n2;
}
```

- (b) Find the output : 3

```
void result(int &x, int y=10)
{
    int temp = x + y;
    x + = temp;
    if(y <=10)
        y + = temp;
}
void main( )
{
    int A1=10, B2=5;
    result(A1, B2);
    cout<<A1<<B2<<endl;
    result(A1);
    cout<<A1<<B2<<endl;
    result(B2);
    cout<<A1<<B2<<endl;
}
```

D. Find the output

3

```
#include <iostream.h>
void main( )
{
    int i = 0, x = 0;
    do
    {
        if(i % 5 == 0)
        { cout<<x;
          x++;
        }
        ++ i;
    }while(i<10);
    cout<<"\n"<<x;
}
```

e. Find the correct possible output

3

```
void main()
{
    randomize();
    char city[][10]={"del","chn","kol","bom","bng"};
    int fly ;
    for(int i=0;i<3;i++)
    {
        fly = random(2)+1;
        cout<<city[fly]<<". "
    }
}
```

Output:-

1. Del:chn;kol
2. Chn:kol:chn
3. Kol:bom:bng
4. Kol:chn:kol

Q.No.3

- | | |
|--|---|
| a. what do you mean by literals? What are the different kind of literals | 3 |
| b. Explain the types of errors in c++ | 2 |
| c. what is the difference between structure and arrays | 2 |
| d. what do you mean by dynamic and static allocation | 3 |
| e. what is the difference between 'a' and "a" in c++. | 1 |
| f. What do you mean by code generation | 2 |

Q.No.4

- | | |
|---|---|
| a. What do you mean by nested structure? Explain with suitable example | 2 |
| b. What is data abstraction? Explain the concept with the help of an example. | |
| c. Convert the following equations to C++ statements. | 3 |
| i) $s = 1 + 1/x + 1/x^2 + 1/x^3$ | |
| A) $s = 1 + 1/x + 1/(x*x) + 1/(x*x*x);$ | |
| ii) $V = 4/3\pi r^3$ | |
| A) $V = 4/(3*3.1415*r*r*r);$ | |
| d. Explain any two string handling functions with syntax and examples | 3 |

e. i) $(AC.20)_{16} = (?)_2 = (?)_8$ ii) $(4A56)_{16} = (?)_{10} = (?)_8$

f. Find the 1's and 2's complement of 128.

3

g. explain a nested for with suitable example

2

Q.No.4

a. Write a program to print the diagonal (left & right) elements of an $N \times N$ matrix.

4

A)

//Program to print the left and right diagonal element of an $N \times N$ matrix

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>
void main( )
{
    int A[10][10];
    int i,j,N;
    clrscr( );
    cout<<"\nHow many rows and columns required for matrix: ";
    cin>>N;
    cout<<"\nEnter "<<N*N<<" elements: ";
    for(i=0;i<N;i++)
    {
        cout<<"Enter the elements into Row "<<i+1<<": ";
        for(j=0;j<N;j++)
            cin>>A[i][j];
    }
    clrscr( );
    cout<<"\nThe entered elements in the matrix are: \n";
    for(i=0;i<N;i++)
    {
        for(j=0;j<N;j++)
            cout<<A[i][j]<<"\t";
        cout<<endl;
    }
    cout<<"\n\nThe elements which are belongs to only diagonals...\n";
    for(i=0;i<N;i++)
    {
        for(j=0;j<N;j++)
            if((i==j)||((i+j)==(N-1)))
                cout<<setw(6)<<A[i][j];
        else
            cout<<" ";
        cout<<endl;
    }
    getch( );
}
```

b. Write a program to find the factorial of a number recursive function.

4

A)

```
#include<iostream.h>
#include<conio.h>
```

```

long f =1;
long factorial(int n)
{
    if (n==0)
        return f;
    else
        f=n*factorial(n-1);
}
void main( )
{
    clrscr( );
    long num;
    cout<<"\nEnter the number to which you want to find factorial: ";
    cin>>num;
    cout<<"\nThe factorial of the number = "<<factorial(num);
    getch( );
}

```

c. 3. Write a program to find the total number of characters, lines and words in a paragraph of text.

4

A)

```

#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void main( )
{
    char str[300];
    int i,charcount=0,words=1,lines=1;
    clrscr();
    cout<<"\nEnter the Paragraph ie message: \n";
    gets(str);
    for(i=0;str[i]!='\0';i++)
    {
        charcount++;
        if(str[i]==' ')
            words++;
        if (charcount%80==0)
            lines++;
    }
    cout<<"\nNumber of Characters in the entered message: "<<charcount;
    cout<<"\nNumber of Words in the entered message: "<<words;
    cout<<"\nNumber of Lines in the entered message: "<<lines;
    getch( );
}

```

d. Write a program to sort an array on N numbers in ascending order. Avoid duplication of elements.

4

A)

```

#include<iostream.h>
#include<conio.h>
void main( )
{
    clrscr( );

```

```

int A[20],N,i,j,temp;
cout<<"\nEnter the number of elements:";
cin>>N;
for(i=0;i<N;i++)
    cin>>A[i];
//Bubble sort technique
for(i=0;i<N;++i)
    for(j=0;j<(N-1)-i ;j++)
        if(A[j]>A[j+1])
        { Temp=A[j];
          A[j]=A[j+1];
          A[j+1]=Temp;
        }
cout<<"The Elements in the array after sorting.... ";
for(i=0;i<N;i++)
    cout<<A[i]<<"\t";
}

```

e..Write a program to find the roots of a quadratic equation.

2

A) #include<iostream.h>

```

#include<conio.h>
#include<math.h>
void main( )
{
    clrscr( );
    double d1,d2,b,a,c,d;
    cout<<"\nEnter the value of b,a and c: ";
    cin>>b>>a>>c;
    d=(b*b-sqrt(4*a*c));
    if(d==0)
        cout<<"\nRoots are equal or distinct";
    else if(d>=0)
        cout<<"\nRoots are Real";
    else
        cout<<"\nRoots are complex..ie Imaginary";
    d1=(-b+d)/(2*a);
    d2=(b+d)/(2*a);
    cout<<"\nD1: "<<d1;
    cout<<"\nD2: "<<d2;
    getch( );
}

```