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   2
    abs(), isdigit(), sqrt(), setw()
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: 2
   i)CPU ii) ROM iii)MICR iv)CD-R 2

Q.No.2

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

```
#include <iostream.h>
jampto(int, int )
void main()
{
      first=10, second=20;
      jumpto(first;second);
      jumpto(second);
}
void jumpto(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

```cpp
#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

```cpp
    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/x2+1/x3
          A) s = 1 + 1/x + 1/(x*x) + 1/(x*x*x);
        ii) V = 4/3Πr3
      A) V = 4/(3*3.1415*r*r*r);
d. Explain any two string handling functions with syntax and examples   3

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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 N matrix.   4

A)
//Program to print the left and right diagonal element of an NXN 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\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( );
}
```