Roll No. _____ **Code : 112014-083-A**

Please check that this question paper contains **7** questions and **8** printed pages.

CLASS-XI
COMPUTER SCIENCE

Time Allowed : 3 Hrs. **Maximum Marks : 70**

General Instructions :
All the questions are compulsory.
The paper contain 7 questions.
Programming language used : C++

S. No.	Sub Part	Question	Marks
1.	(a)	Ms. Simran has bought a new Inkjet printer. She connected it to her computer with the help of a USB cable and switched the printer on. Now, when she gives the Print command and the printer does not print. What else is Ms. Simran required to do ? Give reason.	(2)
	(b)	What is the difference between main memory (RAM) and Cache Memory?	(2)
	(c)	(i) Name any one open source operating sytem for mobiles.	(1)
		(ii) What is open source operating system ? What makes the operating system named in part (i) an open operating system ?	(2)
	(d)	Convert the following : (i) $(11011010)_2 = (?)_8$ (ii) $(0.1010)_2 = (?)_{10}$ (iii) $(76)_{10} = (?)_{16}$	(3)
2.	(a)	Meaningful identifier name is not must but desirable. Why ?	(2)
	(b)	(i) Write a statement to declare a constant PI with the value 3.14.	(1)
	(c)	(ii) Evaluate the following expressions : (i) 10/5+6*10%2 (ii) ((a+b)>c)&&((b-c)<d) where a=3, b=7, c=4 and d=2	(2)
	(d)	Hussain has just started working as programmer in the WORLD SOFTWARE company. In the company, he got his first assignment to develop a small C++ module to find the smallest number out of given numbers. Somehow he committed a few logical errors while writing this code and	(2)

so he is not getting the desired result from the code. Find out the mistakes and correct this C++ code so that it provides the desired result (do not add any new statement in the code). Underline each correction made :

```
#include<iostream.h>
void main()
{
int x;
char y;
cout<<"enter first no.";
cin>>x;
cout<<"enter second no.";
cin>>y;
cout<<"smaller no. is";
if(x<y)
      cout<<y;
      else
        if (x>=y)
          cout<<x;
         else
           cout<<"none";
}
```

(e) (i) Write an alternative code to "optimize execution time" for the following code fragment. (4)

```
   if(a==0)
      cout <<"zero";
  if(a==1)
     cout <<"one";
 if(a==2)
    cout <<"two";
else if(a==3)
  cout <<"three";
```

(ii) Insert statements to make following C++ program **"user friendly".**

```
#include<iostream.h>
void main( )
{
 int x;
 int y;
cin>>x;
```

```
        cin>>y;
        cout<<"sum of the no.s is"<<x+y;
         }
```

3. (a) Choose an appropriate example for the following from the given list : (3)

(i) unary operator (ii) binary operator

(iii) short hand notation (iv) new line character

(v) comment in a C++ program (vi) Relational Operator

(1) a<=b

(2) x++

(3) // C++ is object oriented language

(4) b+=2

(5) x+y

(6) \n

(b) Write the names of header files, which are NOT necessary to run the following program : (1)

```
#include <iostream.h>
#include <string.h>
#include <stdio.h>
void main()
{
      char STR[80];
      gets(STR);
      puts((STR));
}
```

(c) Rewrite the following using **"if-else".** (1)

```
n=((a<b)?a:b);
```

(d) Consider the declarations given below : (3)

```
void main()
                {
                char Book_Name[10];
                char Book_category; // S or A (sold/available)
                int Book_Year;
```

```
                float Book_price;
                 }
```

(i) How many bytes of memory is required by the program ?

(ii) Assign Book_category,Book_Year with the valid values.

(e) Given the following two definitions : (2)

int m1=10, m2=0;

What is the result of each of the following expression ?

(a) m1 && m2

(b) !m1

(f) A library charges fine for books returned late. Following are the fines : (2)

First five days: 40 paise per day

Above six days : 80 paise per day

Write a program in C++ to accept N(No. of days for Book Returned late), calculate the fine and display the fine amount.

(g) Rewrite the given snippet after removing the syntactical error(s), if any. Underline each correction (2)

```
#include<iostream.h>
void main()
{
struct test
{
char test_name[20];
char type;
int tickets=10;
} object;
gets(test_name);
puts(test_name);
}
```

4. (a) Give the output of the following program (assuming that all required header files are included) : (3)

```
void execute (int & b, int c= 100)
{
      int temp = b + c;
      b += temp;
      if (c != 200)
      cout << temp << b << c << endl;
}
```

```
void main ()
{
      int m = 90, n = 10;
      execute (m);
      cout << m << n << endl;
      execute(m, n);
      cout<< m <<n <<endl;
}
```

(b) Give the output of the following : (3)

```
#include<iostream.h>
int m=5;
void main()
{
      int m=20;
      {
          int m=10* ::m ;
          cout<<"m="<<m<<"\t::m"<<::m<<endl;
      }
      cout<<"m="<<m<<"\t::m"<<::m<<endl;
}
```

5. (a) What is the difference between Actual Parameter and Formal Parameter ? Give an example in C++ to illustrate both types of parameters. (3)

(b) Observe the following program carefully and choose the correct possible output from the options (i) to (iv). Justify your answer. (3)

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
clrscr();
randomize();
int RN;
RN=random(4)+5;
for(int i=1;i<=RN;i++)
cout<<i<<' ';
getch();
}
```

(i) 0 1 2 (ii) 1 2 3 4 5 6 7 8

(iii) 4 5 6 7 8 9 (iv) 5 6 7 8 9 10 11 12

(c) Rewrite the following code using **"switch-case"** selection control (2)

```
char ch;
cin >> ch;
If ((ch=='p'|| ch=='P')
      cout<<"Platinum";
else
If ((ch=='g'||ch=='G')
      cout<<"Gold";'
else
If ((ch=='s')
      cout<<"Silver";'
else
      cout<<"Normal";
```

6. (a) Write the prototype of a function named Percent, which takes an integer as value parameter and return a float type value. The parameter should have a default value 10. (2)

(b) Write a program which accepts a string, counts number of vowels and display vowel count in the given string. For Example : (4)
Input String : Programming In C++ Is FUN
Output : 6

The code should be **"indented"** properly.

(c) Write a function/program TRANSFORM(int A[4][3] in C++ to swap the elements of the first column with the corresponding elements of last column of array A. (4)

(d) Write a function TRANSFER(int A[], int B[], int Size) in C++ to copy the elements of array A into array B in such a way that all the negative elements of A appear in the beginning of B, followed by all the positive elements, followed by all the zeroes maintaining their respective orders in array A. (4)

For example :

If the contents of array A are :

7, -23, 3, 0, -8, -3, 4, 0

The contents of array B should be

-23, -8, -3, 7, 3, 4, 0

7.	(a)	Give the output of the following code :
		#include<iostream.h>
		#include<string.h>
		struct student
		{
		char name[20];
		int len;
		};
		student assign (char s[20])
		{
		student st;
		st.len =strlen(s);
		strcpy (st.name,s);
		return st;
		}
		void display(student s)
		{
		cout<<s.name<<endl;
		}
		student manipulate(student & a, student & b)
		{
		student s;
		s. len = a. len + b.len;
		strcpy(s.name, a.name);
		strcat(s.name, b.name);
		return s;
		}
		void main()
		{
		student name1={"Dayanand", 0},name2={Anglo", 0},name3={"Vedic",
		S1=manipulate (name1, name2);
		S2=manipulate (S1, name3);
		display (S1);
		display (S2);
		}
			(3)
			
			(4)

	(b)	Consider the following structure : *struct* CandyBar {	

```
    char name[20];
    float weight;
    int calories;
};
```

Write a user defined function Least_cal() that takes an array of Candy Bar[] and size as parameters and displays details of the CandyBar with least calories.