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ANNUAL EXAMINATION 2018 -'19

Class : XI **Marks : 70**

Time : 3 hrs

COMPUTER SCIENCE (NO. 083)

GENERAL INSTRUCTIONS:
1. All questions are compulsory.
2. Programming Language: C++.

1.a) Why is analytical engine called a pioneer computer? **1**

b) What is the relation between microcomputer and microprocessor? **1**

c) Name any two supercomputers developed in India. **1**

d) Distinguish between open source software and proprietary software. **2**

e) What purpose does the Operating system serve to the computer and user? **1**

f) List the functions of an Operating system. **2**

2.a) Name the header files that are needed for successful compilation of the following C++ code. **1**

```
void main ()
{
char str [20], str [20];
gets (str);
strcpy (strl, str);
strrev (str);
puts (str);
puts (strl);
}
```

b) What is the purpose of a header file in a program? **1**

c) How many ways can a variable be initialized? Give examples for each type of initialization. **2**

d) What are arithmetic operators in C++? Distinguish between unary and binary arithmetic operators. Give examples for each of them. **3**

e) State why are following expression invalid. **4**

(i) `asm = 5100 || val < 35` (ii) `age > 70 && < 90`

(iii) `income >= 500 ||&& val < 500` (iv) `res !> 20 ||! X > 20 4`

3.a) Compare the usefulness of default argument and function overloading, supporting your answer with appropriate examples. **3**

b) Write the output of the following C++ code. Also, write the name of feature of Object Oriented Programming used in the following program jointly illustrated by the functions [I] to [IV]. **4**

```
#include<iostream.h>
void Line() //Function [I]
{
      for(int L=1;L<=80;L++)
      cout<<"-";cout<<endl;
}
void Line(int N) //Function [II]
{
      for(int L=1;L<=N;L++) cout<<"*";
      cout<<endl;
}
void Line(char C,A,int N) //Function [III]
{
      for(int L=1;L<=N;L++) cout<<C;
```

```
        cout<<endl;
}
void Line(int M,int N) //Function [IV]
{
        for(int L=1;L<=N;L++) cout<<M*L;
        cout<<endl;
}
void main()
{
        int A=9,B=4,C=3;
        char K='#';
        Line(K,B);
        Line(A,C);
}
```

c) What will be the output of the following code fragment? **3**

```
int year;
cin >> year;
if (year%100 == 0)
if(year%400 == 0)
cout << "LEAP";
else
cout << "Not century year";
```

If the input given is

(i) 2000 (ii)1900 (iii) 1971

d) What do you mean by abstraction and encapsulation? How are they interrelated? **2**

4.a) What is the significance of a test-condition in a loop? **2**

b) What are the differences between a data type struct and class in C++? **3**

c) Write the equivalent C++ expressions. **4**

(i) p = 2 (l + b) (ii) z = 2 (p/q)2

(iii) s = 1/2mv2 (iv) x = -b + $\sqrt{(b2 - 4ac)}$ /2a

d) What is the two's complement of the binary number 10010010? **2**

e) Convert the following. **4**

(i) $(2356)_{10}$ to hexadecimal (ii) $(2356)_{10}$ to decimal

(iii) $(435.2)_{8}$ to binary (iv) $(973.28)_{16}$ to octal

5.a) Write a statement that defines a string variable school to hold a string of up to 25 characters. **1**

b) For a multidimensional array X[5][24], find the number of bytes required. **1**

c) What do you understand by an array? What is the significance of array? **2**

6.a) How are keywords different from identifiers? **2**

b) Write one limitation and an advantage of a switch statement. **2**

c) How many times will the following loop get executed? **2**

```
int s=0, i=0;
do
s+=i;
while(i<5);
```

7.a) What is WRONG with following code fragments? **3**

(a)

```
for(int x=0;x>0;x--)
cout<<x;
```

(b)

```
int n=7;
do
{
```

```
      cout<<"check
      this !!";
      n-=2;
}while(n!=2);
```

(c)

```
int p=8;
do
{
      cout<<"In the loop";
      p*=2;
}while(p%2==0);
```

b) Give output of the following program. **2**

```
#include<iostream.h>
void main()
{
long number=5572331,result=0;
do
{
      result*=10;
      int digit=number%10;
      result+=digit;
      number/=10;
} while(number);
cout<<"Output="<<result<<endl;
}
```

c) Write a program to sort an array of N numbers in ascending order. Avoid duplication of elements. **3**

d) Write a program to find the roots of a quadratic equation. **3**

e) Mention the steps you should follow while writing a program. **3**