Sample Paper for Computer Science for Class 11

Time: 3 Hours

Maximum Marks: 70

Note. (i) All questions are compulsory.

1. a) What are the different functions of operating system?  
   b) How the information can be used as a data explain?  
   c) What do you mean by unary operators  
   d) What are the different parts of CPU? Explain every part in brief.  
   e) Define System Software and what are its two main types? Give examples.  
   f) What is Booting?  
   g) Which of the following are hardware and software?  
      (i) Capacitor (ii) Internet Explorer (iii) Hard disk (iv) UNIX

2. Explain the following term: (Give answer any six)
   
i) Variable
   ii) Token
   iii) Array
   iv) Debugging
   v) Comment
   vi) Keyword

3. a) What is the difference b/w "while" & "do while" loop?  
b) What are data types? What are all predefined data types in C++?  
c) What will be the size of following constants?  
   "v", "v",  
d) Write the corresponding C++ expressions for the following mathematical expressions:  
   i) \(\sqrt{a^2+b^2}\)  
   ii) \((a+b)/(p+q)\)  

e) Evaluate the following, where p, q are integers and r, f are floating point numbers.  
The value of p=8, q=4 and r=2.5  
   (i) f = p * q + p/q  
   (ii) r = p+q + p % q

4. a) What is the output of the following?  
   i) # include<stdio.h>  
      void main ( )  
      {  
         int i=0;  
         cout<<i++<<" "<<i++<<" "<<i++endl;  
         cout<<++i<<" "<<++i<<" "<<++i<<endl  
      }  
   ii) # include<stdio.h>  
      void main( )  
      {  
         a=3;  
         a=a+1;  
         if (a>5)  
            cout<<a;  
         else  
            cout<<a+5;  
      }
iii) What will be the output of the following program segment? If input is as: (a) g (b) b (c) e (d) p

```cpp
    cin >> ch;
    switch (ch) {
    case 'g': cout << "Good";
    case 'b': cout << "Bad";
        break;
    case 'e': cout << " excellent ";
        break;
    default: cout << " wrong choice";
    }
```  

iv) Determine the output:

```cpp
    for (i=20; i<=100; i+=10) {
        j=i/2;
        cout << j << "";
    }
```  

v) What output will be the following code fragment produce?

```cpp
    void main( ) {
        int val, res, n=1000;
        cin >> val;
        res = n + val > 1750 ? 400 : 200;
        cout << res;
    }
```  

   (i) if val=2000 (ii) if val=1000 (iii) if val=500

5 a) Find the error from the following code segment and rewrite the corrected code underlining the correction made.

```cpp
    # include (iostream.h)
    void main ( ) {
        int X,Y;
        cin >> X;
        for(Y=0; Y<10, Y++)
            if X = = Y
                cout << Y+X;
            else
                cout >> Y;
    }
```  

b) Convert the following code segment into switch case construct.

```cpp
    int ch;
    cin >> ch;
    if(ch = = 1)
        cout << " Laptop"
    else if(ch = = 2)
        cout << "Desktop ";
    else if(ch = = 3)
```
c) Convert the following code segment into do-while loop.
```cpp
#include<iostream.h>
void main()
{
    int i;
    for(i=1;i<=20;++i)
        cout<<"\n"<<i;
}
```

```
c) Convert the following code segment into do-while loop.

```cpp
#include<iostream.h>
void main()
{
    int i;
    for(i=1;i<=20;++i)
        cout<<"\n"<<i;
}
```

```
d) Given the following code fragment
int ch=5;
cout << ++ch<< "\n"<<ch<<"\n";

i) What output does the above code fragment produce?
ii) What is the effect of replacing ++ ch with ch+1?  

6) Which header files are required for the following?
(i) frexp()
(ii) sqrt()
(iii) rand()
(iv) isupper()

b) Evaluate:
   i) (12)10 = (X)2
   ii) (347)8 = (X)10
   iii) (896)16 = (X)8
   iv) (100)10 = (X)2

7) a) Write a C++ program to check a year for leap year or not.
   b) Write a C++ program to check a number for Armstrong or not.
   c) Write a C++ program to calculate the factorial of any given number
   d) Write a C++ program to print the Fibonacci series
   e) Write a C++ program to print table a given number.
**Answer key**

Q.No.1  

a. Major OS functions are listed below  
   1. Process Management  
   2. Storage Management  
   3. Information Management (Student has to describe all in brief)  

b. The processed information can be used as a data again to produce a next level information. 
   For example- total no. of students school wise can give the information that how students 
   are there in one region again this information as a data ca be used to calculate that how 
   many students are studying in KVS  

c. unary operators are the operators, having one operand and two operators. There are two types of unary operators- 
   i. unary increment (Ex. a++(post increment))/++a(pre increment))  
   ii. Unary decrement (a--(post decrement)/--a(pre decrement))  

d. ALU(Arithmetic logic unit), CU(control unit), MU(memory unit)  

Q.No.2  

i. variable is a name given to the memory location, whose value can be changed during run time.  

Q.No.3  

a. While loop is entry control loop i.e. while loop first will test the condition and if condition is 
   true then only the body of the loop will be executed. While do-while loop is exit control loop 
   and even the condition is not true at least one time the body of the loop will be executed.  

b. data types are means to identify the types of data and associated operation of handling it. The 
   fundamental data types are- char, int , float , double and void .  

c. one byte  

d. i. \( \sqrt{a^2+b^2} \) & ii. \( \frac{(a+b)}{(p+q)^2} \)  

e. students do yourself  

Q.No.4  

a.  
   i. 0 1 2 4 5 6 , ii. 9  , iii. For g- good & bad/ for b – bad / for e – excellent / for – p wrong choice  
   iv. 10,15,20,25,30,35,40,45,50 v. 400, 400, 200  

Q.No.5  

a. Errors – if x==y (correct- if(x==y)) & cout>>y(correct cout<<y)  

b.  
   ```
   int ch; cin>>ch;
   switch(ch) {
   Case 1 : cout<<“ Laptop”; break;
   Case 2: cout<<“Desktop ”; break;
   Case 3: cout<<“Notebook”;break;
   Default : cout<<“Invalid Choice”;
   ```
c. `#include<iostream.h>
   void main()
   {
   int i;
   i=1
   do
   {
   cout<"\n"<i;
   ++i
   }
   while (i<=20);
   }
   
   d. In both condition output will be 6 5

Q.No.6
a. `math.h , math.h , stdlib.h , ctype.h`
b. 1100, (232) , (4226), (1100100)

Q.No.7
a.
`#include<iostream.h>
#include<conio.h>

   void main()
   {
   clrscr();
   int year;
   cout<"Enter Year(ex:1900):";
   cin>>year;
   if(year%100==0)
   {
   if(year%400==0)
   cout<"nLeap Year";
   }
   else
   if(year%4==0)
   cout<"nLeap Year";
   else
   cout<"Not a Leap Year";
   getch();
   }

   b.
   #include<iostream.h>
   #include<conio.h>
   void main()
   {
   int Number,Temp,b=0;
   cout<endl<"Enter any number to check";
   cin>>Number;
   Temp=Number;
   int P;
   while(Temp>0)
   {
   P=Temp%10;
   b=b P*P*P;
   Temp=Temp/10;
   }`
if(b==Number)  
{  
Cout<<endl<"Armstrong no";
}  
else  
{  
cout<"Not an armstrong no";
}  
getch();  
}  

c.  
#include <iostream.h>  
int factorial(int);  

void main(void) {  
int number;  

cout << "Please enter a positive integer: ";  
cin >> number;  
if (number < 1)  
cout << "That is not a positive integer.\n";  
else  
cout << number << " factorial is: " << factorial(number) << endl;  
}  

int factorial(int number) {  
if(number <= 1) return 1;  
else  
return number * factorial(number - 1);  
}  

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

int main()  
{  
clrscr();  
unsigned long first,second,third,n;  
int i;  
first=0;  
second=1;  
cout<<"how many elements(>5)? \n";  
cin>>n;  
cout<<"fibonacci series\n";  
cout<<first<<"<<second;  
for(i=2;i<n;i++)  
{  
third=first+second;  
cout<<"<<third;  
first=second;  
Second=third;  
}  
return 0;  
getch();}
```c++
#include<iostream.h>
#include<stdio.h>
void main()
{
    int r,m,i,n;
    cout<<"Enter the number to generate its table";
    cin>>n;
    cout<<"Enter the number(table upto)";
    cin>>m;
    i=1;
    while(i<=m)
    {
        r=n*i;
        cout<<n<<"*"<<i<<"="<<r<<endl;
    }
}
```