

First Term Examination
Class XI
Computer Science (083)

Max-marks:60

Time : 3hrs

INSTRUCTIONS: 1. All the questions are compulsory
2. Programming language: C++

- Q1 a) How is Interpreter different from compiler? (1)
b) What are tokens? Give one example. (1)
c) What is the result of the following expression?
ans=(valv<500?150:50); if valv=60 (1)
d) Evaluate the following expression where a,b,c are integers having values (2)
a. d=a*(b++)-(--c); // if a=15, b=13, c=5
b. d=a%2
c. (a*5==12) && !(b>=5)
d. t=a%5 + c/5
e) Write the corresponding expression for the following: (2)
1. $\sqrt{a + b + c}$
2. $(a+b)^2 / (c+d)^3$

- Q2 a) Explain the types of inheritance (with example). Also elaborate the ambiguity in inheritance. (4)
b) Explain the difference between types of errors. (3)
c) Explain entry controlled and exit controlled loops. (2)
d) Name the header files, to which following built-in –function belongs to (2)
1) exit() 2) setw() 3) ceil() 4) cin.getline()
e) Explain the difference between break and continue statement. (2)

- Q-3 a) Give output (2)

```
#include<iostream.h>
void main()
{int x=5;
if(x++==6)
cout<<"six";
else
if(--x==5)
cout<<"five";
else
if(++x==5)
cout<<"still five"; }
```

- b) What is the difference between automatic type conversion and type casting?
Also, give a suitable C++ code to illustrate both. (2)
c) The following code is from a game, which generates a set of 4 random numbers.

Yallav is playing game, help him to identify the correct option(s) out of the four choices given below as the possible set of such numbers generated from the program code so that he wins the game. Justify your answer. (2)

```
#include <iostream.h>
#include <stdlib.h>
const int LOW=15;
void main ( )
{randomize( ) ;
  int POINT=5, Number;
  for (int I=1;I<=4;I++)
  {Number=LOW+random(POINT) ;
  cout<<Number<<“:” ; POINT--;
  } }
```

- (i) 19:16:15:18:
- (ii) 14:18:15:16:
- (iii) 19:16:14:18:
- (iv) 19:16:15:16:

Q-4 Explain the difference between call by value and call by reference with example. (3)

Q-5 a) Find errors if any and rewrite the code after removing errors. (3)

```
#include<iostream.h>
void main()
{ clrscr();
  int i,j;
  cin>>i>j;
  while (i<j)
  { cout<<i**j;
  i++ } }
```

b) Rewrite the following code in for loop without effecting the output. (2)

```
v=4;
t=0;
do
{
t=t+v;
cout<<t;
v++;
}while(v<=8);
```

Q 6 Give output with reasons (2)

```
a) int abc(int);
int xyz(int );
void main()
{ int a=80;
a=xyz(abc(a*a));
cout<<a<<endl; }
int xyz(int b)
{ return b++; }
```

```

int abc(int c)
{ return c++; }
b) int func(int &x, int y=10)
{ if ((x%y)==0)
return ++x;
else
return y++; }
void main()
{
int p=20,q=23;
q=func(p,q);
cout<<p<<q<<endl;
p=func(q);
cout<<p<<q<<endl;
q=func(p);
cout<<p<<q<<endl;
}

```

(3)

```

c) int a=3;
void demo(int &x,int y,int &z)
{ a+=x;
y*=a;
z=a+y;
cout<<a<<" "<<y<<z<<endl;
}
void main()
{
clrscr();
int a=2,b=5;
demo(a,a,b);
cout<<a<<" "<<b<<endl;
getch();
}

```

(3)

Q-7 Write a program to find the sum of the following series (4)

$$x - x^2/2! + x^3/3! - x^4/4! + x^5/5! - x^6/6! + \dots + x^n/n!$$

Q8 Write a program to swap two numbers without taking help of third variable. (3)

Q9 Wap to find largest number between n numbers. (3)

Q-10 Write a program to find the Pythagorean triplets in the range 1 to 250

A pythagorean triplet is a set of 3 integers i, j, k such that

$$i^2 + j^2 = k^2 \quad \text{e.g } 3^2 + 4^2 = 5^2 \quad (4)$$

Q11 Write a program to find Armstrong number between 1 to 999. Armstrong number is a number like $153 = 1^3 + 5^3 + 3^3$ (4)