

Std. 11

Time : 3 hrs.

21-9-2016

Half Yearly Examination in **COMPUTER SCIENCE**

M. Marks : 70

1. a) Name the header files to which the following functions belong. [2]  
(i) `exit(0)`      (ii) `getch( )`      (iii) `clrscr( )`      (iv) `main( )`  
b) What is the significance of default clause in a switch statement? [1]  
c) Which expressions are optional in a for loop. [1]  
d) Explain empty loop and infinite loop with example. [2]
2. Write any two differences between the following. [5]
  - a) Character and string data type
  - b) Selective construct and iterative construct
  - c) AND operator and OR operator
  - d) if else and Conditional operator
  - e) Prefix operator and Postfix operator
3. Write the corresponding C++ expressions for the following mathematical expression.[2]
  - a)  $2 - 4y * (P + Q)^2$
  - b)  $f = \frac{a+b}{c} - b$
4. Construct logical expressions to represent the following condition. [2]
  - a) Donation is in the range 4000 - 5000 or guest is 1.
  - b) Weight is greater than or equal to 114 but less than 125.

5. Underline the errors and write the corrected code

a) #include<io.stream.h> [3]

```
void main( );  
{  
int a=5;  
int b=6; sum;  
cout<<"A is:"<<a;  
sum = /a;  
b*=a;  
cout<<"B is" b;  
}
```

b) for(int a=1; b=2, a#5, a++; --b) [3]

```
cout>>a+b;
```

c) int w = 90; [1]

```
Switch(w)  
{  
20: cout<<"Lower Range"<<endl;  
30: cout<<"Middle Range"<<endl;  
40: cout<<"Higher Range"<<endl;  
}
```

6. Write the output of the given program segment:

a)  $z=2*3/4+4/4+8-2+5/8$  ; [1]

```
cout<<z;
```

- b) `a=1;` [1½]  
`b=a++;`  
`cout<<a++;`  
`cout<<(b+a);`  
`cout<<++b;`
- c) `char ch='a';` [½]  
`ch=(ch=='b' ? ch : 'b');`  
`cout<<ch;`
- d) `int z, x=3, y=2;` [1]  
`z = - - x + y + +;`  
`cout<<z;`
- e) `cout <<(x==y) ||(!(z==y) &&(z<x))` [1]  
`(x=10, y=10, z=10)`
- f) `for(int i= -3, sum=0; i<11; i++)`  
`sum++;` [1]  
`cout<<sum;`
- g) `int i=0;` [2]  
`for(i=1; i<=20; i++)`  
`{`  
`cout<<i;`  
`i=i+2;`  
`}`

h) for(int i=0, x=0; i<20; ++i) [2]

```
{
  if(i%5==0)
  {
    cout<<x++;
  }
}
```

cout<<"\n" <<x;

i) int v1=5, v2=10; [2]

```
for(x=1; x<=2; x++)
{
  cout<<"+v1<<'t'<<v2- -<<endl;
  cout<<- -v2<<'t' <<v1++<<endl;
}
```

7. Convert the following code segments:

a) **switch case into multiple if else.** [2]

```
cin>>code;
switch(code)
{
  case 'W' : cout<<"winter\n";
  case 'R' : cout<<"rainy\n";
             break;
  case 'S': cout<<"summer\n";
             break;
  default: cout << "wrong code";
}
```

b) **if else into conditional operator.** [1]

```
int a, b, c;  
cin>>a>>b;  
if(a>b)  
c=a;  
else  
c=b;  
cout <<"larger no.is" <<c;
```

8.a) Write a C++ program that prints **(For Loop)** [3]

2 1 4 4 6 9 8 16 10 25 .....n term

b) A computer programming contest requires teams of 5 members each. Write a program that ask for number of players, then prints the number of teams and number of players left over. [2]

c) Write a program to calculate and print absolute value of any number using conditional operator. [2]

d) Write a program to print Fibonacci series (i.e. sum of previous two numbers is the next number) upto n term [3]

e. g. ( if n = 7, the output is 1 1 2 3 5 8 13) **(For Loop)**

e) Write a C++ program that prints **(For Loop)** [3]

1 2 4 8 16 32 64 128

f) Write a C++ program to print first n odd natural numbers and their sum. **(For Loop)** [3]

g) Write a program to input any 10 numbers and print their sum and average. **(For Loop)** [3]

h) Write a C++ program that inputs experience (0 for inexperienced and 1 for experienced) and age of a person. The salary of the person is 6000 if the person is experienced and his age is more than 35, otherwise if the person is experienced and his age is more than 28 but less than 35, then the salary should be 4800 otherwise for

experienced person, the salary should be 3000 and for inexperienced person the salary should be 2000. Display experience, salary and age in formatted way [3]

i) Write a program that inputs the grade obtained by a student and prints out corresponding remarks with each grade (O - outstanding, E - excellent, G - good, P -poor) **(Switch Case)** [3]

j) A computerized ticket counter of an underground metro rail station charges for each ride at the following rate. **(For Loop)** [4]

Age	Amount Head
18 or above	Rs 5
5 or above but below 18	Rs 3
Accompanying kids below 5	NIL

Write a c++ program, which takes as input the number of people of various age group and prints a ticket. At the end of journey, the program prints the number of passengers of different age groups who travelled and total amount received as collection of fares.

k) A bank accepts fixed deposits for one year or more and the policy it adopts on interest is as follows: **(Nested Statements)** [4]

Time	Amount Deposited	Rate of interest
>=2	<2000	5%
	>=2000 and <6000	7%
<2	<2000	8%
	>=2000 and <6000	10%

On all other deposits not covered by above conditions, the rate of interest is 3 percent.

$$\text{SimpleInterest} = (\text{AmountDeposited} * \text{Rate} * \text{Time}) / 100$$

$$\text{Net Amount} = \text{Amount\_Deposited} + \text{Interest}$$

Write a program to input the amount deposited and the number of years, and calculate the simple interest and net amount in the customer's account at the end of the specified time.