

**Question - 1**
Calculate the Point Coordinates

SCORE: 5 points

`c++2018_c_objects&class`

A point on the two dimensional plane can be represented by two numbers: an x coordinate and a y coordinate. For example (4,5) represents a point 4 units to the right of the origin along the x axis and 5 units up the y axis. The sum of two point can be defined as a new point whose x coordinate is the sum of the x coordinates of the points and whose y coordinate is the sum of their y coordinates.

Sample Input

4 //x coordinate of 1st Point
5 //y coordinate of 1st Point
3 //x coordinate of 2nd Point
1 //y coordinate of 2nd Point

Sample Output

7 //x coordinate of resultant point(sum of 4 and 3)
6 //y coordinate of resultant point(sum of 5 and 1)

Question - 2
Reverse the Number

SCORE: 5 points

`c++2018_c_objects&class`

Aadya was given an assignment in her mathematics class to reverse a number but she got stuck in the middle of the solution for it. Help her to complete her assignment.
For example, an integer number given in assignment is 2345 the reverse of the number should be 5432.

Sample Input

25678 //Given integer number to be reversed

Sample Output

87652 //Reversed number

Question - 3
Complex Sum

SCORE: 5 points

`c++2018_c_objects&class`

You have been given a task to find sum of two entered complex numbers from two different classes real & imaginary and display the sum using a common function of two classes.

Sample Input

2//Real data of first complex number
3//imaginary data of first complex number
4//real data of second complex number
6// imaginary data of second complex number

Sample Output

6+i9

Question - 4

Time Calculator

SCORE: 5 points

c++2018_c_objects&class

Riya has been given a task to read time in seconds and convert it in hours, minutes and seconds. But she failed to do so. Help her to finish the task.

Sample Input
18637//Time in seconds

Sample Output
5hours10minutes37seconds

Question - 5

LAB_PROGRAM_1

SCORE: 5 points

c++2018_c_objects&class

Write a C++ program to swap the values of two variables using Call by value and Call by reference mechanism. Write a C++ program to swap the values of two variables using Call by value and Call by reference mechanism.

//Sample Input:

16

21

//Sample Output:

21

16

Question - 6

LAB_PROGRAM_2

SCORE: 5 points

c++2018_c_objects&class

Design a class called "Complex" that represents complex numbers. The class should contain data members that stores real and imaginary parts. Moreover, it should contain member functions that can implement the elementary operations (Addition, Subtraction, Multiplication and division) of two complex numbers. Furthermore, the class should contain Print() member function that print complex numbers and the result of elementary operation on the screen in the form a + bi.

//Sample Input:

5

2

9

4

//Sample Output:

14+6i

-4-2i

37+38i

0+0i

Question - 7

LAB_PROGRAM_3

SCORE: 5 points

c++2018_c_objects&class

Write a program to calculate the age of a person and height in cms when year of birth and height in meters is known.

Sample Input:

1975

1.05

Sample Output:

43

105

Question - 8 LAB_PROGRAM_4

SCORE: 5 points

c++2018_c_objects&class

Create a base class called 'SHAPE' having two data members of type double member function get data() to initialize base class data members pure virtual member function display area () to compute and display the area of the geometrical object.

Derive two specific classes 'TRIANGLE' and 'RECTANGLE' from the base class. Using these three classes design a program that will accept dimension of a triangle rectangle interactively and display the area.

Sample Input:

10 //dimensions of triangle

30

20 //dimensions of rectangle

30

Sample Output:

150 //area of triangle

600 //area of rectangle

Question - 9 LAB_PROGRAM_5

SCORE: 5 points

c++2018_c_objects&class

Create a class 'COMPLEX' to hold a complex number. Write a friend function to add two complex numbers. Write a main function to add two COMPLEX objects.(a+ib)

Sample Input:

3

4

5

6

Sample Output:

8+i10

Question - 10 LAB_PROGRAM_6

SCORE: 5 points

c++2018_c_objects&class

Write Program to demonstrate use of constructors and destructors for performing comparison of two strings using dynamic operations.

Sample Input:

Obfuscation

Obstruction

Sample Output:

Data 1=Obfuscation

Data 2=Obstruction

Both Objects have different text

Release memory allocated to Obstruction

Release memory allocated to Obfuscation

Question - 11**SCORE: 5 points****mcq_1**

c++2018_m_object&classes

```
#include<iostream>
using namespace std;
class Sample
{
static int count;
public:
void show()
{
cout<<"count="<<count++;
}
};
int Sample :: count=0;
int main()
{
Sample s;
cout<<sizeof(s);
}
```

What would be the output of the code??

- ☒ 1
- ☐ 4
- ☐ compile time error
- ☐ no output

Question - 12**SCORE: 5 points****mcq_2**

c++2018_m_object&classes

Which is the correct syntax for returning an object by value?

- ☐ void functionName (){
- }
- ☐ int functionName (){
- }

- ☐ class object functionName() {
}
- ☒ ClassName functionName (){
}

Question - 13
mcq_3

SCORE: 5 points

c++2018_m_object&classes

```
#include<iostream>
#include<cstring>
using namespace std;
class Sample
{
private:
int num;
char name[20];
public:
Sample(int x,char n[])
{
num=x;
strcpy(name,n);

}
void show_data()
{
cout<<name<<" "<<num;
}
};
int main()
{
Sample s(100,"Ajay");
s.show_data();
}
```

- ☐ compile time
error
- ☐ runtime
error
- ☒ Ajay 100
- ☐ none of the
above

Question - 14
mcq_4

SCORE: 5 points

```
Q3.#include<iostream>
using namespace std;
class A
{
static int c;
public:
A()
{
    c++;
}
void show()
{
    cout<<c;
}
};
int A :: c=0;
int main()
{
A a,b,c;
a.show();
}
```

- ☐ 0
- ☒ 3
- ☐ 1
- ☐ error

Question - 15
mcq_5

SCORE: 5 points

```
Q5.class Test
{
Private:
Test()
{
}
Public:
Test(int x,int y)
```

```
{  
  
}  
};  
Int main()  
{  
Test t(10,20);  
}
```

Which among the following is correct?

- ☐ Program will give compile time error
- ☒ Program will run fine but without any output.
- ☐ Program will give runtime error
- ☐ Program will give logical error

Question - 16
mcq_6

SCORE: 5 points

c++2018_m_object&classes

Assume class TEST. Which of the following statements is/are responsible to invoke copy constructor?

- ☐ TEST T2(T1)
- ☐ TEST T4 = T1
- ☐ T2 = T1
- ☒ both a and b
- ☐ All of these

Question - 17
mcq_7

SCORE: 5 points

c++2018_m_object&classes

```
#include<iostream>  
#include<cstring>  
using namespace std;  
class A  
{  
const int count=20;  
public:
```

```

A(int x)
{
count=x;
}
void show()
{
cout<<count;
}
};
int main()
{
A a(80);
a.show();
}

```

- ☐ 80
- ☐ 20
- ☒ compile time error
- ☐ garbage value

Question - 18
mcq_8

SCORE: 5 points

c++2018_m_object&classes

```

#include<iostream>
using namespace std;
class A
{
int count;
public:
A(int x=20)
{
count=x;
}
void show()
{
cout<<count;
}
};
int main()
{
A a;

```



```
A a1(80);  
a.show();  
a1.show();  
}
```

- ☒ 20,80
- ☐ 20,20
- ☐ 80,80
- ☐ error

Question - 19
mcq_9

SCORE: 5 points

c++2018_m_object&classes

Which of the following statements are not true about destructor?

1. It is invoked when object goes out of the scope
2. Like constructor, it can also have parameters
3. It can be virtual
4. It can be declared in private section
5. It bears same name as that of the class and precedes Lambda sign.

- ☐ Only 2, 3, 5
- ☐ Only 2, 3, 4
- ☒ Only 2, 4, 5
- ☐ Only 3, 4, 5

Question - 20
mcqs_10

SCORE: 5 points

c++2018_m_object&classes

```
#include<iostream>  
using namespace std;
```

```
class destruct  
{  
int count;  
public:  
destruct(int i)  
{  
count=i;
```

```

}
~destruct()
{
cout<<"object "<<count<<" destroyed";

}

```

```

};

int main()
{
destruct d1(1),d2(2);
}

```

- ☐ Object 1 destroyed.
- ☐ Object 1 destroyed Object 2 destroyed.
- ☒ Object 2 destroyed Object 1 destroyed.
- ☐ Object 2 destroyed.

Question - 21
mcq_11

SCORE: 5 points

c++2018_m_object&classes

Which of the following statements is incorrect?

☐

Friend keyword can be used in the class to allow access to another class.

☐

Friend keyword can be used for a function in the public section of a class.

☐

Friend keyword can be used for a function in the private section of a class.

☒

Friend keyword can be used on main().

Question - 22
mcq_12

SCORE: 5 points

c++2018_m_object&classes

```

#include<iostream>
using namespace std;

```

```

class test
{
int x,y;
public:
void get()
{
x=50;
y=100;
}
friend int compute(test );
};
int compute(test t1)
{
return t1.x+t1.y-5;
}
int main()
{
test t;
t.get();
cout<<compute(t);
return 0;
}

```

- ☒ 145
- ☐ 150
- ☐ 100
- ☐ 50

Question - 23

SCORE: 5 points

Which of the following is true for a friend function?

c++2018_m_object&classes

- 1.It is not in the scope of the class to which it has been declared as friend.
- 2.It cannot be called using the object of the class
- 3.It can access the private and protected members of the the class.
- 4.If a class A is friend of B, then B becomes friend of A automatically.

- ☐ All of the above.
- ☐ Only 3,4.
- ☐ Only 1,2.

☒ Only 1,2,3.

Question - 24

SCORE: 5 points

What is to be written in class B to declare func() as the friend function to it(class B).

c++2018_m_object&classes

class A

```
{  
int func();  
};
```

Class B

```
{ };
```

- ☐ friend int
func();
- ☒ friend int A ::
func();
- ☐ friend func();
- ☐ Cannot be declared as friend
function.

Question - 25

SCORE: 5 points

mcq_15

c++2018_m_object&classes

Which of the following statements is correct about the program given below?

```
#include<iostream>  
using namespace std;  
class Test  
{  
    public:  
        static void Mytest();  
};  
int main()  
{  
    void(*ptr)()=&Test::Mytest;  
    return 0;  
}
```

☐

The program reports an error as pointer to member function cannot be defined outside the definition of class.

☐

The program reports an error as pointer to static member function cannot be defined.

☐

The program reports an error as pointer to member function cannot be defined without object.

- ☐ The program reports linker error.

Question - 26
output of the following

SCORE: 5 points

c++2018_m_object&classes

```
#include<iostream>
using namespace std;
class A
{
    static int a;
    int b;
    float c;
};
int A :: a=0;
int main()
{
    A obj;
    cout<<sizeof(obj);
}
}
```

- ☐ 4
- ☒ 8
- ☐ 12
- ☐ 10

Question - 27
mcq_17

SCORE: 5 points

c++2018_m_object&classes

```
#include <iostream>
using namespace std;
class rectangle
{
    int length, breadth;
    public:
    void enter(int, int);
    int area ()
    {
        return (length * breadth);
    }
};
void rectangle::enter (int l, int b)
{
    length = l;
    breadth = b;
}
int main ()
{
    rectangle R;
    R.enter (3, 4);
    cout << "rect area: " << R.area();
    return 0;
}
```

Predict the output.

- ☒ rect area:12
- ☐ rect area:24
- ☐ compile time error
- ☐ none of the mentioned

Question - 28
mcq_18

SCORE: 5 points

c++2018_m_object&classes

Where can the default parameter be placed by the user?

- ☐ leftmost
- ☒ rightmost
- ☐ both a & b
- ☐ none of the mentioned

Question - 29
mcq_19

SCORE: 5 points

c++2018_m_object&classes

Statically created object for class X is:

- ☐ X * obj=new X();
- ☒ X obj;
- ☐ X obj=new X();
- ☐ None

Question - 30
output of the following

SCORE: 5 points

c++2018_m_object&classes

```
#include <iostream>

using namespace std;

void func(int a, bool flag = true)
{
```

```

    if (flag == true ) {
        cout << "Flag is true. a = " << a;
    }
    else {
        cout << "Flag is false. a = " << a;
    }
}

int main()
{
    func(200, false);
    return 0;
}

```

- ☐ Flag is true. a = 200
- ☐ Flag is false. a = 100
- ☒ Flag is false. a = 200
- ☐ Flag is true. a = 100

Question - 31
CLASS & OBJECT

SCORE: 5 points

Create a class student and include appropriate Data Members to display the details of the student.

Sample Input:

raman
1
40

Sample Output:

raman
1
40

NOTE: The input string can also be a multi-word string.

Question - 32
CLASS TOPPER

SCORE: 5 points

c++2018_c_objects&class

Alisha has a list of N students of CSE branch containing Roll No., Name and Marks . She wants to display the name of the topper of the class.

If there are more than one student with same marks then display the name of the student whose name is coming alphabetically first.

(ASSUME ALL THE STUDENTS HAVE UNIQUE NAMES)

If N>10 print "Wrong Input"

For E.g.

Sample Input:

```
3 //N
101 //Rollno
Karan //Name
90 //Marks
102
Heena
78
103
Rina
90
```

Sample Output:

Karan

Explanation: Karan and Rina both have same name but name of "Karan" comes first alphabetically.

Write a C Program to help her.

Constraint:

$1 \leq N \leq 10$

Explanation

Sample Input1

```
3 //N: number of students
101 //Rollno
karan //Name
45 //Marks
102
Jatin
60
103
Tanmay
75
```

Sample Output1

Tanmay

Question - 33

SCORE: 10 points

FRIEND CLASS

A class **Employee** has two data members:

1. **deptt_id** (which has three integer values 1,2,3; representing 3 deptt: CSE, ME, ECE)
2. **sal** (which shows the current salary of employee)

Functions: **get_data** and **show_data** take these two values and displays them.

Define a friend class **Increment** which has a public member function that increments salary if:

- (i) if $sal \geq 20,000$ and deptt= CSE/ME, inc=20% of sal
- (ii) if $sal \geq 30,000$ and deptt= CSE/ME/ECE, inc=10% of sal
- (iii) if $sal \geq 35,000$ and deptt= CSE/ME, inc=8% of sal
- (iv) if $sal \geq 35,000$ and deptt= ECE, inc=7.5% of sal

Sample Input1:

```
1
10000
```

Sample Output1:

```
1
10000
```

Sample Input 2:

```
2
20000
```

Sample Output 2:

```
2
24000
```


Question - 34
MEAN OF DATA MEMBERS

SCORE: 5 points

c++2018_c_objects&class

Write a program to find mean of two data members of class.

Sample Input 1

2
3

Sample Output 1

3

Sample Input 2

2.4
6

Sample Output 2

4

Sample Explanation

Sample Input :First two lines are the input to data member of two objects

Sample Output: Mean of two numbers

Question - 35
FRIEND FUNCTION-COMPLEX NUMBER

SCORE: 5 points

c++2018_c_friend_function

Arjun wants to make a non member function named add, using which he wants to access the private data member of a class named example. Though he know that a non member function can not access private data members. So write a program to help Arjun design the solution for this problem.

Class name : example

Private Data Members: a, b;

The **non member function add** wants to access a, b and then add them.

Sample Input:

10.5 // value of a
20 // value of b

Sample Output:

30.5 // result in add function

Question - 36
EMPLOYEE DETAILS

SCORE: 5 points

c++2018_c_objects&class

Given that an EMPLOYEE class contains following members:

Data members : Employee_Number, Employee_Name, Basic, DA, IT, Net_Salary

Member functions: to read the data, to calculate Net_Salary and to print data members.

Write a C++ program to read the data of N employees and compute Net_Salary of each employee.

Sample Input:

1
22
sam

10000

Sample output:

10640

Hint:

In sample input first line represents number of employees, second line is employee number, third line is employee name and fourth line is basic salary.
(Dearness Allowance (DA) = 52% of Basic and Income Tax (IT) = 30% of the gross salary. Net_Salary = Basic + DA - IT)

Question - 37

SCORE: 10 points

TIME ADD

c++2018_c_friend_function

Q13.TIME ADD

Create a class A with data members as hours and minutes and class B with data members hours and minutes. add the hours of class A with hours of class B and minutes of class A with class B. display result in hrs:mins format

Sample input:

3 //hrs of Class A

15 //mins of Class A

4 //hrs of Class B

50 //mins of Class B

Sample output:

8:5 //result

Question - 38

SCORE: 10 points

PRODUCT

c++2018_c_objects&class

c++2018_c_constructors

PRODUCT

Given two classes ONE and TWO. Class ONE has two data members: 'a' and 'b' that cannot be accessed outside the class and class TWO has two data members: 'c' and 'd' that cannot be accessed outside the class. However, we want to find the product of a, b, c and d using a function 'Prod'.

Sample Input:

2 (value of a)

3 (value of b)

4 (value of c)

5 (value of d)

Sample Output:

120

Question - 39

SCORE: 5 points

LARGER NUMBER

LARGER NUMBER

There are two classes class A and B. Class A has one data member as num1 and class B as num2.

Write a program to find larger between two numbers num1 (class A:Data member) and num2 (class B :Data Member) using friend function.

Sample Input

23

-47

Sample Output

23

Question - 40

SCORE: 5 points

ADDITION IN COMPLEX NUMBER

c++2018_c_objects&class

ADDITION IN COMPLEX NUMBER:

Write a program to add integer value to a complex number using classes complex and integer and a function which is friend of both classes.

Sample Input:

2

3

5

Sample Output:

7

8

Sample Explanation:

In sample input, first line contains real part of complex class.

second line contains imaginary part of complex class.

third line contains integer to be added in given complex number.

In sample output,

first line contains real part of complex class.

second line contains imaginary part of complex class after addition.

Question - 41

SCORE: 5 points

DEFAULT AND PARAMETERISED CONSTRUCTOR

c++2018_c_objects&class

c++2018_c_constructors

Write a Program which add two times and display the output in proper time format.

Sample Input :

//Object 1:

4 58 55

//Object 2:

3 20 10

Sample Output:

8:19:5