### MINOR ASSIGNMENT-01

### **Game Programming with C++ (CSE 3545)**

Publish on: 28-02-2024Submission on: 08-03-2024Course Outcome:  $CO_1$ Program Outcome:  $PO_5$ Learning Level:  $L_5$ 

#### **Problem Statement:**

Write, compile and execute simple C++ programs to solve computational problems.

# **Assignment Objectives:**

To learn about OOP concepts in C++ and get the idea of how they can be used to solve computational problem.

# **Answer the followings:**

1. Consider the following program;

```
#include <iostream>
using namespace std;
void swap (int &a, int &b) {
    int temp; temp = a;
    a = b;
    b = temp; }
int main () {
    int i = 0, j = 1;
    swap (i, j);
    cout << i << " " << j << endl;
}</pre>
```

2. Consider the following program;

```
#include <iostream>
using namespace std;
void myfun(int i, int &k) {
    i = 1;
    k = 2;
}
int main () {
    int x = 0;
    myfun (x, x);
    cout << x << endl;
    return 0;
}</pre>
```

What is the output of the above program?

Output with explanation				

What is the output of the above program?

Output with explanation		

3. Consider the following program;

```
#include<iostream>
using namespace std;
int x = 1;
void fun() {
    int x = 2;
    {
        int x = 3;
        cout << ::x << endl;
    }
}
int main() {
    fun();
    return 0;
}</pre>
```

4. Consider the following program;

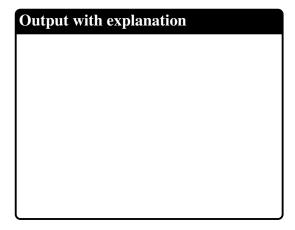
```
#include<iostream>
using namespace std;

int x[100];
int main()
{
    cout << x[99] << endl;
}</pre>
```

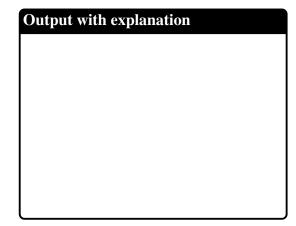
5. Consider the following program;

```
#include<iostream>
using namespace std;
void Cube(double &y) {
    y = y*y*y;
}
int main()
{
    double g = 4.0;
    Cube(g);
    cout << g<<endl;
    return(0);
}</pre>
```

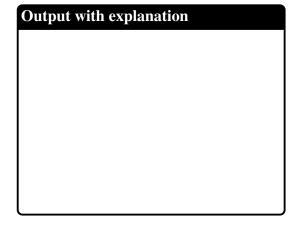
What is the output of the above program?



What is the output of the above program?



What is the output of the above program?



6. Consider the following program;

```
#include<iostream>
using namespace std;
class Sample {
public:
    Sample(int x = 10) {
        cout << "Value: " << x << endl;
    }
};
int main() {
    Sample obj;
    return 0;
}</pre>
```

7. Consider the following program;

```
#include<iostream>
using namespace std;
class A {
public:
    A() { cout << "A "; }
    ~A() { cout << "~A "; }
};
void func() {
    static A obj;
}
int main() {
    func();
    func();
    cout << "Main ";</pre>
    return 0;
}
```

8. Consider the following program;

What is the output of the above program?

Output with explanation	

What is the output of the above program?

Output with explanation

What is the output of the above program?

Output with explanation				

9. Consider the following program;

```
#include<iostream>
#include<stdlib.h>
using namespace std;

class Test
{
  public:
    Test()
    { cout << "Constructor called"; }
};

int main()
{
    Test *t = (Test *) malloc(sizeof(Test));
    return 0;
}</pre>
```

What is the output of the above program?

```
Output with explanation
```

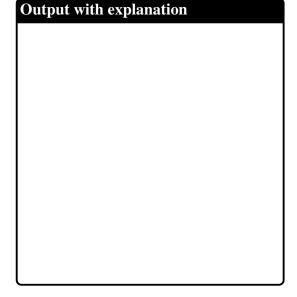
10. Consider the following program;

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

class Test
{
  public:
    Test()
    { cout << "Constructor called"; }
};

int main()
{
    Test *t = new Test();
    return 0;
}</pre>
```

What is the output of the above program?



11. In a company's payroll management system, tracking employee details and computing their annual income tax is crucial for financial planning and compliance. Develop a program that defines an **Employee** class to manage essential details such as name, age, profession, yearly salary, home address, and PAN number. The class should support both a default constructor and a parameterized constructor with default arguments. Implement two member functions: **calculateTax()**, which computes the employee's annual income tax based on predefined tax slabs, and **printTax()**, which displays the computed tax in a structured format as shown in the provided image. This program should help an HR manager automate tax calculations by entering employee details, ensuring accurate payroll processing and minimizing manual errors. The tax computation must follow the slab-based tax rules outlined in the given figure, ensuring correctness and compliance.

Name in Full : Satya Brata Rout   Designation: Ast. Prof.			
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	Total tax payable	Rs.	83200.001

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