

# CS304P

## Final term file

2024

*Solved by*

🌸 Iqra Azhar 🌸

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Question: 25 (Marks: 5)

Consider the following code. Mention the data members that cannot be accessible in the Sub class and also mention the reason.

```
class Super {  
    private: int x;  
    protected: int y;
```

Answer:



TIME LEFT

83

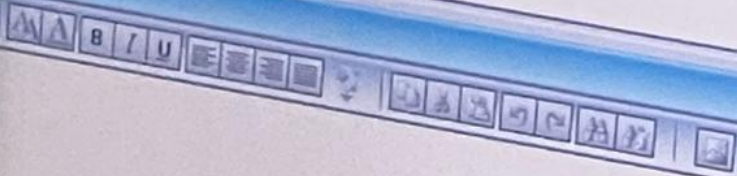
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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 27 (Marks: 5)

```
obj1.read();  
obj2.read();  
cout<<obj1.var<<obj2.var<<endl;  
}  
};  
int main()  
{  
    B s1;
```

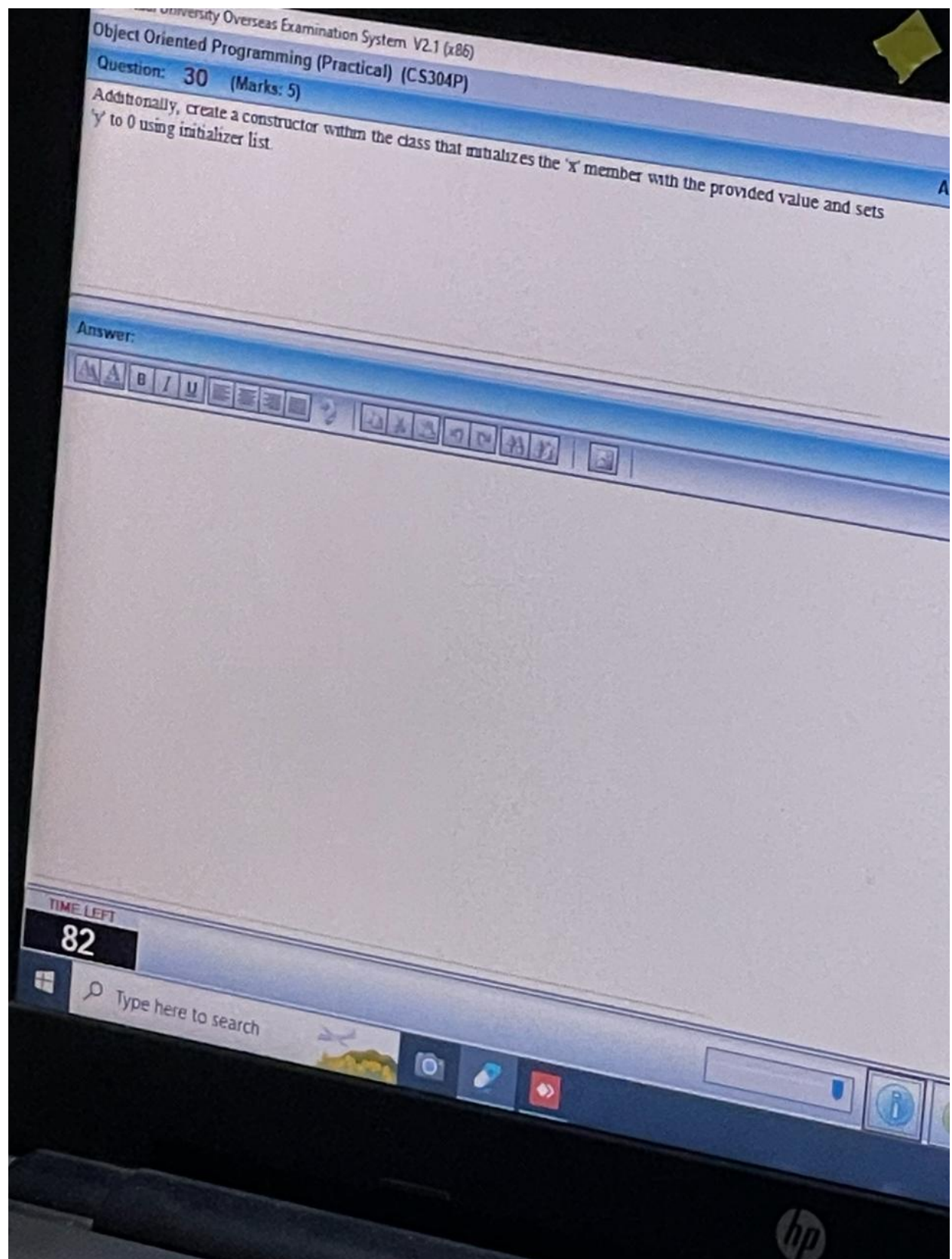
Answer:



TIME LEFT

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Write a C++ class named "Base", declare two data members x and y by mentioning the proper access specifiers.

- Data member x should be accessible to its own class and also from anywhere outside the class.
- Data member y should be accessible to only its own class.

Additionally, create a constructor within the class that initializes the 'x' member with the provided value and sets 'y' to 0 using initializer list

Answer:



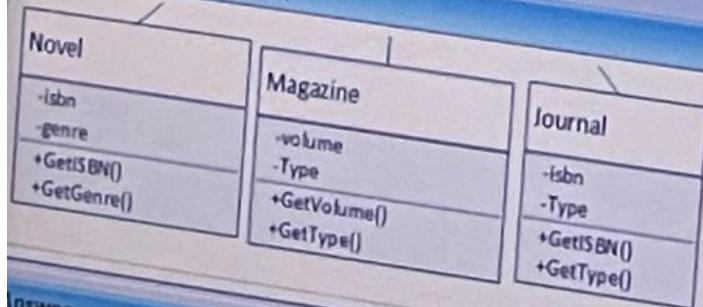
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Object Oriented Programming (Practical) (CS304P)  
Question: 29 (Marks: 5)



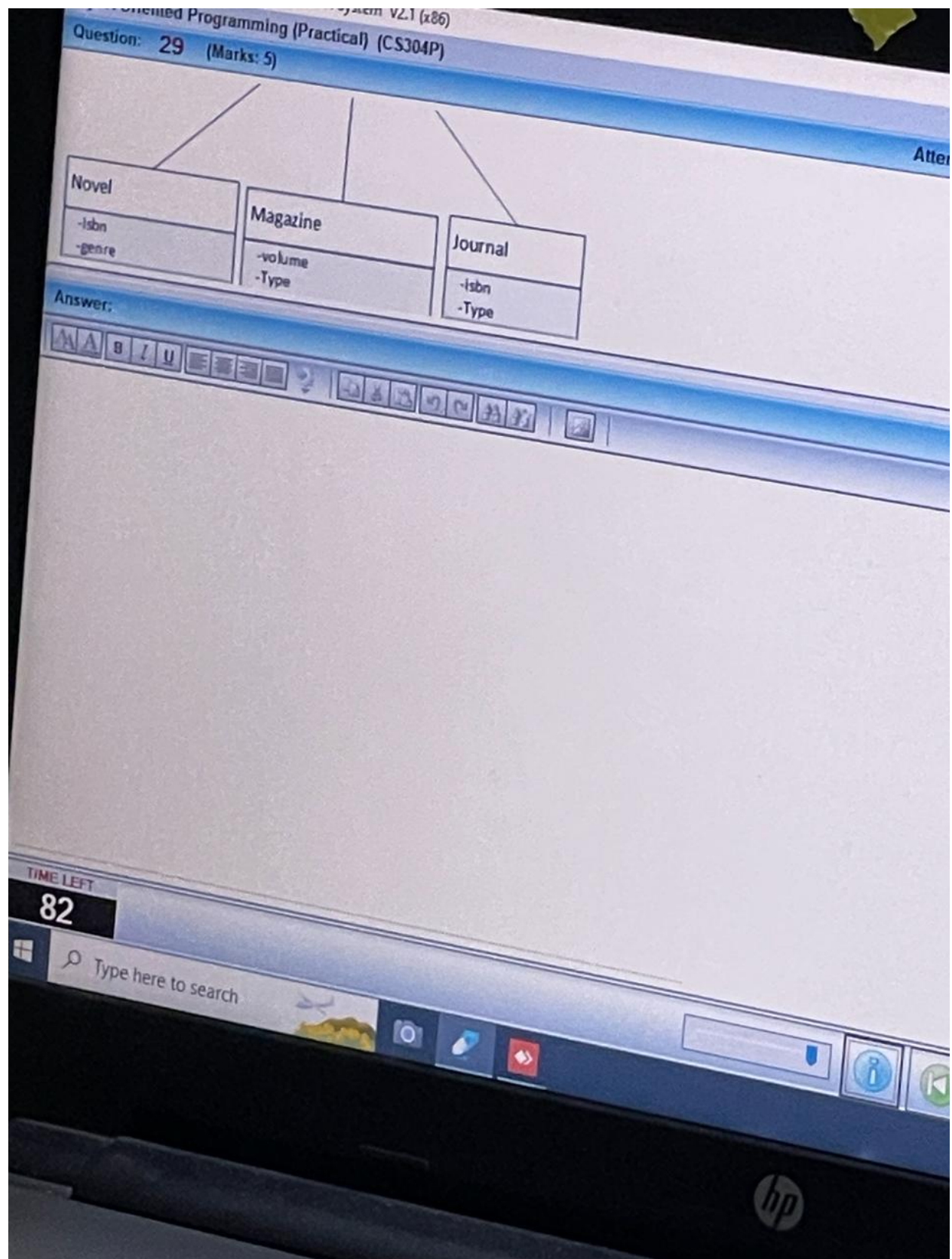
Answer:

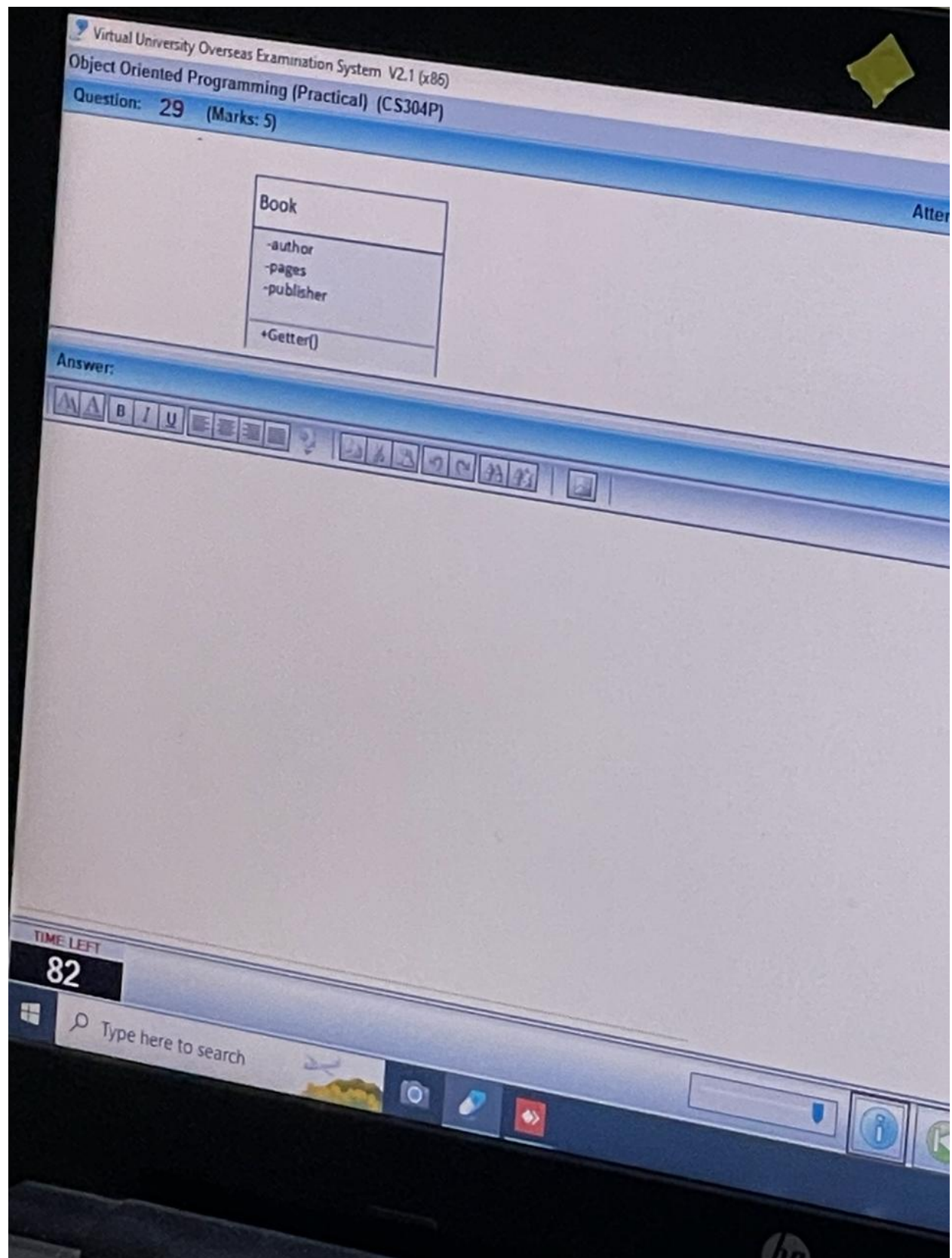


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Question: 29 (Marks: 5)

Consider the following class diagram, Book, Novel, Magazine and Journal classes. You are required to identify:

- Common behaviors
- Common Attributes
- Relationship between classes

Answer:



TIME LEFT

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Virtual University Overseas Examination System V2.1 (x86)

Object Oriented Programming (Practical) (CS304P)

Question: 28 (Marks: 5)

```
for(it = myset.begin(); it != myset.end(); it++)  
    cout<< *it <<endl;
```

```
)
```

Answer:



TIME LEFT

82

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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 28 (Marks: 5)

```
int main(){  
    set<char> myset;  
    myset.insert('d');  
    myset.insert('c');  
    myset.insert('b');  
    myset.insert('a');  
    set<char>::iterator it;
```

Answer:



TIME LEFT

82

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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 28 (Marks: 5)

What will be the output of the following C++ code?

```
#include <ostream>  
#include <set>
```

```
using namespace std;
```

```
int main()
```

Answer:

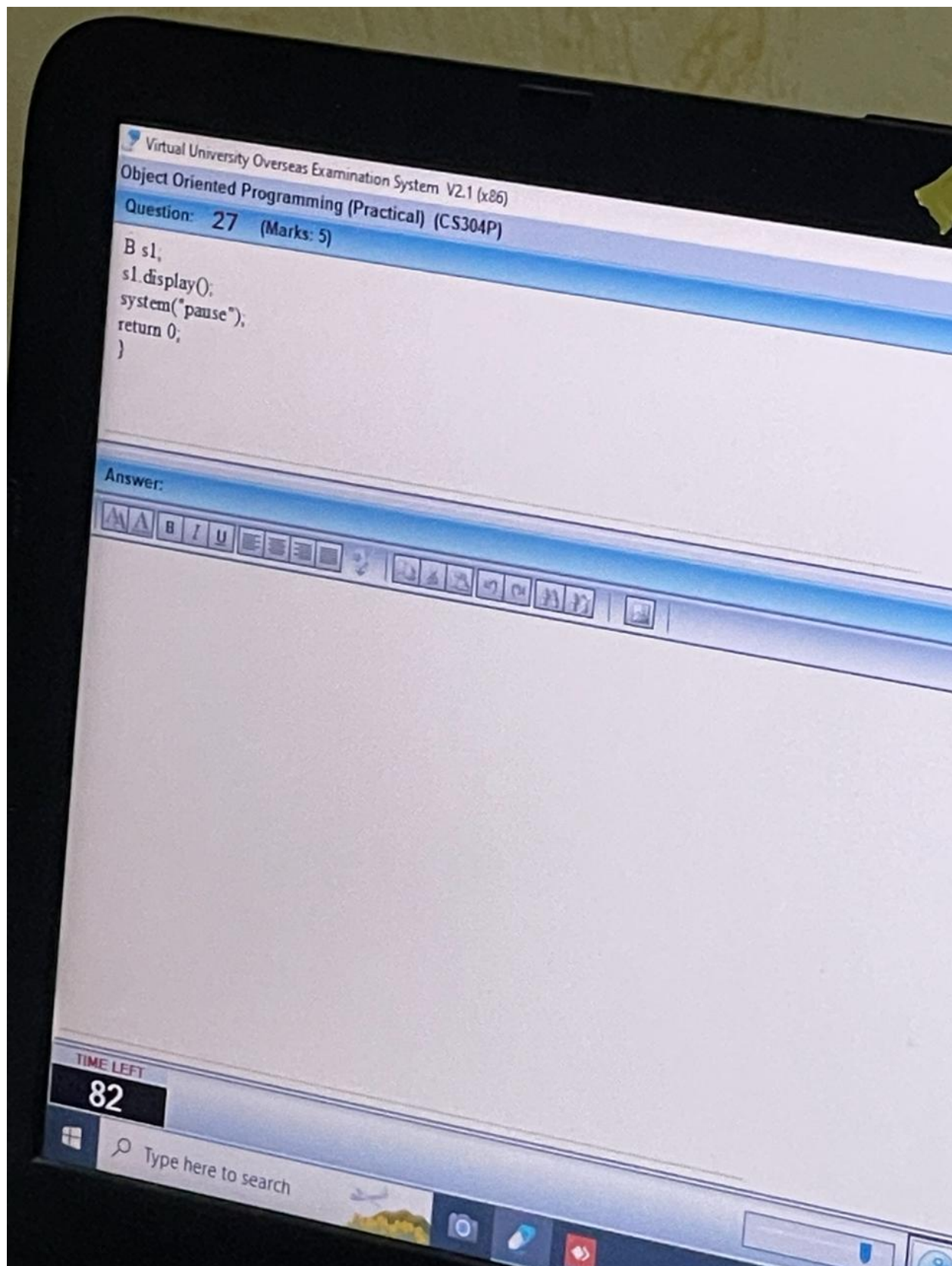


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Virtual University Overseas Examination System V2.1 (x86)

Object Oriented Programming (Practical) (CS304P)

Question: 27 (Marks: 5)

```
public  
void display()  
{
```

/ write code here to create object of class A for int type

/ write code here to create object of class A for float type

```
obj1.read();  
}
```

Answer:



TIME LEFT

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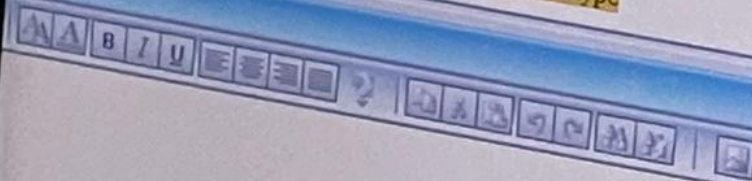
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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 27 (Marks: 5)

```
}  
};  
class B  
{  
public:  
void display()  
{
```

Write code here to create object of class A for int type

Answer:



TIME LEFT

82



Type here to search

Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 27 (Marks: 5)

I var;  
public:  
//write code here to make class B a friend of class A

```
void read()
{
    cout<<"Enter Number : ";
    cin>>var;
```

Answer:



TIME LEFT

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Question: 27 (Marks: 5)

Consider the following code and you are required to perform the following tasks.

1. Write a code to make class B a friend of class A.
2. Create two objects of class A for int and float data type.

```
#include <iostream>  
using namespace std;  
template <class T>
```

Answer:

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TIME LEFT

83

Consider the following code and you are required to perform the following tasks.

1. Write a code to make class B a friend of class A.
2. Create two objects of class A for int and float data type.

```
#include<iostream>  
using namespace std;  
template <class T>
```

Answer:



TIME LEFT

83



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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 26 (Marks: 5)

```
P1 *= P2,  
return 0,  
}
```

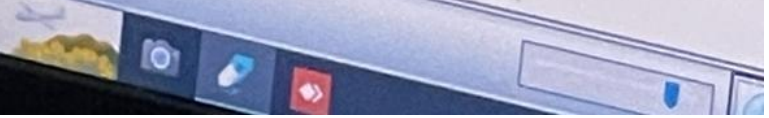
Answer:



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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 26 (Marks: 5)

// write code here

```
int main()  
{  
    Point P1(2.5,3.0), P2(3.0,2.5);  
    P1 *= P2;  
    return 0;  
}
```

Answer:

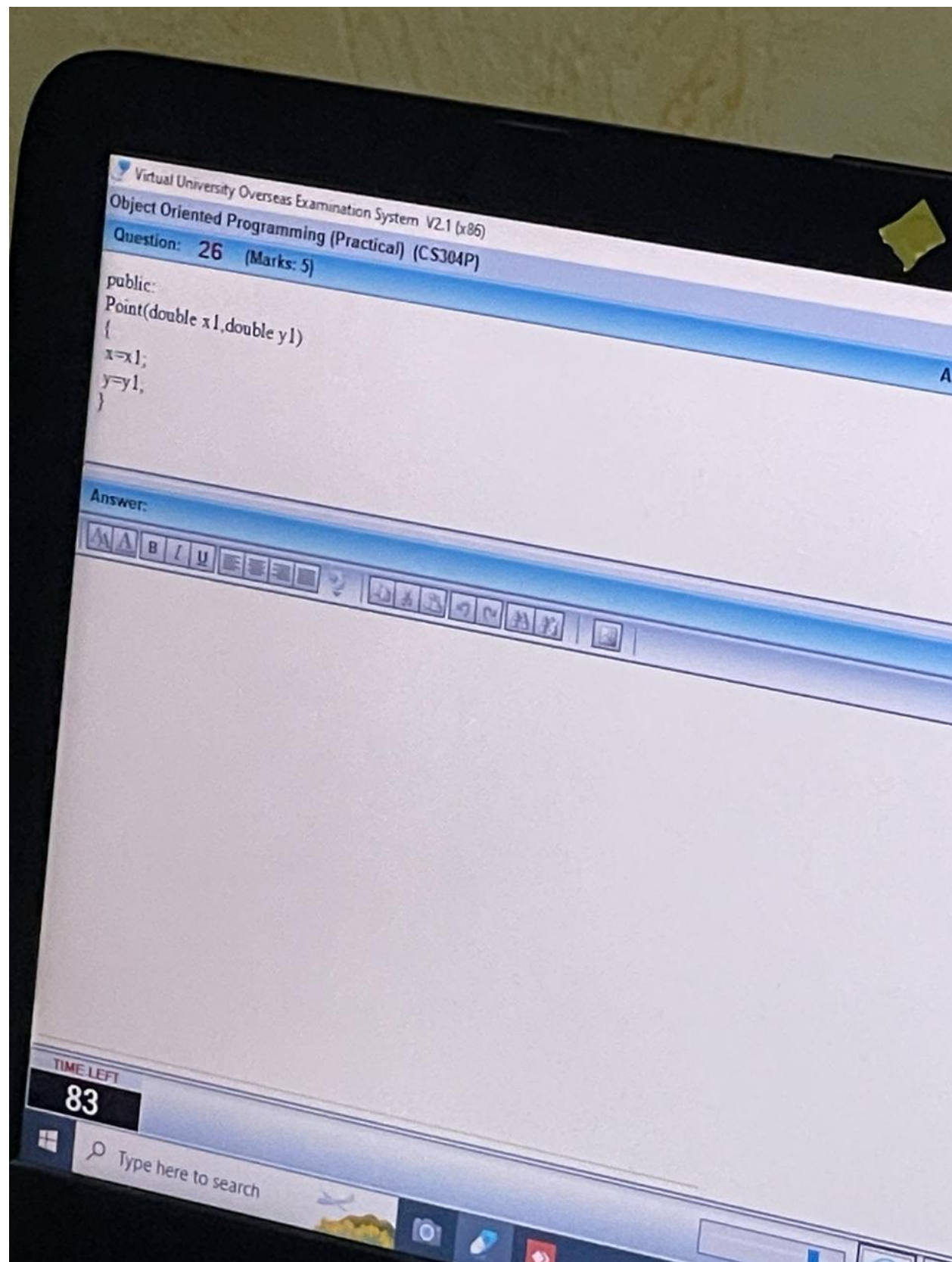


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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)  
Question: 26 (Marks: 5)

Consider the following code, you have a class **Point** having two data members **x** and **y** of type **double**.  
You are required to write C++ code to **overload the \*= operator**

```
#include<iostream>
using namespace std;
class Point{
double x,y;
public:
```

Answer:



TIME LEFT

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Type here to search

Object Oriented Programming (Practical) (CS304P)  
Question: 11 (Marks: 1)

Consider the following code

```
class Shape()  
{  
    int area(int x);  
    int area(int x, int y);  
}
```

Choices:

☐ int area(int x);

☐ void display();

☐ void circumference();

☐ void draw();

TIME LEFT

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Type here to search

Question: 24 (Marks: 1)

How is a static data member declared in C++?

Choices:

☐ static int variable;

☐ int static variable;

☐ const variable static int;

☐ variable static int;

TIME LEFT

83



Type here to search



Question: 23 (Marks: 1)

In the context of C++, when is a copy constructor called automatically?

Choices:

☐ When an object is created and initialized with another object.

☐ When an object is deleted.

☐ When an object is resized.

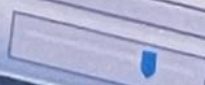
☐ When an object is declared but not initialized.

TIME LEFT

83



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In the context of C++, which of the following is used to obtain data from the console?

Choices:

☐ Stream Insertion operator

☐ Binary Operators

☐ Stream Extraction operator

☐ Operator Overloading

TIME LEFT

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Question: 21 (Marks: 1)

Which problem arises due to multiple inheritance in object oriented programming?

Choices:

☐ Diamond

☐ Circle

☐ Triangle

☐ Loop

TIME LEFT

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In the context of C++, the order in which operators are evaluated first in an expression is called \_\_\_\_\_

Choices:

☐ Precedence of an Operator

☐ Associativity

☐ Arity of an Operator

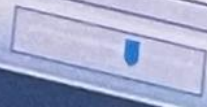
☐ Operator Overloading

TIME LEFT

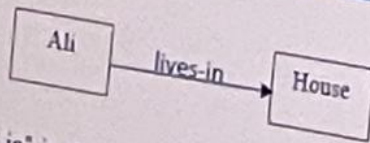
84



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System V2.1 (x86)  
Question: 19 (Marks: 1)



"lives in" is a(an) \_\_\_\_\_

Choices:

☐ Object

☐ Class

☐ Interaction

☐ Entity

TIME LEFT

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Suppose derived class is inherited from base class. What happens when a derived class object is created using public inheritance?

Attempt

Choices:

- ☐ The constructor of base class is executed before the constructor of derived class.
- ☐ The constructor of base class is executed after the constructor of derived class.
- ☐ The constructor of only derived class is executed.
- ☐ The constructor of base class is executed only.

TIME LEFT

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In perspective of inheritance, type casting from derived class to base class is called \_\_\_\_\_

Choices:

☐ Up casting

☐ Implicit Casting

☐ Both Implicit Casting & Down Casting

☐ Down casting

TIME LEFT

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While working on Object Oriented Model, we can identify classes by extracting \_\_\_\_\_ from the problem statement.

Choices:

☐ adjectives

☐ commands

☐ nouns

☐ verbs

TIME LEFT

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Question: 15 (Marks: 1)

Which of the following is partial specialization?

Choices:

☐ `template< class T, class U, class V >`

☐ `template< class T, class U >`

☐ `template< class T, float, int >`

☐ `template< int, float, int >`

TIME LEFT

84



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```
cout<<a;  
}
```

Choices:

- ☐ A function taking a single generic parameter and returning a generic type
- ☐ A function taking a single generic parameter and returning nothing
- ☐ A function taking single int parameter and returning a generic type
- ☐ A function taking a single generic parameter and returning a specific non-void type

TIME LEFT

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Virtual University Overseas Examination System V2.1 (x86)  
Object Oriented Programming (Practical) (CS304P)

Question: 14 (Marks: 1)

```
1 func(1 a)
```

```
2 {
```

```
3     cout<<a;
```

```
4 }
```

Choices:

☐ A function taking a single generic parameter and returning a generic type

☐ A function taking a single generic parameter and returning nothing

☐ A function taking single int parameter and returning a generic type

☐ A function taking a single generic parameter and returning a specific non-void type

TIME LEFT

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Question: 14 (Marks: 1)

What does this template function indicate?

```
template<class T>
```

```
T func(T a)
```

```
{
```

Choices:

☐ A function taking a single generic parameter and returning a generic type

☐ A function taking a single generic parameter and returning nothing

☐ A function taking single int parameter and returning a generic type

☐ A function taking a single generic parameter and returning a specific non-void type

TIME LEFT

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Which of the following type of iterator is used with Vector type container?

Choices:

☐ Input Iterators

☐ Output Iterators

☐ Forward Iterators

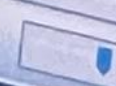
☐ Random Access Iterators

TIME LEFT

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In case of multiple inheritance, if more than one base class have a function with the same signature then the child will have \_\_\_\_\_ copies of that function.

Choices:

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Multiple

TIME LEFT

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Question: 12 (Marks: 1)

In case of multiple inheritance, if more than one base class have a function with the same signature then the child will have \_\_\_\_\_ copies of that function.

Choices:

☐ One

☐ Two

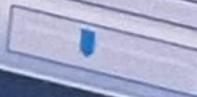
☐ Three

☐ Multiple

TIME LEFT

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Question: 12 (Marks: 1)

In case of multiple inheritance, if more than one base class have a function with the same signature, the child will have \_\_\_\_\_ copies of that function.

Choices:

☐ One

☐ Two

☐ Three

☐ Multiple

TIME LEFT

84



Type here to search



```
void draw();  
};
```

Which of the following function is overloaded function?

Choices:

☐ int area(int x);

☐ void display();

☐ void circumference();

☐ void draw();

TIME LEFT

84



Type here to search



Object Oriented Programming (Practical) (CS304P)  
Question: 11 (Marks: 1)

```
int area(int x, int y);  
void display();  
void circumference();  
void draw();
```

Choices:

☐ int area(int x);

☐ void display();

☐ void circumference();

☐ void draw();

TIME LEFT

84

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# Solutio

# n

**below**

Q1 - C

2 - D

3 - C

4 - A

5 - A

6 - D

7 - D

8 - C

9 - A

10 - D

Q 11 - A

Q 12 - D

Q 13 - D

Q 14 - A

Q 15 - A

Q 16 - A

Q 17 - ~~A~~ C

Q 18 - A

Q 19 - A

Q 20 - A

Q 21 - A

22 - C

23 - A

24 - A

25 - ✓

~~24~~

26 - ✓

27 - ✓

28 - ✓

29 -

30 - ✓

# Q25

In the given code snippet, the Super class has two data members:

```
private int x;  
protected int y;
```

In a subclass (referred to as "Sub class" in the question), the accessibility of these data members would be as follows:  
x: Since x is declared as private in the Super class, it cannot be accessed directly by any subclass. Private members are accessible only within the class in which they are declared and are not accessible in derived classes (subclasses).

y: y is declared as protected in the Super class. Protected members are accessible within the class in which they are declared and are also accessible in derived classes (subclasses), but they are not accessible to the outside world. Therefore, y can be accessed in the subclass, but it cannot be accessed outside of the Super class or its subclasses. So, in summary:

x cannot be accessible in the subclass due to its private access specifier.  
y can be accessible in the subclass due to its protected access specifier, but it remains inaccessible to the outside world.

# Q26

output  
x = 7.5, y = 7.5

In the provided code:

A Point class is defined with two private data members x and y of type double.

The constructor initializes these data members with the provided values.

The \*= operator is overloaded as a member function of the Point class. It multiplies the x and y values of the current object (\*this) with the corresponding values of the other object passed as a parameter.

In the main function, two Point objects P1 and P2 are created with initial values.

The \*= operator is used to multiply P1 by P2, modifying the x and y values of P1.

Finally, the modified values of P1 are displayed using the display method of the Point class.

## Q27

To make class B a friend of class A, we need to declare class B as a friend inside class A. Here's the modified code to achieve this, along with the creation of two objects of class A for int and float data types:

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

template<class T>
class A {
    T var;
public:
    // Declaration of class B as a friend of class A
    friend class B;

    void read() {
        cout << "Enter Number: ";
        cin >> var;
    }
};

class B {
public:
    void display() {
        A<int> obj1; // Creating object of class A for int type
```

```

        A<float> obj2; // Creating object of class A for float type
        obj1.read();
        obj2.read();
        cout << obj1.var << " " << obj2.var << endl;
    }
};

int main() {
    B s1;
    s1.display();
    system("pause");
    return 0;
}

```

In this code:

Class B is declared as a friend of class A using the friend keyword inside class A.

Inside the display method of class B, we create two objects of class A for int and float data types respectively (A<int> obj1; and A<float> obj2;).

The display method reads input for both objects and displays their values.

Please note that the usage of templates (template<class T>) allows class A to work with different data types (int and float in this case).

## Q28

Output

```

a
b
c
d

```

## Q30

```
#include <stdio.h>
```

```
// Declaration of the Base class
```

```

typedef struct {
    // Public data member x accessible from anywhere
    int x;

    // Private data member y accessible only within the class
    int y;
} Base;

// Constructor to initialize x and y
Base createBase(int xValue) {
    Base newBase = { .x = xValue, .y = 0 };
    return newBase;
}

int main() {
    // Creating an object of Base and initializing x to 5
    Base baseObject = createBase(5);

    // Accessing and printing the values of x and y
    printf("x = %d\n", baseObject.x);
    // printf("y = %d\n", baseObject.y); // This line would result in a
    compilation error since y is private

    return 0;
}

```

In the main function, an object of Base is created and initialized with x value of 5 using the createBase function. The values of x and y are then accessed and printed. However, attempting to access y directly would result in a compilation error since it's private to the Base struct.

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