

# OOP Exam Busters Mock Paper

Semester 2, 2025

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**26 questions, 60 minutes**

## Important Disclaimer

This is an unofficial resource provided by PASS to assist you with revision and time management strategies for your OOP exam. Questions have been taken from the interactive sessions that ran in previous iterations of the course (and are still relevant). While this has been prepared to reflect the style of the final exam, it is in no way intended to accurately reflect the types of questions or expected solutions in your real exam. In other words, please don't sue us!

## Exam Busters Reminders

- Assume `iostream` has been included, namespace has been set to `std`, etc.
- Collaborate! You'll have plenty of time to study on your own, so make sure you're taking this time to learn from each other
- Take this mock paper with you, and feel free to take photos/ask for links to of any other resources used during the session
- Help yourself to the snacks!
- All the PASS Leaders present in the room are here to help you, so ask away

1. What will the output be?

```
void addOneToX(int* p){  
    *p = *p + 1;  
}  
  
int main(){  
    int x = 100;  
    addOneToX(&x);  
    cout << x << endl;  
    return 0;  
}
```

- A. Error
- B. A memory address
- C. 101
- D. 100

2. Where are h and x stored?

```
int main() {  
  
    int *h = new int(2);  
    int x = 0;  
  
    std::cout << h << std::endl;  
    std::cout << &h << std::endl;  
    std::cout << &x << std::endl;  
  
    delete h;  
  
    return 0;  
}
```

- A. Both on the Stack
- B. h on the Stack and x on the heap
- C. h on the heap and x on the Stack
- D. Both on the heap

3. What will be the output? (*Assuming variables are allocated in the order of the code*)

```
#include <iostream>
int main() {
    int x = 100;
    int z = 200;
    int y = 100;

    int *p = &x;
    int *q = &y;
    int *w = &z;

    std::cout << p-q << std::endl;
    return 0;
}
```

- A. 1
- B. 4
- C. 0
- D. Error

4. What is the output?

```
void b(int* p) {
    *p = *p + 1;
    int x = 10;
}

void a (int* p) {
    *p = *p + 1;
    int x = 100;
    b(&x);
}

int main() {
    int x = 0;
    a(&x);
    std::cout << x << std::endl;
    return 0;
}
```

- A. 0
- B. 1
- C. 11
- D. 111

5. What is the output?

```
int main(){  
    int a[] = {1,2,3};  
    int b[3];  
    b = a;  
    for(int i=0; i<3; i++){  
        cout<< a[i] << " " ;  
    }  
    cout << endl;  
    return 0;  
}
```

- A. 0 0 0
- B. 0 1 3
- C. Error

6. What is the output?

```
int main() {  
    int* a = new int[3];  
    int* b;  
    for (int i = 0; i < 3; i++)  
        a[i] = i+1;  
    b = a;  
    for (int i = 0; i < 3; i++)  
        cout << b[i] << " ";  
    return 0;  
}
```

- A. 0 1 2
- B. 1 2 3
- C. Error

7. What is the output?

```
struct Book{
    string title;
    string author;
    int year;
    int* book_id = new int;
};

int main(){
    Book b1 , b2;
    *b1.book_id = 100;
    b2 = b1;
    cout << *b2.book_id << endl;
    *b1.book_id = 500;
    cout << *b2.book_id << endl;
    return 0;
}
```

- A. Error
- B. 100
- C. 500
- D. 0

8. What is the output?

```
struct Book{
    string title;
    string author;
    int year;
    int book_id;
};

int main(){
    Book* b1;
    b1.title = "Book1";
    cout << b1.title << endl;
    return 0;
}
```

- A. Book1
- B. Error

9. What is the output?

```
struct Book{
    string title;
    string author;
    int year;
    int book_id;
};

int main(){
    Book* b1;
    b1->title = "Book1";
    cout << b1->title << endl;
    return 0;
}
```

- A. Book1
- B. Error

10. What is the output?

```
1 class A{
2     int x;
3 };
4
5 int main(){
6
7     A a;
8     cout << a.x << endl;
9
10    return 0;
11 }
```

- A. 0
- B. 10
- C. Undefined
- D. Error

11. What is the output?

```
6  class A{
7      private:
8          int _x;
9      public:
10         A(int x) : _x(x){ }
11         int get_x(){return _x;}
12     };
13
14     int main(){
15
16         A a(10);
17         cout << a.get_x() << endl;
18
19         return 0;
20     }
```

- A. 5
- B. 10
- C. 0
- D. Error

12. What is the output?

```
class A {
public:
    A() { cout << "+A "; }
    ~A() { cout << "-A "; }
};

class B : public A {
public:
    B() { cout << "+B "; }
    ~B() { cout << "-B "; }
};

int main() {
    B b;
    return 0;
}
```

- A. +A +B -B -A
- B. +A +B -A -B
- C. +B +A -B -A
- D. +B -B

13. What is the output?

```
class A {
public:
    A() { cout << "+A"; }
    ~A() { cout << "-A"; }
};

class B : public A {
public:
    B() { cout << "+B"; }
    ~B() { cout << "-B"; }
};

int main() {
    A* a = new B;
    delete a;
    return 0;
}
```

- A. +B +B +A -B -B -A
- B. +B +B +A -A
- C. +B +A +A -B -A
- D. +B +A -B -A

14. What is the output?

```
class B {
private:
    int _id;
public:
    B(int id){ _id = id; }
    B():B(0.5) { cout << "+B "; }
    int get_id(){ return _id; }
    void set_id(int id) { _id = id; }
    ~B() { cout << "-B "; }
};

class A {
private:
    B* b;
public:
    A(){
        b = new B[2];
        cout << "+A ";
    }
    ~A() {
        delete[] b;
        cout << "-A ";
    }
};

int main() {
    A a;
    return 0;
}
```

- A. +B +B +A -B -B -A
- B. +B +B +A -A
- C. +A +B +B -A
- D. +B +A -B -A



15. What is the output?

```
class A{
protected:
    int _a;
public:
    A(int a): _a(a){}
    A():A(100){}
    void say_hi(){ cout << "Hi! I am A\n";}
};
class B : public A{
private:
    double _r;
public:
    B():_r(0.5){}
    void say_hi(){ cout << "Hi! I am B\n";}
};
int main(){
    B b;
    b.A::say_hi();

    return 0;
}
```

- A. Hi! I am A
- B. Hi! I am B
- C. Error

16. What is the output?

```
4  class A {
5  public:
6      A() { cout <<" It is in A"; }
7  };
8
9  class B: public A
10 {
11     public:
12         B() { cout <<" It is in B"; }
13 };
14
15 int main()
16 {
17     A *a = new B;
18 }
```

- A. It is in A
- B. It is in B
- C. It is in A It is in B
- D. Error

17. What is the output?

```
1 class Car{
2     protected:
3         string _model;
4         int _year;
5         // etc
6     public:
7         Car(string model, int year):_model(model),_year(year){}
8         Car():Car("",0){}
9 };
10 class SportCar : public Car{
11     private:
12         int _top_speed;
13         // etc
14     public:
15         SportCar(string model, int year,int top_speed)
16             :Car(model,year),_top_speed(top_speed){}
17         SportCar():SportCar("",0,0){}
18         int get_top_speed(){return _top_speed;}
19 };
20
21 int main(){
22     Car* a_car = new SportCar("BMW",2007,250);
23     cout << a_car->get_top_speed() <<endl;
24
25     return 0;
26 }
```

- A. 0
- B. 250
- C. Error

18. What is the output?

```
4 class A{
5     public:
6         void foo(){cout << "This is A\n";}
7 };
8
9 class B : public A{
10     public:
11         void foo(){cout << "This is B\n";}
12 };
13
14 class C : public B{
15     public:
16         void foo(){cout << "This is C\n";}
17 };
18
19 void test(A* a){
20     a->foo();
21 }
22
23 int main(){
24     C c;
25     test(&c);
26     return 0;
27 }
```

- A. This is A
- B. This is B
- C. This is C
- D. Error

19. What is the output?

```
4 class A{
5     public:
6         virtual void foo(){cout << "This is A\n";}
7 };
8
9 class B : public A{
10     public:
11         void foo(){cout << "This is B\n";}
12 };
13
14 class C : public B{
15     public:
16         void foo(){cout << "This is C\n";}
17 };
18
19 void test(A* a){
20     a->foo();
21 }
22
23 int main(){
24     C c;
25     test(&c);
26     return 0;
27 }
```

- A. This is A
- B. This is B
- C. This is C
- D. Error

20. What is the output?

```
4 class Shape{
5     public:
6         virtual float get_area() = 0;
7 };
8 class Circle: public Shape{
9     private:
10         float r=10;
11     public:
12         float get_area(){return r*r*3.14;}
13 };
14
15 void print_shape(Shape* s){
16     std::cout << s->get_area() << std::endl;
17 }
18
19 int main(){
20     Shape* s = new Circle();
21     print_shape(s);
22     return 0;
23 }
```

- A. Does not compile
- B. 10
- C. 0
- D. 314

## 21. What is the output?

```
1 #include <iostream>
2 using namespace std;
3
4 class A {
5 public:
6     void fun() { cout << "A::fun() called "; }
7 };
8
9 class B : public A {
10 public:
11     void fun() { cout << "B::fun() called "; }
12 };
13
14 class C : public B {
15 public:
16     void fun() { cout << "C::fun() called "; }
17 };
18
19 int main()
20 {
21     A* a = new C;
22     a->fun();
23     return 0;
24 }
```

- A. A::fun() called
- B. B::fun() called
- C. C::fun() called
- D. Error

## 22. What is the output?

```
1 #include <iostream>
2 using namespace std;
3
4 class A {
5 public:
6     virtual void fun() { cout << "A::fun() called "; }
7 };
8
9 class B : public A {
10 public:
11     void fun() { cout << "B::fun() called "; }
12 };
13
14 class C : public B {
15 public:
16     void fun() { cout << "C::fun() called "; }
17 };
18
19 int main()
20 {
21     A* a = new C;
22     a->fun();
23     return 0;
24 }
```

- A. A::fun() called
- B. B::fun() called
- C. C::fun() called
- D. Error

23. What is the output?

```
4 template <class T>
5 class Point{
6     private:
7         T _x = 0;
8         int _y = 0;
9     public:
10        Point(T x,int y):_x(x),_y(y){}
11        void setPoint(T x,int y){_x=x;_y=y;}
12        T get_x(){return _x;}
13        int get_y(){return _y;}
14 };
15
16 int main(){
17     Point<float> p1(0.4,0.5);
18     cout << p1.get_x() << "," << p1.get_y() << "\n";
19     return 0;
20 }
```

- A. 0.4,0.5
- B. 0,0
- C. 0,0.5
- D. 0.4,0

24. What is the output?

```
4 template <class T, class K>
5 class Point{
6     private:
7         T _x = 0;
8         K _y = 0;
9     public:
10        Point(T x,K y):_x(x),_y(y){}
11        void setPoint(T x,K y){_x=x;_y=y;}
12        T get_x(){return _x;}
13        K get_y(){return _y;}
14 };
15
16 int main(){
17     Point<float,char> p1(0.4,'a');
18     cout << p1.get_x() << "," << p1.get_y() << "\n";
19     return 0;
20 }
```

- A. 0,0
- B. 0.4,a
- C. 0.4,0
- D. Error

25. What is the output?

```
1 #include <iostream>
2
3 using namespace std;
4
5 class GameObject
6 {
7 public:
8     GameObject()
9     {
10         gameObjectCount++;
11     }
12     int getObjectCount()
13     {
14         return gameObjectCount;
15     }
16 private:
17     static int gameObjectCount;
18 };
19
20 int GameObject::gameObjectCount = 0;
21
22 int main()
23 {
24     GameObject g1;
25     GameObject* g2;
26
27     cout << g1.getObjectCount() << endl;
28
29     return 0;
30 }
```

- A. 0
- B. 1
- C. 2
- D. Error

26. What is the output?

```
1 #include <iostream>
2
3 using namespace std;
4
5 class Helper
6 {
7 public:
8     static void StaticFunction()
9     {
10         cout << "Hi I am a class function" << endl;
11     }
12 private:
13     int x = 5;
14 };
15
16
17 int main()
18 {
19     Helper::StaticFunction();
20 }
```

- A. Hi I am a class function
- B. Error