

# C++ automotive entry test quiz 2023 (Poland)

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1

Please enter your name and surname \*

Wprowadź odpowiedź

2

What will this code snippet output?

\* (1 punkt)

```
int z = 1, y;
for (y = 1; y++ < 9; y++)
    z += y++;
cout << z << endl << endl;
```

- 13.
- 14.
- 15.
- 16.
- 17.
- Compile-time error.
- Run-time error.

3

What happens as a result of executing this code?

\* (1 punkt)

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

void Init(int arr[], int size, int startVal) {
    for (auto i = 0; i < size; i++) {
        arr[i] = startVal;
    }
}

void Allocate(int *ptr, int size) {
    ptr = new int[size];
    Init(ptr, size, 3);
}

int main() {
    int* ptr = nullptr;
    int size = 7;

    Allocate(ptr, size);
    cout << ptr[0];

    delete[] ptr;

    return 0;
}
```

- This code will not compile because it contains a syntax error
- The console will display the value 0
- The console will display the value 3
- This code will not work correctly. You cannot use pointer names instead of array names when calling a function

- This code will not work correctly. A runtime error will occur at the execution stage. A garbage value will be displayed on the console

4

What operation can be applied to pointers of the same type?

\* (1 punkt)

"+".

"-".

"\*".

"/".

5

What happens as a result of executing this code? \*  
(1 punkt)

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

class A {
    int iVal;
public:
    A(float val) {
        iVal = val;
        cout << "A::float ";
    }
    A(double val) {
        iVal = val;
        cout << "A::double ";
    }
    ~A() {
        cout << "~A";
    }
    int getVal() const {
        return iVal;
    }
};

int main() {
    A obj(3.3);
    cout << obj.getVal() << " ";
    return 0;
}
```

- This code will not compile because it contains a syntax error. The compiler does not know:  
3.3 is float or double
- The console will display: A::float 3.3 ~A
- The console will display: A::double 3.3 ~A
- The console will display: A::float 3 ~A
- The console will display: A::double 3 ~A
- This code will not work correctly. A runtime error will occur at the execution stage

6

What is an index of the element in the array?

\* (1 punkt)

- Order number starting 1.
- Order number starting any value we want.
- Offset from the beginning of array.
- None of them.

7

What happens as a result of executing this code? \* (1 punkt)

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

int factorial(int val) {
    return val * factorial(val - 1);
}

int main() {
    int result = factorial(3);
    cout << result;
    return 0;
}
```

- This code will not compile because it contains a syntax error.
- The console will display: 3
- The console will display: 6
- This code will not work correctly. A runtime error will occur at the execution stage

8

What is an address of the object?

\* (1 punkt)

- Number of the bit in memory where the object begins. Starting from 0.
- Number of the bit in memory where the object begins. Starting from 1.
- Number of the byte in memory where the object begins. Starting from 0.
- Number of the byte in memory where the object begins. Starting from 1.

9

What happens as a result of executing this code? \* (1 punkt)

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

int main() {

    const int size = 3;
    int arr[size] = { 3,5,7 };
    for (int i = 0; i < size;i+=
        cout << *(arr + i)<<" ";
    }
    for (int i = size; --i >= 0;
        cout << *(arr + i)<<" ";
    }

    return 0;
}
```

- This code will not compile because it contains a syntax error. You can't use pointer syntax for arrays
- This code will not compile because it contains a syntax error. You can't miss third part of for loop
- The console will display: 3 5 7 7 5 3
- The console will display: 3 7 7 5 3
- This code will not work correctly. A runtime error will occur at the execution stage

10

What is a pointer?

\* (1 punkt)

- Variable that has name "pointer".
- Variable or constant that contains the address of some object.
- Variable or constant that contains the reference of some object.
- The same as "address".

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What happens as a result of executing this code? \* (1 punkt)

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

class A {
public:
    int a = 10;
};

class B : public A {
public:
    int a = 20;
};

int main() {
    B obj;

    A& rObj = obj;
    cout << rObj.a;

    return 0;
}
```

- This code will not compile because it contains a syntax error. You can't use references in a such way
- This code will not compile because it contains a syntax error. We did not take the address of obj variable
- The console will display: 10
- The console will display: 20
- This code will not work correctly. A runtime error will occur at the execution stage

12

What is a reference?

\* (1 punkt)

- This is the same as a pointer.
- This is a pointer to a pointer.
- This is a link to 3rd party DLL file.
- This is an alias for another object.

13

What is an array name?

\* (1 punkt)

- Just the name.
- Constant address of the beginning of the array.
- Pointer to the beginning of the array.
- An object of std::array class.

14

Which operator below will allocate an array of 10 integers in dynamic memory (heap)?

\* (1 punkt)

- `int *p = new int[10];`
- `int *p = new int(10);`
- `int &p = new int[10];`
- `int &p = new int(10);`

15

Which construction below will send to the function an integer parameter **param** by value?

\* (1 punkt)

- void f(int param);
- void f(int \*param);
- void f(int &param);
- None of them.

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Which construction below will send to the function a pointer to integer parameter **param** by value?

\* (1 punkt)

- void f(int param);
- void f(int \*param);
- void f(int &param);
- None of them.

17

Which function doesn't print anything on the screen?

\* (1 punkt)

- printf.
- fprintf.
- sprintf.
- puts.

18

What will this code snippet output?

\* (1 punkt)

```
#include <stdio.h>
int i = 1;
int f() { i++; return -1; }
int g() { i++; return 0; }
int h() { i++; return 1; }
int main()
{
    if (i && f() && g() && h());
        printf("%d\n", i);
}
```

- 1.
- 2.
- 3.
- 4.
- Compile-time error.
- Run-time error.

19

What will this code snippet output?

\* (1 punkt)

```
#include <iostream>
using namespace std;
void g(int a, int b = 0)
{
    cout << "void g(int a, int b = 0)\n";
}
void g(int a)
{
    cout << "void g(int a)\n";
}
int main()
{
    g(1);
}
```

- void g(int a, int b = 0)
- void g(int a)
- Compile-time error.
- Run-time error.

20

Which principle does the inheritance implement in OOP?

\* (1 punkt)

- KISS.
- DRY.
- YAGNI.
- SOLID.

21

What principle is not one of the base OOP principles?

\* (1 punkt)

- Abstraction.
- Algorithmic decomposition.
- Encapsulation.
- Inheritance.

22

What is a static field of class?

\* (1 punkt)

- The field that isn't copied in every instance of class.
- The field that is copied in every instance of class.
- The variable with global scope.
- The constant with global scope.

23

What does "this" keyword mean?

\* (1 punkt)

- There is no "this" keyword in C++. We must use "self" keyword instead.
- The reference that refers to itself.
- The pointer that points to itself.
- The implicit parameter of instance method that points to the object on which we are calling the method.

24

What is the difference between class and object?

\* (1 punkt)

- Those are the same thing.
- Class can have derived classes, object can't.
- Object is an instance of class.
- Class is an instance of object.

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What is the difference between class and structure?

\* (1 punkt)

- They are the same thing except scope by default.
- They are completely different things. It's not correct to compare them.
- They are stored differently in memory.
- Class can have derived classes, structure can't.

26

Which operation can't be overloaded?

\* (1 punkt)

- <<
- >>
- !=
- ::

27

What is the most correct point about the destructor?

\* (1 punkt)

- It's useless today.
- It has to free allocated memory at heap.
- It implements RAll design pattern.
- It's impossible to use polymorphism without destructor.

28

Which cast is most dangerous?

\* (1 punkt)

- reinterpret\_cast.
- static\_cast.
- const\_cast.
- dynamic\_cast.

29

What is template?

\* (1 punkt)

- Base class in the hierarchy.
- The sample of class which is used to create instance for specified parameter types.
- Polymorphic class.
- Polymorphic structure.

30

Who could be a friend of class?

\* (1 punkt)

- Any variable and constant.
- Any statement (if, while, do while, switch).
- Any function, any method of any class and any class.
- Any derived class.

31

What is a pure virtual function?

\* (1 punkt)

- This is the first implementation of a virtual function in hierarchy.
- This is the way to use multiple inheritance.
- This is a virtual function without body. It must be implemented in one of derived classes.
- There is no pure virtual function in C++.

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