

Quiz 3 Solutions

Q1: C++ functions other than `main` are executed:

- a. Before `main` executes.
- b. After `main` completes execution.
- c. When they are explicitly called by another function.
- d. Never.

ANS c. When they are explicitly called by another function.

Q2: Assuming that `text` is a variable of type `string`, what will be the contents of `text` after the statement `cin >> text;` is executed if the user types “Hello world!” then presses *Enter*?

- a. "H"
- b. "Hello"
- c. "Hello world"
- d. "Hello world!"

ANS: b. Hello

Q3: A constructor can specify the return type:

- a. `int`.
- b. `string`.
- c. `void`.
- d. A constructor cannot specify a return type.

ANS: d. A constructor cannot specify a return type.

Q4: What does the following statement declare?

```
int *countPtr, count;
```

- a. Two `int` variables.
- b. One pointer to an `int` and one `int` variable.
- c. Two pointers to `ints`.
- d. The declaration is invalid.

ANS b. One pointer to an `int` and one `int` variable.

Q5: When a compiler encounters a function parameter for a single-subscripted array of the form `int a[]`, it converts the parameter to:

- a. `int a`
- b. `int &a`
- c. `int *a`
- d. No conversion is necessary.

ANS c. `int * a`

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Q6: A function that modifies an array by using pointer arithmetic such as `++ptr` to process every value should have a parameter that is:

- A nonconstant pointer to nonconstant data.
- A nonconstant pointer to constant data.
- A constant pointer to nonconstant data.
- A constant pointer to constant data.

ANS: a. A nonconstant pointer to nonconstant data.

Q7: Which of the following gives the number of elements in the array `int r[10]`?

- `sizeof r`
- `sizeof (*r)`
- `sizeof r / sizeof (int)`
- `sizeof (*r) / sizeof (int)`

ANS: c `sizeof r / sizeof (int)`

Q8: Given that `k` is an integer array starting at location 2000, `kPtr` is a pointer to `k` and each integer is stored in 4 bytes of memory, what location does `kPtr + 3` point to?

- 2003
- 2006
- 2012
- 2024

ANS: c. 2012

Q9: Every object of the same class:

- Gets a copy of every member function and member variable.
- Gets a copy of every member variable.
- Gets a copy of every member function.
- Shares pointers to all member variables and member functions.

ANS b. Gets a copy of every member variable.

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Q10: Given the class definition:

```
class CreateDestroy
{
public:
    CreateDestroy() { cout << "constructor called, "; }
    ~CreateDestroy() { cout << "destructor called, "; }
};
```

What will the following program output?

```
int main()
{
    CreateDestroy c1;
    CreateDestroy c2;
    return 0;
}
```

- constructor called, destructor called, constructor called, destructor called,
- constructor called, destructor called,
- constructor called, constructor called,
- constructor called, constructor called, destructor called, destructor called,

ANS: d. constructor called, constructor called, destructor called, destructor called,

Q11: A client changing the values of `private` data members is:

- Only possible by calling `private` member functions.
- Possible using `public` functions and references.
- Never possible.
- Only possible if the `private` variables are not declared inside the class.

ANS: b. Possible using `public` functions and references.

Q12: Assume that `t` is an object of class `Test`, which has member functions `a()`, `b()`, `c()` and `d()`. If the functions `a()`, `b()` and `c()` all return references to an object of class `Test` (using the dereferenced `this` pointer) and function `d()` returns `void`, which of the following statements will *not* produce a syntax error:

- `t.a().b().d();`
- `a().b().t;`
- `t.d().c();`
- `t.a().t.d();`

ANS: a. `t.a().b().d();`

Q13: `static` data members of a certain class:

- Can be accessed only if an object of that class exists.
- Cannot be changed, even by objects of the same *that* class.
- Have class scope.
- Can only be changed by `static` member functions.

ANS: c. Have class scope.

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Q14: `static` member functions:

- Can use the `this` pointer.
- Can access only other `static` member functions and `static` data members.
- Cannot be called until an object of their class is instantiated.
- Can be declared `const` as well.

ANS: b. Can only access other `static` member functions and `static` data members.

Q15: Which of the following is an *illegal* use of function `put`?

- `cout.put('A');`
- `cout.put("A");`
- `cout.put('A').put('\n');`
- `cout.put(65);`

ANS: b. `cout.put("A");`

Q16: If unexpected data is processed in an I/O operation:

- An exception will be thrown.
- An error message will automatically be displayed.
- The program will terminate execution.
- Various error bits will be set.

ANS: d. Various error bits will be set.

Q17: Which of the following is *not* true about `bool` values and how they are output with the output stream?

- The old style of representing true/false values used `-1` to indicate `false` and `1` to indicate `true`.
- A `bool` value outputs as `0` or `1` by default.
- Stream manipulator `boolalpha` sets the output stream to display `bool` values as the strings `"true"` and `"false"`.
- Both `boolalpha` and `noboolalpha` are "sticky" settings.

ANS: a. The old style of representing true/false values used `-1` to indicate `false` and `1` to indicate `true`.

Q18: Which of the following does *not* have a stream associated with it?

- `cerr`.
- `cin`.
- `cout`.
- All of the above have streams associated with them.

ANS d. All of the above have streams associated with them.

Q19: In order to perform file processing in C++, which header files must be included?

- `<cstdio>`, `<iostream>` and `<fstream>`.
- `<cstdio>` and `<iostream>`.
- `<cstdio>` and `<fstream>`.
- `<iostream>` and `<fstream>`.

ANS d. `<iostream>` and `<fstream>`.

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Q20: Which file open mode would be used to write data only to the end of an existing file?

- a. `ios::app`
- b. `ios::in`
- c. `ios::out`
- d. `ios::trunc`

ANS a. `ios::app`

Q21: Arrays are:

- a. Always passed by reference.
- b. Passed by reference unless inside a structure.
- c. Passed by reference unless their elements are structures.
- d. Always passed by value.

ANS b. Passed by reference unless inside a structure.

Q22: The most basic unit of data on a computer is the:

- a. Bit.
- b. Byte.
- c. File.
- d. `int`.

ANS: a. Bit.

Q23: Evaluate $(00001000 \ \& \ 11000101) \wedge (11110000)$.

- a. `00001101`
- b. `11000000`
- c. `00111101`
- d. `11110000`

ANS: d. `11110000`