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

   a. A nonconstant pointer to nonconstant data.
   b. A nonconstant pointer to constant data.
   c. A constant pointer to nonconstant data.
   d. A constant pointer to constant data.

\textbf{ANS:} a. \textbf{A nonconstant pointer to nonconstant data.}

Q7: Which of the following gives the number of elements in the array \texttt{int r[ 10 ]}? 

   a. \texttt{sizeof r}
   b. \texttt{sizeof ( *r )}
   c. \texttt{sizeof r / sizeof ( int )}
   d. \texttt{sizeof ( *r ) / sizeof ( int )}

\textbf{ANS:} c. \texttt{sizeof r / sizeof ( int )}

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

   a. 2003
   b. 2006
   c. 2012
   d. 2024

\textbf{ANS:} c. 2012

Q9: Every object of the same class:

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

\textbf{ANS:} b. \textbf{Gets a copy of every member variable.}
Q10: Given the class definition:

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

What will the following program output?

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

a. constructor called, destructor called, constructor called, destructor called,
    b. constructor called, destructor called,
    c. constructor called, constructor called,
    d. 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:

a. Only possible by calling private member functions.
    b. Possible using public functions and references.
    c. Never possible.
    d. 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:

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

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

Q13: static data members of a certain class:

a. Can be accessed only if an object of that class exists.
    b. Cannot be changed, even by objects of the same that class.
    c. Have class scope.
    d. Can only be changed by static member functions.

ANS: c. Have class scope.
Q14: static member functions:
   a. Can use the this pointer.
   b. Can access only other static member functions and static data members.
   c. Cannot be called until an object of their class is instantiated.
   d. 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?
   a. cout.put( 'A' );
   b. cout.put( "A" );
   c. cout.put( 'A' ).put( '\n' );
   d. cout.put( 65 );
ANS: b. cout.put( "A" );

Q16: If unexpected data is processed in an I/O operation:
   a. An exception will be thrown.
   b. An error message will automatically be displayed.
   c. The program will terminate execution.
   d. 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?
   a. The old style of representing true/false values used -1 to indicate false and 1 to indicate true.
   b. A bool value outputs as 0 or 1 by default.
   c. Stream manipulator boolalpha sets the output stream to display bool values as the strings "true" and "false".
   d. 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?
   a. cerr.
   b. cin.
   c. cout.
   d. 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?
   a. <cstdio>, <iostream> and <fstream>.
   b. <cstdio> and <iostream>.
   c. <cstdio> and <fstream>.
   d. <iostream> and <fstream>.
ANS d. <iostream> and <fstream>.
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`.

Q23: Evaluate `( 00001000 & 11000101 ) ^ ( 11110000 )`.
   a. 00001101
   b. 11000000
   c. 00111101
   d. 11110000
ANS: d. 11110000