Chapter 2: Introduction to C++ Programming

Section 2.2 First Program in C++: Printing a Line of Text

2.2 Q1: End-of-line comments that should be ignored by the compiler are denoted using:
a. Two forward slashes (`//`).
b. Three forward slashes (`///`).
c. A slash and a star (`/*`).
d. A slash and two stars (`/**`).
ANS: a. Two forward slashes (`//`).

2.2 Q2: Which of the following does not cause a syntax error to be reported by the C++ compiler?
a. Mismatched `{}`.
b. Missing `*/` in a comment.
c. Missing `;` at the end of a statement.
d. Extra blank lines.
ANS: d. Extra blank lines.

2.2 Q3: Which of the following is not a syntax error?
a.
```
std::cout << 'Hello world! ';
```
b.
```
std::cout << "Hello
                          world! ";
```
c.
```
std::cout << "Hello world! ";
```
d.
```
std::cout << Hello world!;
```
ANS: c.
```
std::cout << "Hello world! ";
```

2.2 Q4: The escape sequence for a newline is:
a. `\n`
b. `\t`
c. `\r`
d. `\a`
ANS: a. `\n`

2.2 Q5: Which of the following statements would display the phrase `C++ is fun`?
a.
```
std::cout << "Thisis fun\rC++ ";
```
b.
```
std::cout << '++ is fun';
```
c.
```
std::cout << "\"C++ is fun\"";
```
d.
```
std::cout << C++ is fun;
```
ANS: a.
```
std::cout << "Thisis fun\rC++ ";
```

Section 2.3 Modifying Our First C++ Program

2.3 Q1: Which of the following is not a valid C++ identifier?
a. `my value`
b. `_AAA1`
c. `width`
d. `m_x`
ANS: a. `my value` (Identifiers may not contain blanks)

2.3 Q2: Which is the output of the following statements?

```
std::cout << "Hello ";
std::cout << "World";
```

a. `Hello World`
b. `World Hello`
c. `Hello`
`World`
d. `World`
`Hello`
ANS: a. `Hello World`

2.3 Q3: Which of the following is the escape character?
a. *
b. \
c. \n
d. “
ANS: b. \

2.3 Q4: Which of the following code segments prints a single line containing `hello there` with the words separated by a single space?
a.
```
std::cout << "hello ";
std::cout << " there";
```
b.
```
std::cout << "hello" ,  " there";
```
c.
```
std::cout << "hello";
std::cout << "there";
```
d.
```
std::cout << "hello";
std::cout << " there";
```
ANS: d.
```
std::cout << "hello";
std::cout << " there";
```

Section 2.4 Another C++ Program: Adding Integers

2.4 Q1: Which of the following is a variable declaration statement?
a. `int total;`
b. `#include <iostream>`
c. `int main()`
d. `// first string entered by user`
ANS: a. `int total;`

2.4 Q2: _____ enables a program to read data from the user.
a. `std::cout`.
b. `std::cin`.
c. A `return` statement.
d. A `main` declaration.
ANS:b. `std::cin`.

2.4 Q3: The assignment operator _____ assigns the value of the expression on its right to the variable on its left.
a. <-.
b. ->.
c. =.
d. #.
ANS: c. =.

2.4 Q4: The `std::endl` stream manipulator:
a. outputs a newline.
b. flushes the output buffer.
c. outputs a newline and flushes the output buffer.

d. terminates the program.
ANS: c. outputs a newline and flushes the output buffer.

Section 2.5 Memory Concepts

2.5 Q1: Which of the following statements does not overwrite a preexisting value stored in a memory location?
a. `int a;.`
b. `number = 12;.`
c. `y = y + 2;.`
d. `width = length;.`
ANS: a. `int a;.`

2.5 Q2: Which of the following statements could potentially change the value of `number2`?
a. `std::cin >> number2;`
b. `sum = number1 + number2;`
c. `number1 = number2;`
d. `std::cout << number2;`
ANS: a. `std::cin >> number2;`

Section 2.6 Arithmetic

2.6 Q1: What is the value of `result` after the following C++ statements execute?

```
int a, b, c, d, result;
a = 4;
b = 12;     c = 37;
d = 51;
result = d % a * c + a % b + a;
```

a. 119.
b. 51.
c. 127.
d. 59.
ANS: a. 119.

2.6 Q2: In what order would the following operators be evaluated

```
-, *, /, +, %
```

Assume that if two operations have the same precedence, the one listed first will be evaluated first.
a. `+, -, /, *, %`
b. `-, +, %, *, /`
c. `-, *, %, +, /`
d. `*, /, %, -, +`
ANS: d. `*, /, %, -, +`

2.6 Q3: Which of the following is not an arithmetic operator?
a. `+`
b. `-`
c. `=`
d. `%`
ANS: c. =

Section 2.7 Decision Making: Equality and Relational Operators

2.7 Q1: What will be the output after the following C++ statements have been executed?

```
int a, b, c, d;
a = 4;
b = 12;
c = 37;
d = 51;

if ( a < b )
   cout << "a < b" << endl;

if ( a > b )
   cout << "a > b" << endl;

if ( d <= c )
   cout << "d <= c" << endl;

if ( c != d )
   cout << "c != d" << endl;
```

a.
```
a < b
c != d
```
b.
```
a < b
d <= c
c != d
```
c.
```
a > b
c != d
```
d.
```
a < b
c < d
a != b
```
ANS: a.
```
a < b
c != d
```

2.7 Q2: Which of the following is a compilation error?
a. Neglecting to declare a local variable in a function before it is used.
b. Using a single equals sign instead of a double equals sign in the condition of an `if` statement.
c. Omitting the left and right parentheses for the condition of an `if` statement.
d. All of the above.
ANS: d. All of the above.

2.7 Q3: Each of the following is a relational or equality operator except:
a. `<=`
b. `=!`
c. `==`
d. `>`
ANS: b. `=!`

Section 2.8 (Optional) Software Engineering Case Study: Examining the ATM Requirements Document

2.8 Q1: The use case diagram models _____.
a. the interactions between a system's client and the system.
b. each software life cycle stage in succession.
c. each software life cycle by repeating one or more stages several times via use cases.

d. the interactions between implementations and testing.
ANS: a. the interactions between a system's client and the system.

2.8 Q2: Which of the following is not an actor of the ATM system?
a. A user who views an account balance.
b. A user who provides requirements for building the ATM system.
c. A user who withdraws cash from the ATM.
d. A user who deposits funds into the ATM.
ANS: b. A user who provides requirements for building the ATM system.

2.8 Q3: Which diagram models system structure?
a. State machine diagram.
b. Class diagram.
c. Activity diagram.
d. Sequence diagram.
ANS: b. Class diagram.

2.8 Q4: Which diagram is also called a collaboration diagram?
a. State machine diagram.
b. Communication diagram.
c. Activity diagram.
d. Sequence diagram.
ANS: b. Communication diagram.