Chapter 2: Basic Elements of C++

TRUE/FALSE

1. In C++, reserved words are the same as predefined identifiers.

   ANS: F PTS: 1 REF: 36

2. The maximum number of significant digits in values of the `double` type is `15`.

   ANS: T PTS: 1 REF: 42

3. The maximum number of significant digits in `float` values is up to 6 or 7.

   ANS: T PTS: 1 REF: 42

4. An operator that has only one operand is called a unique operator.

   ANS: F PTS: 1 REF: 45

5. If a C++ arithmetic expression has no parentheses, operators are evaluated from left to right.

   ANS: T PTS: 1 REF: 46

6. A mixed arithmetic expression contains all operands of the same type.

   ANS: F PTS: 1 REF: 49

7. Suppose `a = 5`. After the execution of the statement `++a;` the value of `a` is `6`.

   ANS: T PTS: 1 REF: 70

8. The escape sequence `\r` moves the insertion point to the beginning of the next line.

   ANS: F PTS: 1 REF: 78

9. A comma is also called a statement terminator.

   ANS: F PTS: 1 REF: 90

10. Suppose that `sum` is an `int` variable. The statement `sum += 7;` is equivalent to the statement `sum = sum + 7;`

    ANS: T PTS: 1 REF: 95

MULTIPLE CHOICE

1. The ____ rules of a programming language tell you which statements are legal, or accepted by the programming language.
   a. semantic
   b. logical
   c. syntax
   d. grammatical

ANS: C PTS: 1 REF: 34

2. Which of the following is a reserved word in C++?
   a. `char`
   b. `Char`
   c. `CHAR`
   d. character

   ANS: A PTS: 1 REF: 36

3. Which of the following is a legal identifier?
   a. `program!`
   b. `program_1`
   c. `1program`
   d. `program 1`

   ANS: B PTS: 1 REF: 36

4. ____ is a valid `int` value.
   a. `46,259`
   b. `46259`
   c. `462.59`
   d. `-32.00`

   ANS: B PTS: 1 REF: 39-40

5. ____ is a valid `char` value.
   a. `-129`
   b. `'A'`
   c. `128`
   d. `129`

   ANS: B PTS: 1 REF: 40

6. An example of a floating point data type is ____.
   a. `int`
   b. `char`
   c. `double`
   d. `short`

   ANS: C PTS: 1 REF: 41

7. The memory allocated for a float value is ____ bytes.
   a. two
   b. four
   c. eight
   d. sixteen

   ANS: B PTS: 1 REF: 42

8. The value of the expression `33/10`, assuming both values are integral data types, is ____.
   a. `0.3`
   b. `3`
   c. `3.0`
   d. `3.3`

   ANS: B PTS: 1 REF: 43-44

9. The value of the expression `17 % 7` is ____.
   a. `1`
   b. `2`
   c. `3`
   d. 4

   ANS: C PTS: 1 REF: 43-44

10. The expression `static_cast<int>(9.9)` evaluates to ____.
    a. `9`
    b. `10`
    c. `9.9`
    d. `9.0`

    ANS: A PTS: 1 REF: 51

11. The expression `static_cast<int>(6.9) + static_cast<int>(7.9)` evaluates to ____.
    a. `13`
    b. `14`
    c. `14.8`
    d. `15`

    ANS: A PTS: 1 REF: 51

12. The length of the string "`computer science`" is ____.
    a. 14
    b. 15
    c. 16
    d. 18

    ANS: C PTS: 1 REF: 54

13. In a C++ program, `one` and `two` are `double` variables and input values are `10.5 and 30.6`. After the statement `cin >> one >> two;` executes, ____.
    a. `one = 10.5, two = 10.5`
    b. `one = 10.5, two = 30.6`
    c. `one = 30.6, two = 30.6`
    d. `one = 11, two = 31`

    ANS: B PTS: 1 REF: 64

14. Suppose that `count` is an `int` variable and `count = 1`. After the statement `count++;` executes, the value of `count` is ____.
    a. `1`
    b. `2`
    c. `3`
    d. `4`

    ANS: B PTS: 1 REF: 70

15. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = --beta;` is equivalent to the statement(s) ____.
    a.
    ```
    alpha = 1 - beta;
    ```
    b.
    ```
    alpha = beta - 1;
    ```
    c.
    ```
    beta = beta - 1;
    alpha = beta;
    ```
    d.
    ```
    alpha = beta;
    beta = beta - 1;
    ```

    ANS: C PTS: 1 REF: 70-71

16. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = beta--;` is equivalent to the statement(s) ____.
    a.
    ```
    alpha = 1 - beta;
    ```
    b.
    ```
    alpha = beta - 1;
    ```
    c.
    ```
    beta = beta - 1;
    alpha = beta;
    ```
    d.
    ```
    alpha = beta;
    beta = beta - 1;
    ```

    ANS: D PTS: 1 REF: 70-71

17. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = beta++;` is equivalent to the statement(s) ____.
    a.
    ```
    alpha = 1 + beta;
    ```
    b.
    ```
    alpha = alpha + beta;
    ```
    c.
    ```
    alpha = beta;
    beta = beta + 1;
    ```
    d.
    ```
    beta = beta + 1;
    ```

```
   alpha = beta;
```

ANS: C PTS: 1 REF: 70-71

18. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = ++beta;` is equivalent to the statement(s) ____.
    a.
    ```
    beta = beta + 1;
    alpha = beta;
    ```
    b.
    ```
    alpha = beta;
    beta = beta + 1;
    ```
    c.
    ```
    alpha = alpha + beta;
    ```
    d.
    ```
    alpha = beta + 1;
    ```

    ANS: A PTS: 1 REF: 70-71

19. Choose the output of the following C++ statement:
    ```
    cout << "Sunny " << '\n' << "Day " << endl;
    ```
    a.
    ```
    Sunny \nDay
    ```
    b.
    ```
    Sunny \nDay endl
    ```
    c.
    ```
    Sunny
    Day
    ```
    d.
    ```
    Sunny \n
    Day
    ```

    ANS: C PTS: 1 REF: 73

20. Which of the following is the newline character?
    a. `\r`
    b. `\n`
    c. `\l`
    d. `\b`

    ANS: B PTS: 1 REF: 73

21. Consider the following code.

```
// Insertion Point 1

using namespace std;
const float PI = 3.14;

int main()
{
    //Insertion Point 2

    float r = 2.0;
    float area;
    area = PI * r * r;

    cout << "Area = " << area <<endl;
    return 0;
 }
// Insertion Point 3
```

In this code, where does the `include` statement belong?
a. Insertion Point 1
b. Insertion Point 2
c. Insertion Point 3
d. Anywhere in the program

ANS: A PTS: 1 REF: 80

22. ____ are executable statements that inform the user what to do.
    a. Variables
    b. Prompt lines
    c. Named constants
    d. Expressions

    ANS: B PTS: 1 REF: 91

23. The declaration `int a, b, c;` is equivalent to which of the following?
    a. `inta , b, c;`
    b. `int a,b,c;`
    c. `int abc;`
    d. `int a b c;`

    ANS: B PTS: 1 REF: 92

24. Suppose that `alpha` and `beta` are `int` variables and `alpha = 5` and `beta = 10`. After the statement `alpha *= beta;` executes, ____.
    a. `alpha = 5`
    b. `alpha = 10`
    c. `alpha = 50`
    d. `alpha = 50.0`

    ANS: C PTS: 1 REF: 94

25. Suppose that `sum` and `num` are `int` variables and `sum = 5` and `num = 10`. After the statement `sum += num` executes, ____.
    a. `sum = 0`
    b. `sum = 5`
    c. `sum = 10`
    d. `sum = 15`

    ANS: D PTS: 1 REF: 95

COMPLETION

1. _____ is the process of planning and creating a program.

   ANS:
   Programming
   programming

   PTS: 1 REF: 28

2. A(n) _____ is a memory location whose contents can be changed.

   ANS: variable

   PTS: 1 REF: 33

3. A(n) _____ is a collection of statements, and when it is activated, or executed, it accomplishes something.

   ANS:
   subprogram
   sub program
   sub-program
   function
   modlue

PTS: 1 REF: 34

4. _____ functions are those that have already been written and are provided as part of the system.

   ANS:
   Predefined
   predefined
   Standard
   standard

   PTS: 1 REF: 34

5. _____ rules determine the meaning of instructions.

   ANS:
   Semantic
   semantic

   PTS: 1 REF: 34

6. _____ can be used to identify the authors of the program, give the date when the program is written or modified, give a brief explanation of the program, and explain the meaning of key statements in a program.

   ANS:
   Comments
   comments

   PTS: 1 REF: 34

7. The smallest individual unit of a program written in any language is called a(n) _____.

   ANS: token

   PTS: 1 REF: 35

8. In a C++ program, _____ are used to separate special symbols, reserved words, and identifiers.

   ANS:
   whitespaces
   whitespace
   white spaces
   white space

   PTS: 1 REF: 37

9. The _____ type is C++ 's method for allowing programmers to create their own simple data types.

   ANS: enumeration

PTS: 1 REF: 38

10. The memory space for a(n) _____ data value is 64 bytes.

    ANS: long long

    PTS: 1 REF: 39

11. The maximum number of significant digits is called the _____.

    ANS: precision

    PTS: 1 REF: 42

12. When a value of one data type is automatically changed to another data type, a(n) _____ type coercion is said to have occurred.

    ANS: implicit

    PTS: 1 REF: 51

13. A(n) _____ is a sequence of zero or more characters.

    ANS: string

    PTS: 1 REF: 53

14. In C++, you can use a(n) _____ to instruct a program to mark those memory locations in which data is fixed throughout program execution.

    ANS:
    named constant
    constant

    PTS: 1 REF: 55

15. A data type is called _____ if the variable or named constant of that type can store only one value at a time.

    ANS: simple

    PTS: 1 REF: 57