1. Which one of the following options refers to a collection of programs that a computer executes?

    A. Software   `Answer`
    B. Assembler
    C. Instructions
    D. Source code

Section Ref	1.1
Title	Which (term) refers to a collection of programs?
section	1.1 What Is Programming?
Difficulty	Easy
id	testbank-bc-2-ch01-1

2. Computers are machines that

    A. Design computer programs
    B. Execute programs   `Answer`
    C. Carry out a very narrow range of tasks
    D. Are imprecise and slow

Section Ref	1.1
Title	What kind of machines are computers?
section	1.1 What Is Programming?
Difficulty	Easy
id	testbank-bc-2-ch01-2

3. Computer programming is

    A. The speed with which a computer operates
    B. The collection of peripheral devices connected to a computer
    C. The storage of data in the form of words and pictures
    D. The act of designing and implementing a computer program   `Answer`

Section Ref	1.1
Title	What is computer programming?
section	1.1 What Is Programming?
Difficulty	Easy
id	testbank-bc-2-ch01-3

4. Consider the following statements regarding computers:

I. Computers can execute a large number of instructions in a fraction of a second.

II. Computer application areas mainly target the research and scientific communities.

III. The physical components of a computer constitute its hardware.

IV. Unlike humans, a computer never gets bored or exhausted on performing repetitive tasks.

Which one of the following options is correct?

    A. Only III is a valid statement.
    B. I and III are valid statements.
    C. I, II, and III are valid statements.
    D. I, III, and IV are valid statements.   `Answer`

Section Ref	1.1
Title	Which statement(s) regarding computers is(are) correct?
section	1.1 What Is Programming?

5. Consider the following statements about computer programs:

I. Computer programs can be written by someone who has a basic knowledge of operating a computer.

II. Computer programs can complete complex tasks quickly.

III. Large and complex computer programs are generally written by a group of programmers.

IV. Computer programs are composed of extremely primitive operations.

Which one of the following options is correct?

    A. II and III are correct statements.
    B. I, II, III, and IV are correct statements.
    C. II, III, and IV are correct statements.   Answer
    D. I and IV are correct statements.

Section Ref	1.1
Title	Which statement(s) regarding computer programs is(are) correct?
section	1.1 What Is Programming?
Difficulty	Easy
id	testbank-bc-2-ch01-5

6.   Writing the program for a computer game with motion, graphics, and sound usually requires

    A.   one brilliant programmer writing a large number of simple instructions
    B.   a team of programmers writing a few complex instructions
    C.   one brilliant programmer writing a few complex instructions
    D.   a team of programmers writing a large number of simple instructions   Answer

Section Ref	1.1
Title	Who writes complex programs?
section	1.1 What Is Programming?
Difficulty	Easy
id	testbank-bc-3-ch01-6

7. The Central Processing Unit is primarily responsible for

    A. Performing program control and data processing   Answer
    B. Ensuring data persists when electrical power is turned off
    C. Enabling a human user to interact with the computer
    D. Interconnecting computers that are separated by distance

Section Ref	1.2
Title	What is the function of a CPU?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-6

8. A single silicon chip made from potentially millions of transistors is called

    A. A Central Processing Unit (CPU)   Answer
    B. Secondary Storage
    C. A Hard Disk
    D. An Optical Disk (such as a DVD)

| Section Ref | 1.2 |

9. An example of an output device that interfaces between computers and humans is

    A. The keyboard
    B. The mouse
    C. The speaker `Answer`
    D. A microphone

Section Ref	1.2
Title	What is an example of an output device that interfaces between humans and computers?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-8

10. An example of an input device that interfaces between computers and humans is

    A. The microphone `Answer`
    B. The monitor
    C. The printer
    D. The speaker

Section Ref	1.2
Title	What is an example of an input device that interfaces between humans and computers?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-9

11. Programs that are not running are usually stored

    A. in the CPU's memory.
    B. on the computer monitor.
    C. in secondary storage. `Answer`
    D. on a backup device that is in a different physical location from the computer.

Section Ref	1.2
Title	Where are programs usually stored when they are not running?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-10

12. When a program begins to run,

    A. It is moved from DVD to hard disk.
    B. It is moved to the CPU's memory. `Answer`
    C. It is moved from the CPU's memory to hard disk.
    D. It must be connected to a computer network.

Section Ref	1.2
Title	What happens when a program begins to run?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-11

13. Which one of the following typically provides data persistence without electricity?

  I. The CPU's memory

II. The hard disk

III. Secondary storage

    A. I, II
    B. I, III
    C. II, III `Answer`
    D. I, II, III

Section Ref	1.2
Title	Which storage type provides data persistence without electricity?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-2-ch01-12

14.   Which best describes the difference between primary and secondary storage?

    A.   primary storage is more expandable, while secondary storage is more flexible
    B.   primary storage is used only by the CPU, while secondary storage is used only by peripherals
    C.   primary storage is simpler to replace than secondary storage if it fails
    D.   primary storage is fast but costly, while secondary is slow, larger and cheaper `Answer`

Section Ref	1.2
Title	Differences between primary and secondary storage
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-3-ch01-14

15.   A network controller is the device in a computer that

    A.   controls the internal network.
    B.   connects the computer to the internet or other network through a wire or wireless. `Answer`
    C.   connects the CPU to peripherals.
    D.   interfaces between a hard disk and other disks such as CDs and USB drives.

Section Ref	1.2
Title	What is a network controller?
section	1.2 The Anatomy of a Computer
Difficulty	Easy
id	testbank-bc-3-ch01-15

16.   The instruction "1011 0011" for a computer is an example of

    A.   assembly language.
    B.   high-level language.
    C.   bit language.
    D.   machine language. `Answer`

Section Ref	1.3
Title	Computer Instruction Types
section	1.3 Machine Code and Programming Languages
Difficulty	Easy
id	testbank-bc-3-ch01-18

17.   The C++ Language

    A.   was introduced in the 1980s.
    B.   is commonly used for embedded systems.
    C.   is commonly used for designing system software such as databases.
    D.   All of the above `Answer`

18. Consider a scenario in which you develop a C++ program on a computer that has a Pentium processor and compile the program into the corresponding machine language. What step should you take to run the same program on a computer that has a different processor?

    A. Copy the compiled machine language instructions to the computer that has a different processor.
    B. Develop the same program again on the computer that has a different processor and recompile the program.
    C. Recompile the C++ program on the computer that has a different processor. Answer
    D. You cannot run the program on a computer with a different processor because C++, being a high-level programming language, is machine dependent.

19. High level programming languages

    A. Are made up primarily of ones and zeros
    B. Are independent of the underlying hardware Answer
    C. Are not standardized
    D. Use syntax that is close to the underlying hardware's instruction set

20. Which one of the following translates high-level descriptions into machine code?

    A. Assembler
    B. Linker
    C. Compiler Answer
    D. Editor

21. Computer scientists have devised something that allows programmers to describe tasks in words that are closer to the syntax of the problems being solved. This is called

    A. Embedded system
    B. Machine instructions
    C. High level programming language Answer
    D. Compiler

22. Small computers that control devices like automobile engines or cellular telephones are called

    A. Embedded systems   `Answer`
    B. Compilers
    C. CPUs
    D. Peripheral devices

Section Ref	1.3
Title	What are small control devices called?
section	1.3 Machine Code and Programming Languages
Difficulty	Easy
id	testbank-bc-2-ch01-17

23. What is one of the benefits of using a high-level programming language like C++?

    A. Its syntax is very similar to the hardware instruction set
    B. No tools other than a text editor are required for programming
    C. Statements in the high-level language are just like English
    D. Problems solved in a high-level language are independent of the underlying computer hardware   `Answer`

Section Ref	1.3
Title	What are the benefits of using high level languages?
section	1.3 Machine Code and Programming Languages
Difficulty	Easy
id	testbank-bc-2-ch01-18

24. What name do you use for small computers that are programmed to control automobile engines and cell phones?

    A. Mainframe computers
    B. Mini computers
    C. Embedded systems   `Answer`
    D. Virtual systems

Section Ref	1.3
Title	What are small computers programmed to control engines and phones called?
section	1.3 Machine Code and Programming Languages
Difficulty	Easy
id	testbank-bc-2-ch01-19

25. An integrated development environment (IDE) bundles tools for programming into a unified application. What kinds of tools are usually included?

    A. An editor and a compiler   `Answer`
    B. A web browser
    C. Presentation tools
    D. A multimedia creation package

Section Ref	1.4
Title	What kinds of tools are included in an IDE?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Easy
id	testbank-bc-2-ch01-20

26. What is the difference between an editor and a compiler?

A. An editor converts program files into an executable program; a compiler allows program files to be written and stored

B. An editor allows program files to be written and stored; a compiler produces an organized list of files

C. An editor allows program files to be written and stored; a compiler produces an indexed database of terms and keywords

D. An editor allows program files to be written and stored; a compiler converts program files into an executable program Answer

Section Ref	1.4
Title	What is the difference between an editor and a compiler?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Easy
id	testbank-bc-2-ch01-21

27. Suppose you define a C++ symbol `MadCitie` and another symbol `Madcitie`. What can be said about these two symbols?

A. Since C++ is case-sensitive, these are considered to be completely distinct Answer

B. Because "citie" is misspelled, the C++ compiler will reject it

C. Since these C++ symbols both have the same letters, they are considered to be the same

D. They are the correct length because all C++ symbols must have exactly eight characters.

Section Ref	1.4
Title	What are some of the rules for defining and understanding variable names in C++?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Easy
id	testbank-bc-2-ch01-22

28. What statements about the integrated development environment (IDE) are true?

I. You may run an executable program even after exiting the IDE

II. The IDE contains a program called the linker, which is required to build an executable program

III. Translating C++ source code into machine code is not enough to actually run the program

A. I, II

B. I, III

C. II, III

D. I, II, III Answer

Section Ref	1.4
Title	What are the steps in building an executable file in C++?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Easy
id	testbank-bc-2-ch01-23

29. Consider the following statements about folders and your integrated development environment (IDE):

I. Hierarchical folders help to organize a project

II. Folders are a way to visualize the layout of a file system

III. Folders make it impossible to lose or accidentally delete a file

A. Only I is correct

B. I, II, and III are correct

C. Only I and II are correct Answer

D. Only III is correct

30.   Which of the following statements regarding backup strategies for C++ files are true?

I. You should back up your projects often to prevent loss of valuable work.

II. You should check your backups only if you have lost your current working copy.

III. Have more than one backup, from various stages of your development work.

    A.   I, II
    B.   I, III   Answer
    C.   II, III
    D.   I, II, III

31.   Which of the following are NOT windows displayed in a typical IDE?

    A.   The compiler

        Answer

    B.   The editor

    C.   The folder/file hierarchy or directory tree

    D.   The message window

32.   Which of the following are NOT types of code used by an IDE?

    A.   Source code
    B.   Machine code
    C.   Native code   Answer
    D.   Library code

33. Which one of the following statements is true about a C++ compiler?

A. It translates the object code into the source code.
B. It translates the library code into the machine code.
C. It translates the source code into the machine code. Answer
D. It translates the machine code into the source code.

Section Ref	1.8
Title	Which statement is true about a C++ compiler?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Easy
id	testbank-bc-2-ch01-62

34. Which one of the following programs combines the machine code with the library code to build an executable file?

A. Assembler
B. Linker Answer
C. Editor
D. Compiler

Section Ref	1.8
Title	Which program combines machine code with library code to build an executable file?
section	1.4 Becoming Familiar with Your Programming Environment
Difficulty	Medium
id	testbank-bc-2-ch01-63

35.   Which one of the following statements is true about C++ syntax?

A.   The semicolon terminates statements. Answer
B.   The double quote character cannot appear within a character string.
C.   The tab character is the only way to produce "whitespace".
D.   The single quote character means the same thing as the double quote character.

Section Ref	1.5
Title	Which statements are true about C++ syntax?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-26

36. Characters that are grouped together between double quotes (quotation marks) in C++ are called

A. keywords
B. syntax
C. symbols
D. strings Answer

Section Ref	1.5
Title	What is the term for characters grouped together and enclosed with quotes in C++?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-27

37.   To include a literal special character, such as the double quote, inside a character string, use the following preceding the character:

A.   a duplicate copy of the same character
B.   the dollar sign $
C.   the backslash Answer
D.   the single quote

Section Ref	Special Topic 1.1

38. The two lines of code below both produce the same output. Why?

```
cout << "Hello" << " Goodbye";
cout << "Hello"     <<       " Goodbye";
```

    A. Since there are no numerical / arithmetic operators, the spaces don't matter.
    B. In fact, the two statements do not produce the same output.
    C. Spacing between symbols in C++ doesn't affect statements.   Answer
    D. Because there are no escape characters.

Section Ref	1.5
Title	Why do the example lines of code behave the way they do (understanding whitespace)?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-29

39. What is the output from this code snippet?

```
cout << "The sum is " << "8 + 6";
```

    A. The sum is 14
    B. The sum is 48
    C. The sum is 2
    D. The sum is 8 + 6   Answer

Section Ref	1.5
Title	What is the output from this code? (arithmetic statements versus character strings)
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-30

40. Which of the following statements should you include in a C++ program that performs an input or output operation with `cin` and/or `cout`?

I. `using namespacestd;`

II. `#include<iostream>`

III. `int main()`

IV. `#include "iostream"`

    A.   II only
    B.   All of the above
    C.   II and III only
    D.   I, II, and III   Answer

Section Ref	1.5
Title	Which statements should you include in program with input/output operations?
from	testbank-bc-2-ch01-31
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-3-ch01-43

41. What is the output of the following code snippet?

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

int main()
{
    cout << "Goodbye" << endl << "Come again" << endl;
    return 0;
}
```

A. `Goodbye Come again`

B. `Goodbye`

   `Come again`

   Answer

C. `Goodbye`

   `Come again`

D. No output due to compilation errors

Section Ref	1.5
Title	What is output of code snippet (using cout and endl)?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-32

42. Which one of the following code snippets compiles without errors and displays the output "`hello`" on the screen?

A.
```
#include <iostream>
using namespace std;
int main();
{
    cout << hello << endl;
    return 0;
}
```

B.
```
#include <iostream>
using namespace std;
int main();
{
    cout << 'hello' << endl;
    return 0;
}
```

C.
```
#include <iostream>
using namespace std;
int main()
{
    cout << "hello" << endl;
    return 0;
}
```

   Answer

D.
```
#include <iostream>
using namespace std;
int main()
{
```

```
        cout << "hello" << "endl";
        return 0;
    }
```

43. Which one of the given code snippet represents the correct way to print the following output?

HI

"HELLO"

A.
```
#include <iostream>
using namespace std;
int main()
{
   cout << HI << endl << "HELLO" << endl;
   return 0;
}
```

B.
```
#include <iostream>
using namespace std;
int main()
{
   cout << "HI << endl << HELLO";
   return 0;
}
```

C.
```
#include <iostream>
using namespace std;
int main()
{
   cout << 'HI' << endl << '"HELLO"';
   return 0;
}
```

D.
```
#include <iostream>
using namespace std;
int main()
{
   cout << "HI" << endl << "\"HELLO\"" << endl;
   return 0;
}
```

Answer

44. What is the output of the following code snippet?

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

int main()
{
```

```
    cout << 2 * 2 << 6;
    return 0;
}
```

    A. 2 * 26
    B. 226
    C. 46 Answer
    D. 4 6

Section Ref	1.5
Title	TB 1.14 What is output of snippet (with expressions sent to cout)?
section	1.5 Analyzing Your First Program
Difficulty	Medium
id	testbank-bc-2-ch01-35

45.   Which of the following statements is valid regarding `endl`?

I. The `endl` symbol denotes the end of line marker.

II. When the end of line marker is sent out to `cout`, the cursor is moved to the first column in the next screen row.

III. `endl` is included inside double quotes if the `cout` contains a string.

    A.   I only.
    B.   II only,
    C.   I and II only Answer
    D.   I, II and III.

Section Ref	1.5
Title	Which statement is true about the usage of endl?
from	testbank-bc-2-ch01-36
section	1.5 Analyzing Your First Program
Difficulty	Medium
id	testbank-bc-3-ch01-48

46. Which of the following symbols is used to terminate a C++ program statement?

    A. Colon
    B. Semicolon Answer
    C. Single quote
    D. Period

Section Ref	1.5
Title	Which symbol is used to terminate a C++ program statement?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-37

47.   Which of the following statements is valid with respect to semicolons in C++?

    A.   A semicolon is used to denote the end of a statement. Answer
    B.   A semicolon is used to terminate the `#include` statement.
    C.   You cannot use a semicolon to terminate the "`using namespace`" statement.
    D.   You cannot put a semicolon within double quotation marks.

Section Ref	1.5
Title	Which statement is true about semicolon usage?
from	testbank-bc-2-ch01-38
section	1.5 Analyzing Your First Program

48.   Which of the following statements are valid with respect to the `main` function?

    A.   The opening and closing parentheses after the function name `main` are optional.
    B.   A semicolon is required after the declaration `int main()`
    C.   A semicolon is required after the closing curly braces of the `main` function.
    D.   Every executable C++ program has a `main` function.   Answer

49. Which of the given `cout` statements generates the following output?

    ///"\\\

    A. `cout << "///"\\\" << endl;`
    B. `cout << "///\"\\\\\\" << endl;`   Answer
    C. `cout << "//////""\\\\\\" endl;`
    D. `cout << ///"\\\ << endl;`

50.   Which of the following statements enables the use of input and output operations in a C++ program?

    A.   `using namespace std;`
    B.   `#include <iostream>`   Answer
    C.   `int main()`
    D.   `return 0;`

51.   What is the output of the following code snippet?

```
#include <iostream>
using namespace std;
int main()
{
   cout << "Hello\n" << " Good Day!" << endl;
   return 0;
}
```

    A.   Hello \n Good Day!

    B.   Hello

        Good Day!

C.   Hello

Good

Day!

D.   No output due to compilation errors

Section Ref	1.5
Title	What is output of snippet (with cout, and endl)?
from	testbank-bc-2-ch01-43
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-3-ch01-55

52. Which one of the following code snippets compiles without errors and displays the output "Hello world" on the screen?

A.
```cpp
#include <iostream>
using namespace std;
int main();
{
   cout << Hello world << endl;
   return 0;
}
```

B.
```cpp
#include <iostream>
using namespace std;
int main();
{
   cout << 'Hello world' << endl;
   return 0;
}
```

C.
```cpp
#include <iostream>
using namespace std;
int main()
{
   cout << "Hello world" << endl;
   return 0;
}
```

D.
```cpp
#include <iostream>
using namespace std;
int main()
{
   cout << "Hello world" << "endl";
   return 0;
}
```

Section Ref	1.5
Title	Which snippet compiles without errors and displays "Hello world"?
section	1.5 Analyzing Your First Program
Difficulty	Easy
id	testbank-bc-2-ch01-44

53. Which one of the given code snippets represents the correct way to print the following output?

GOOD MORNING

"AMERICA"

A.
```cpp
#include <iostream>
using namespace std;
int main()
{
    cout << GOOD MORNING << endl << "AMERICA" << endl;
    return 0;
}
```

B.
```cpp
#include <iostream>
using namespace std;
int main()
{
    cout << "GOOD MORNING << endl << AMERICA";
    return 0;
}
```

C.
```cpp
#include <iostream>
using namespace std;
int main()
{
    cout << 'GOOD MORNING' << endl << '"AMERICA"';
    return 0;
}
```

D.
```cpp
#include <iostream>
using namespace std;
int main()
{
    cout << "GOOD MORNING" << endl << "\"AMERICA\"" << endl;
    return 0;
}
```

Answer

Section Ref	1.5
Title	Which snippet correctly prints (output on two lines)?
section	1.5 Analyzing Your First Program
Difficulty	Medium
id	testbank-bc-2-ch01-45

54. What is the output of the following code snippet?

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

int main()
{
    cout << 4 * 4 << 12;
    return 0;
}
```

A. 4 * 412
B. 4412
C. 1612 Answer
D. 28

Section Ref	1.5
Title	What is output of snippet (with expressions sent to cout)?
section	1.5 Analyzing Your First Program

55. What is the output of the following code snippet?

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

int main()
{
   cout << "\"cout << endl\" prints out a new line to " << endl;
   cout << "the standard output stream" << endl;
   return 0;
}
```

    A. The code snippet gives a compilation error because the `cout` statement is inside the quotation marks

    B. `cout` prints out a new line to

       the standard output stream

    C. `cout << endl` prints out a new line to

       the standard output stream

    D. `"cout << endl"` prints out a new line to

       the standard output stream

       Answer

56. Which of the given `cout` statements generates the following output?

    \\\"///

    A. `cout << "\\\"///" << endl;`
    B. `cout << "\\\\\\\"///" << endl;`   Answer
    C. `cout << "\\\\\\""//////" endl;`
    D. `cout << \\\"/// << endl;`

57. What, if anything, is wrong with the following code snippet?

```cpp
cout << "Hello, World!" << endl
return 0;
```

    A.   The double quotes should be single quotes.
    B.   The `<` `<` symbols are in the wrong direction, and should be `>` `>`.
    C.   There is a missing semicolon.   Answer

D.   Nothing is wrong with the snippet.

58. What is the output of the following code snippet?

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

int main()
{
   cout << "cout << endl prints out a new line to " << endl
      << "the standard output stream" << endl;
   return 0;
}
```

A. The code snippet gives a compilation error because the `cout` statement is inside the quotation marks

B. `cout` prints out a new line to

   the standard output stream

C. `cout << endl` prints out a new line to

   the standard output stream

   Answer

D. prints out a new line to

   the standard output stream

59.   What is an equivalent way to produce the same output as the following single statement?

```cpp
cout << "Hello, World!" << endl;
```

A.   `cout << "Hello, World!\n";`
B.   `cout << "Hello, "; cout << "World!" << endl;`
C.   `cout << "Hello, Wor"; cout << "ld!\n";`
D.   All of the above   Answer

60. What kind of error is it when your program has a syntax error?

   A. Compile-time error   Answer
   B. Logic error

C. Run-time error

D. Exception

61. When a compiler finds a syntax error in a program, what happens?

    A. The compiler goes ahead and produces an executable program but leaves out the statement where there was an error.
    B. The compiler stops immediately.
    C. The compiler requests input from the user before it will continue.
    D. The compiler continues and may report about other errors but does not produce an executable file.   Answer

62. What kind of error is created by the following code snippet?

```
coutt << "Hello, World!" << endl;
```

    A. No error: the code is correct
    B. Logic error: the program will run until it comes to this statement
    C. Syntax error: the program will not compile   Answer
    D. Exception: the statement will generate an exception

63. What kind of error is created by the following code snippet?

```
cout << "The sum of 8 and 12 is " << 8 * 12 << endl;
```

    A. No error: the code is correct
    B. Logic error: the program does not produce the desired result   Answer
    C. Syntax error: the code will not compile
    D. Exception: the statement will generate an exception

64. What is a logic error?

    A. An error that occurs when a program is running because, for example, the wrong operator was used.   Answer
    B. An error in a statement that does not conform to the syntax of the programming language.
    C. An error in the hardware from overheating.

D. An error introduced by the compiler when it guesses at how to fix a syntax error.

Section Ref	1.6
Title	What is the definition of a logic error?
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-2-ch01-53

65.   How do programmers find exceptions and run-time errors?

    A.   Running the compiler and examining output messages
    B.   Testing the compiled program with a variety of input values   Answer
    C.   Carefully reading over the program code
    D.   Compiling with the run-time-error detection option activated

Section Ref	1.6
Title	How do programmers find exceptions and run-time errors?
from	testbank-bc-2-ch01-54
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-3-ch01-68

66. The programmer, not the compiler, is responsible for testing a program to identify

    A. Syntax errors
    B. Compile-time errors
    C. Run-time errors   Answer
    D. Undefined symbols

Section Ref	1.6
Title	Who is responsible for what (programmer vs. compiler)?
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-2-ch01-55

67. Which one of the following errors represents a part of a program that is incorrect according to the rules of the programming language?

    A. Syntax errors   Answer
    B. Run-time errors
    C. Logic errors
    D. Out-of-memory errors

Section Ref	1.6
Title	Which kind of error violates rules of the programming language?
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-2-ch01-56

68.   Which of the following statements would generate a compile-time error?

    A.   cout << "eleven" << endl;
    B.   cout << eleven << endl;   Answer
    C.   cout << 4 + 7 << endl;
    D.   cout << "4 + 7" << endl;

Section Ref	1.6
Title	Which of the following statements would generate a compile-time error?
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-3-ch01-71

69.　　Which of the following statements represents a logic error, but not a compile-time error?

A.　　`cout << "The sum of 5 and 6 is 10" << endl;`　Answer
B.　　`cout << The sum of 5 and 6 is 10 << endl;`
C.　　`cout << "The sum of 5 and 6 is 11" << endl;`
D.　　`cout << "The sum of 5 and 6 is " << 5 + 6 << endl;`

Section Ref	1.6
Title	Which of the following statements represents a logic error, but not a compile-time error?
section	1.6 Errors
Difficulty	Easy
id	testbank-bc-3-ch01-72

70. The following code snippet is written to calculate the miles per gallon of two cars and print out both values.

```cpp
#include <iostream>
using namespace std;
int main()
{
   int miles1 = 420;
   int miles2 = 500;
   int gallons1 = 10;
   int gallons2 = 15;

   cout << miles1 / gallons1 << endl;
   cout << miles1 / gallons2 << endl;
   return 0;
}
```

Based on the given code snippet, identify the correct statement:

A. The output is correct, and there are no errors.
B. The mileage of the first car is calculated correctly, but the mileage of the second car is incorrect due to a logic error.　Answer
C. The mileage of the second car is calculated correctly, but the mileage of the first car is incorrect due to a logic error.
D. The mileage of both cars is incorrect due to a logic error.

Section Ref	1.7
Title	Which is true about this snippet that calculates and prints mpg?
section	1.6 Errors
Difficulty	Hard
id	testbank-bc-2-ch01-57

71. What is the error in the following code snippet, which is used for calculating the average score for a student in three subjects?

```cpp
#include <iostream>

int main()
{
   int subject1 = 75;
   int subject2 = 65;
   int subject3 = 70;

   int average = subject1 + subject2 + subject3 / 3;

   cout << "The average is " << average;
```

```
        return 0;
    }
```

A. The code snippet has a syntax error from an incorrect use of arithmetic operators.
B. The code snippet has a logic error.   Answer
C. The code snippet uses variable names that are not allowed in C++.
D. There is no error; the code snippet is completely accurate.

Section Ref   1.7
Title   Is there an error in snippet that calculates average score?
section   1.6 Errors
Difficulty   Hard
id   testbank-bc-2-ch01-58

72. Who or what is responsible for inspecting and testing the program to guard against logic errors?

A. Programmer   Answer
B. Linker
C. Compiler
D. End-user

Section Ref   1.7
Title   Who/what is responsible for ... guarding against logic errors?
section   1.6 Errors
Difficulty   Easy
id   testbank-bc-2-ch01-59

73. While developing a program, the programmer adds the discount amount to the total payable instead of reducing the discount amount from the total. What type of an error does this denote?

A. A syntax error
B. A logic error   Answer
C. A human error
D. A compilation error

Section Ref   1.7
Title   What type of error is (adding instead of subtracting)?
section   1.6 Errors
Difficulty   Medium
id   testbank-bc-2-ch01-60

74. What type of error can you identify in the following code snippet?

```
#include <iostream>

int main
{
    int a = 10;
    int b = 20;
    int c = a + b;
    return 0;
}
```

A. A logic error.
B. A syntax error.   Answer
C. A run-time error.
D. No errors; the code snippet is completely accurate.

Section Ref   1.7
Title   What type of error is in this snippet?
section   1.6 Errors
```

75.    What if anything is wrong with the following code?

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

int Main()
{
   cout << "Hello, World!" << endl;
   return 0;
}
```

A.   Nothing is wrong.
B.   It is missing a semicolon.
C.   `Main` should be lowercase `main`.
D.   Both b and c are correct.   Answer

Section Ref	1.6: Common Error 1.2
Title	What if anything is wrong with the following code?
section	Common Error 1.2 Misspelling Words
Difficulty	Easy
id	testbank-bc-3-ch01-73

76. What is the purpose of the following algorithm?

```
num = 0
Repeat the following steps 10 times
   input var1
     if var1 > num then
        num = var1
     end of if
end of repeat
print num
```

A. To find the highest among 10 numbers   Answer
B. To print out the 10 numbers
C. To find the smallest among 10 numbers
D. To search for a particular number among 10 numbers

Section Ref	1.9
Title	What is the purpose of this algorithm?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Medium
id	testbank-bc-2-ch01-64

77.   Consider a situation where you are buying books online. The bookseller charges $19.95 as the price per book and $4.95 as the handling cost for up to three books. For every book purchased in addition to three books, there is a handling charge of $1.50. In addition, there is a 7% tax on the cost of the books but not on the handling charges. Assuming that `num_books` represents the number of books you are purchasing, which of the following is the correct algorithm for calculating the total cost of the books that you are purchasing?

A. Total charge for the books = 4.95 * num_books
    Tax on the books = num_books * .7

if (books <= 3) then Handling charges = 4.95
else Handling charges = 1.50 * num_books
Total cost of order = total charge for books + tax + handling charges

B. Total charge for the books = 4.95 * num_books
Tax on the books = num_books * .07
if (books <= 3) then Handling charges = 4.95
else Handling charges = 1.50 * num_books
Total cost of order = total charge for books + tax + handling charges

C. Total charge for the books = 4.95 * num_books
Tax on the books = num_books * .07
if (books < 3) then Handling charges = 4.95
else Handling charges = 4.95 + 1.50 * (num_books – 3)
Total cost of order = total charge for books + tax + handling charges

D. Total charge for the books = 4.95 * num_books
Tax on the books = Total charge for the books * .07
if (books <= 3) then Handling charges = 4.95
else Handling charges = 4.95 + 1.50 * (num_books – 3)
Total cost of order = total charge for books + tax + handling charges

Answer

Section Ref	1.7
Title	Which is the correct algorithm for calculating total cost with tax/shipping?
from	testbank-bc-2-ch01-65
section	1.7 Problem Solving: Algorithm Design
Difficulty	Hard
id	testbank-bc-3-ch01-80

78. Consider a situation where you are planning on purchasing a new cell phone. You are considering two cell phones. These cell phones have different purchase prices. Each mobile service provider charges a different rate for each minute that the cell phone is used. To determine which cell phone is the better buy, you need to develop an algorithm to calculate the total cost of purchasing and using each cell phone. What are all the inputs needed for this algorithm?

   A. The cost of each cell phone and the rate for each minute for each cell phone
   B. The cost of each cell phone and the number of minutes provided with each cell phone
   C. The cost of each cell phone, the rate per minute for each cell phone, and the number of minutes provided with each cell phone
   D. The cost of each cell phone, the rate per minute for each cell phone, and the number of minutes you would use the cell phone   Answer

Section Ref	1.9
Title	Which inputs do you need to calculate cost of purchasing/using cell phone?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Medium
id	testbank-bc-2-ch01-66

79. Which one of the following methodologies is a sequence of precise steps formulated in English for solving a problem?

A. Flowcharts
B. Pseudocode <mark>Answer</mark>
C. Algorithms
D. Terminations

80.   Consider a situation where you are assigned to develop an algorithm to calculate the total cost of a purchase order that contains several items. The cost of each item and the tax rate is known. The standard shipping charge for the entire order is $4.95, and the special delivery charge is $19.95. In addition, there is no tax on the shipping cost. Which of the following is the correct pseudocode for the required algorithm?

A. For each item on the purchase order:
   Order cost = order cost + item cost
   Total purchase order cost = order cost + tax rate + 4.95

B. For each item on the purchase order:
   Order cost = order cost + item cost
   If standard shipping
     Shipping cost = 4.95
   Else
     Shipping cost = 19.95
   Total purchase order cost = order cost * tax rate + shipping cost

   <mark>Answer</mark>

C. If standard shipping
     Shipping cost = 4.95
   Else
     Shipping cost = 19.95
   For each item on the purchase order:
     Order cost = order cost + item cost + shipping cost
   Total purchase order cost = order cost * tax rate

D. If special delivery
     Shipping cost = 4.95
   Else
     Shipping cost = 19.95
   For each item on the purchase order:
     Order cost = order cost + item cost
   Total purchase order cost = order cost * tax rate + shipping cost

81. Consider the given scenario for describing an algorithm using pseudocode.

UML Supermarket has different ways of awarding discounts to its customers for each purchase they make. A 10% discount is given on the total value of the purchase. In addition, a standard loyalty discount is given if customers have a permanent customer card. Your program should indicate the amount payable by the customer after the discounts. Identify the inputs that the program requires from the given set of options.

I. The discount percentage

II. The total value of the purchase

III. The loyalty-discount amount

IV. The customer card number

V. The amount payable after discount

    A. I, II, and III
    B. I and III
    C. II, IV, and V
    D. II and IV   Answer

82.   Evaluate the given pseudocode to calculate the payment (pmt) with the following test values:

The total number of hours worked (working_hours) = 50

The rate paid for hourly work (rate) = 10

```
input working_hours
input rate
pmt = working_hours * rate
if working_hours > 45 then
  extra_hours = working_hours – 45
  extra_pmt = extra_hours * rate * 2
  pmt = pmt + extra_pmt
end if
output pmt
```

    A.   400
    B.   500
    C.   600   Answer
    D.   1,000

83.   The following code snippet is written to calculate the kilometers per liter of two cars and print out both values.

```cpp
#include <iostream>
using namespace std;
int main()
{
   int km1 = 600;
   int km2 = 800;
   int lit1 = 15;
   int lit2 = 20;

   cout << "Car 1: " << km1 / lit2 << endl;
   cout << "Car 2: " << km2 / lit2 << endl;
   return 0;
}
```

Based on the given code snippet, identify the correct statement:

   A.   The output is correct, and there are no errors.
   B.   There is a logic error, but the mileage of the first car in this case still ends up correct, while the mileage of the second car is incorrect
   C.   There is a logic error, but the mileage of the second car in this case still ends up correct, while the mileage of the first car is incorrect   Answer
   D.   There is a logic error and the mileage of both cars ends up incorrect as a result

Section Ref	1.7
Title	Which is true about this snippet that calculates and prints km per liter?
from	testbank-bc-2-ch01-71
section	1.7 Problem Solving: Algorithm Design
Difficulty	Hard
id	testbank-bc-3-ch01-86

84.   Is there any error in the following code snippet, which is used for calculating the average age for a group of three students?

```cpp
#include <iostream>

int main()
{
   int age1 = 15;
   int age2 = 18;
   int age3 = 24;

   int average = (age1 + age2 + age3) / 3;

   cout << "The average is " << average;

   return 0;
}
```

   A.   Yes, the code snippet has a syntax error.
   B.   Yes, the code snippet has a logic error.
   C.   Yes, the code snippet has a run-time error.
   D.   No error; the code snippet is completely accurate.   Answer

| Section Ref | 1.7 |

85. What is the purpose of the following algorithm?

```
somenum = 0
Repeat the following steps 50 times
  input variable1
    if variable1 > somenum then
      somenum = variable1
    end of if
end of repeat
print somenum
```

    A. To find the highest among 50 numbers Answer
    B. To print out the 50 numbers
    C. To find the smallest among 50 numbers
    D. To search for a particular number among 50 numbers

86.   Consider a situation where you are buying videos online. The video seller charges $21.50 as the price per video and $6.75 as the handling cost for up to three videos. For every video purchased in addition to three videos, there is a handling charge of $1.50. In addition, there is a 9% tax on the cost of the videos but not on the handling charges. Assuming that `num_videos` represents the number of videos you are purchasing, which of the following is the correct algorithm for calculating the total cost of the videos that you are purchasing?

    A. Total charge for the videos = 21.50 * num_videos
       Tax on the videos = num_videos * .9
       if (num_videos <= 3) then Handling charges = 6.75
       else Handling charges = 1.50 * num_videos
       Total cost of order = total charge for videos + tax + handling charges

    B. Total charge for the videos = 21.50 * num_videos
       Tax on the videos = num_videos * .09
       if (num_videos <= 3) then Handling charges = 6.75
       else Handling charges = 1.50 * num_videos
       Total cost of order = total charge for videos + tax + handling charges

    C. Total charge for the videos = 21.50 * num_videos
       Tax on the videos = num_videos * .09
       if (num_videos < 3) then Handling charges = 6.75

else Handling charges = 6.75 + 1.50 * (num_videos – 3)
        Total cost of order = total charge for videos + tax + handling charges

   D. Total charge for the videos = 21.50 * num_videos
      Tax on the videos = total charge for videos * .09
      if (num_videos <= 3) then Handling charges = 6.75
      else Handling charges = 6.75 + 1.50 * (num_videos – 3)
      Total cost of order = total charge for videos + tax + handling charges

   Answer

Section Ref	1.7
Title	Which is the correct algorithm for calculating total cost with tax/shipping?
from	testbank-bc-2-ch01-74
section	1.7 Problem Solving: Algorithm Design
Difficulty	Hard
id	testbank-bc-3-ch01-89

87. Consider a situation where you are planning on purchasing a new cable TV dish. You are considering two cable TV dishes. These cable TV dishes have different purchase prices. Each channel service provider charges a different rate for each month that the cable TV dish is used. To determine which cable TV dish is a better buy, you need to develop an algorithm to calculate the total cost of purchasing and using each cable TV dish. What are all of the inputs that you need for this algorithm?

   A. The cost of each cable TV dish and the rate for each month for using each cable TV dish
   B. The cost of each cable TV dish and the number of months provided with each cable TV dish
   C. The cost of each cable TV dish, the rate per month for using each cable TV dish, and the number of months provided with each cable TV dish
   D. The cost of each cable TV dish, the rate per month for using each cable TV dish, and the number of months you would use the cable TV dish   Answer

Section Ref	1.7
Title	Which inputs do you need to calculate cost of purchasing/using cable dish?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Medium
id	testbank-bc-2-ch01-75

88.   Consider a situation where you are assigned to develop an algorithm to calculate the total cost of a purchase order that contains several T shirts. The cost of each T shirt and the tax rate is known. The standard shipping charge for the entire order is $5.75, and the special delivery charge is $23.65. In addition, there is no tax on the shipping cost. Which of the following is the correct pseudocode for the required algorithm?

   A. For each T shirt on the purchase order:
      Order cost = order cost + T shirt cost
      Total purchase order cost = order cost + tax rate + 5.75

   B. For each T shirt on the purchase order:
      Order cost = order cost + T shirt cost
      If standard shipping
         Shipping cost = 5.75
      Else

Shipping cost = 23.65
Total purchase order cost = order cost * tax rate + shipping cost

Answer

C. If standard shipping
    Shipping cost = 5.75
Else
    Shipping cost = 23.65
For each T shirt on the purchase order:
    Order cost = order cost + T shirt cost + shipping cost
Total purchase order cost = order cost * tax rate

D. If special delivery
    Shipping cost = 5.75
Else
    Shipping cost = 23.65
For each T shirt on the purchase order:
    Order cost = order cost + T shirt cost
Total purchase order cost = order cost * tax rate + shipping cost

Section Ref	1.7
Title	Which is the correct pseudocode for algorithm to calculate total cost?
from	testbank-bc-2-ch01-76
section	1.7 Problem Solving: Algorithm Design
Difficulty	Medium
id	testbank-bc-3-ch01-91

89. Consider the given scenario for describing an algorithm using pseudocode.

WALMART Supermarket has different ways of awarding discounts to its customer IDs for each purchase they make. An 8% discount is given on the total value of the purchase. In addition, a standard loyalty discount is given if customers have a permanent customer ID card. Your program should indicate the amount payable by the customer after the discounts. Identify the inputs that the program requires from the given set of options.

I. The discount percentage

II. The total value of the purchase

III. The loyalty-discount amount

IV. The customer ID card number

V. The amount payable after discount

    A. I, II, and III
    B. I and III
    C. II, IV, and V
    D. II and IV   Answer

Section Ref   1.7

90. Evaluate the given pseudocode to calculate the payment (`pmt`) with the following test values:

The total number of hours worked (`working_hours`) = 60

The rate paid for hourly work (`rate`) = 15

```
input working_hours
input rate
pmt = working_hours * rate
if working_hours > 40 then
   extra_hours = working_hours – 40
   extra_pmt = extra_hours * rate * 2
   pmt = pmt + extra_pmt
end of if
output pmt
```

    A. 900
    B. 1,200
    C. 1,500 Answer
    D. 1,800

Section Ref	1.7
Title	Evaluate this pseudocode with these test values.
section	1.7 Problem Solving: Algorithm Design
Difficulty	Hard
id	testbank-bc-2-ch01-78

91.   Which of the following is NOT a requirement for the characteristics of a good algorithm?

    A.   It is simple. Answer
    B.   It is unambiguous.
    C.   It is executable.
    D.   It terminates.

Section Ref	1.7
Title	Which of the following is NOT a requirement for the characteristics of a good algorithm?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Easy
id	testbank-bc-3-ch01-94

92.   An algorithm should be written first in:

    A.   English.
    B.   pseudocode. Answer
    C.   C++.
    D.   a generic programming language.

Section Ref	1.7
Title	How to write an algorithm
section	1.7 Problem Solving: Algorithm Design
Difficulty	Easy

93.   An algorithm should be written first in:

    A.   English.
    B.   pseudocode.   `Answer`
    C.   C++.
    D.   a generic programming language.

Section Ref	1.7
Title	Which of the following is NOT part of the software development process?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Easy
id	testbank-bc-3-ch01-96

94.   What is wrong with this algorithm for sorting a deck of playing cards according to suit?

Pick up the top card from the deck
Put it into the pile corresponding to its suit (heart, diamond, spade, club)
Repeat

    A.   It is ambiguous.
    B.   It is not executable.
    C.   It is not terminating.   `Answer`
    D.   Nothing is wrong.

Section Ref	1.7
Title	What is wrong with this algorithm for sorting a deck of playing cards according to suit?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Easy
id	testbank-bc-3-ch01-97

95.   What is the correct order for the following steps in creating an algorithm?

D. Describe each task with pseudocode
T. Test the pseudocode on a sample set of inputs
B. Break down the problem into small tasks
L. List the inputs and outputs

    A.   The order does not matter.
    B.   D, T, L, B
    C.   B, D, L, T
    D.   L, B, D, T   `Answer`

Section Ref	1.7
Title	What is the correct order for the following steps in creating an algorithm?
section	1.7 Problem Solving: Algorithm Design
Difficulty	Easy
id	testbank-bc-3-ch01-98

96.   Say you are writing an algorithm to arrange tiles to fill a rectangular floor with alternating black and white tiles. What would be the required inputs to the algorithm?

    A.   The total floor area and each tile's area
    B.   The number of tiles available and the floor area
    C.   The length and width of the floor and of the tiles   `Answer`
    D.   A and C both are required inputs

97.   What is the problem with the following algorithm?

Repeat a number of times
    Add sales amount to total sales.

    A.   The algorithm has a Repeat instruction, but statements in a program cannot be repeated.
    B.   The Add statement in the algorithm is not executable.
    C.   The Add statement in the algorithm does not clearly specify what is to be added.
    D.   The algorithm is ambiguous because it does not specify how many times to repeat the Add
    statement. Answer

Section Ref   1.7
Title   What is the problem with the following algorithm?
section   1.7 Problem Solving: Algorithm Design
Difficulty   Easy
id   testbank-bc-3-ch01-100