Contents

Warm-up Exercises

Questions

1. Give two examples of instant messaging applications.

2. How many bits are in one byte?

3. Why are "ancient" programming languages like COBOL and FOR-TRAN still in use?

#: The least significant (rightmost) bit of even numbers in binary representation is 1. _____

#: Commands for managing the IDE and for developing, maintaining and executing programs are contained in the menus, which are located on the menu bar. _____

#: Is the following statement true: 010000 < 001111? _____

#: You can browse the web from within the Visual Studio Community environment. _____

#: Visual Studio Enterprise can be used to create apps only in C#. _____

#: High-level computer languages are easily understood by a computer without any need of translation. _____

#: An assembler converts assembly language programs into machine language. _____

#: Is the role of CPU to govern computing devices and processes? _____

#: Was Windows system developed in sixties? _____

#: Do console applications provide visual environment? _____

1. Computers process data, using sets of instructions called …

☐ specifications
☐ computer programs
☐ recipes
☐ hardware

1. _____ Law states that every year or two, the computing power of computers doubles without any increase in price.

☐ Gate's
☐ Moore's
☐ Henderson's
☐ None of the above.

1. The main purpose of the AUL unit is: _____.

☐ to store permanent data
☐ to store temporary data
☐ to cool the computer down and prevent overheating
☐ to perform calculations and logical comparisons for the computer

1. Binary code is: _____.

☐ a complex, but easy to use, modern programming language
☐ a series of 0s and 1s
☐ high-level machine language instructions
☐ a series of characters representing the numbers 0 to 9

1. The order of simplicity (easiest to hardest) to a human of the three basic types of languages is: _____.

☐ high-level, assembly, machine
☐ assembly, machine, high-level
☐ machine, high-level, assembly
☐ machine, assembly, high-level

1. Which of the following is *true*: C# _____.

☐ is object oriented
☐ contains a powerful class library
☐ is not limited to web-based applications
☐ all of the above

1. Visual C# programs are created using Microsoft's Visual Studio–a collection of software tools called a(n) _____.

☐ operating system
☐ Integrated Programming Environment
☐ Integrated Development Environment
☐ Class Library

1. The purpose of the Visual Studio Enterprise is to _____.

☐ create a program
☐ run a program
☐ debug a program
☐ all of the above

1. This menu contains commands for opening projects, closing projects, printing project data, etc.

☐ View menu
☐ Edit menu
☐ Tools menu
☐ File menu

1. A single line comment in C# begins with which double symbol?

☐ **
☐ //
☐ ##
☐ $$

1. Which method is the starting point of any C# program?

☐ Open
☐ Main
☐ Start
☐ none of these.

1. All statements in C# end with:

☐ semicolon
☐ colon
☐ comma
☐ full stop

1. Violations of language rules are referred to as:

☐ semantic errors
☐ syntax errors
☐ run-time errors
☐ none of these

1. What operator is used to denote remainder (modulo) operation?

☐ &
☐ %
☐ #
☐ @

1. Which of the following is in highest-to-lowest order of operator precedence?

☐ multiplication, division, parentheses
☐ addition, subtraction, division
☐ parentheses, multiplication, addition
☐ none of these

1. In C# code: `Console.WriteLine($"Initial value is: {myAccount.GetNumber()}");` which method is called (executed) first?

☐ WriteLine()
☐ GetNumber()
☐ they are called at the same time
☐ none of these

1. Which of these are binary operators?

☐ / (division)
☐ * (multiplication)
☐ + (addition)
☐ all of these

1. You can declare the same variable twice in a C# code.

☐ Yes
☐ No

1. It is good to initialize all variables upon their creation (declaration).

☐ Yes
☐ No

1. Is = the equality operator in C#?

☐ Yes
☐ No

1. Visual C# programs are created using Microsoft's Visual Studio—a collection of software tools called a(n) _____.

☐ Operating system
☐ Integrated Programming Environment
☐ Integrated Development Environment
☐ Class Library.

1. The starting point of a C# application is the

☐ Main
☐ Start
☐ Open
☐ None of the above.

1. C# statements in C# usually end with:

☐ :
☐ ;
☐ #
☐ .

1. _____ are violations of language rules.

☐ Logic errors
☐ Syntax errors
☐ Run-time errors

☐ None of the above.

1. A variable is:

☐ An instruction for the compiler
☐ A location in memory where a value is stored
☐ A description of a method call (including the argument list)
☐ None of the above.

1. What is an algorithm?

☐ The actions (and their order) that solve a particular problem
☐ An English description of a problem to be solved
☐ The declaration of an object.
☐ None of the above.

1. The order of simplicity (easiest to hardest) to a human of the three basic types of languages is:

☐ High-level, machine, assembly
☐ Machine, high-level, assembly
☐ Assembly, machine, high-level
☐ High-level, assembly, machine.

1. Which of these are binary operators?

☐ * (multiplication)
☐ + (addition/concatenation)
☐ / (division)
☐ All of these.

1. What is the correct order of actions in developing software?

☐ Define the problem, develop an algorithm, code a C# program, run tests
☐ Code a C# program, develop an algorithm, run tests
☐ Code a C# program, run tests, develop an algorithm.
☐ Define the problem, run tests, code a C# program.

1. What is the resulting value of c at the end of the following code segment?

```
int c = 5;
c *= --c;
```

☐ 25
☐ 15
☐ 20
☐ None of the above

1. What value will be printed on the output:

```
int A = 16; int B = 3;
Console.WriteLine(A/B);
```

- ☐ 1
- ☐ 5.33
- ☐ -1
- ☐ 5

1. Some compilers will automatically remove body statements from loops that do not need to be executed multiple times through a process known as _____.

- ☐ Classification
- ☐ Optimization
- ☐ Interpretation
- ☐ None of the above.

Problems

1. Find 3 syntax errors in this short C# code.

```
int num11 =1;
int num2 ==2;
if num11>-num2) {Console.WriteLine("Yes");}
else {Console.WriteLie("No");}
```

1. What sequence will appear on the output of this C# code? Which parameter of SD(int[] A, int B) method is passed by value?

```
using System;
class Program
{
    static void SD(int[] A, int B)
    {
        A[2] += A[2];
        B /= B;
    }
    static void Main(string[] args)
    {
        int[] A = { 0, 1, 2, 3 };
        S(A, A[2]);

    ↪   Console.Write($"[{A[0]},{A[1]},{A[2]},{A[3]}]");
    }
}
```

2. Consider the following code:

```
for (int y = 1; y <= 3; y++)
{
    for (int z = 1; z < 5; z++)
        Console.Write("Scene " + y + ", take " + z + ". "
  ↪  );
    Console.WriteLine();
}
```

- How many times does the outer loop iterate (i.e., how many scenes are shot)?
- How many times does the inner loop iterates (i.e., how many takes for each scene)?
- Finally, what is the total number of iteration of the nested loops (i.e., how many takes are made, total)?

1. Mark the pretest loops:

   ☐ do while
   ☐ switch
   ☐ while
   ☐ for
   ☐ if-else-if

2. Which of the following correctly declares and creates a two-dimensional rectangular array of integers?

   ☐ int(,) sum = new int(10, 40);
   ☐ int()() sum = new int(25, 43);
   ☐ int sum() = new int(20, 20);
   ☐ None of the above.

3. C# supports two types of two-dimensional arrays:

   ☐ quadrilateral and isosceles
   ☐ jagged and rectangular
   ☐ jagged and round
   ☐ None of the above.