Chapter 1: Introduction to Visual Basic 2010 Programming

MULTIPLE RESPONSE

Modified Multiple Choice

1. A _____ is an input device.
   a. scanner
   b. keyboard
   c. digital camera
   d. printer

   ANS: A, B, C   PTS: 1   REF: 9

2. An application might allow data to be entered with a _____.
   a. scanner
   b. mouse
   c. digital camera
   d. video camera

   ANS: A, B, C, D   PTS: 1   REF: 9

3. A _____ is an output device.
   a. mouse
   b. smartphone screen
   c. keyboard
   d. monitor

   ANS: B, D   PTS: 1   REF: 10

4. A database is a collection of data organized in a manner that allows _____ of that data.
   a. scanning
   b. retrieval
   c. access
   d. use

   ANS: B, C, D   PTS: 1   REF: 16

5. Buttons for frequently used commands such as _____ are found on the Standard toolbar.
   a. Open Project
   b. Cut
   c. Save
   d. Paste

   ANS: A, B, C, D   PTS: 1   REF: 18

MULTIPLE CHOICE

1. As shown in the accompanying figure, _____ the physical equipment associated with a computer.
   a. computer hardware is   c. computer programs are
   b. computer software is   d. computer cables are

   ANS: A   PTS: 1   REF: 3

2. Both the program and the data must be placed in the _____ of computers like the laptop shown in the accompanying figure in order for the computer to carry out the instructions in the program.
   a. read only memory (ROM)   c. CD-ROM
   b. central processing unit (CPU)   d. random access memory (RAM)

   ANS: D   PTS: 1   REF: 4

#4 monitor

#5 system unit

#1 internal hard drive

#2 keyboard

#3 scanner

3. Which item in the accompanying figure is a storage device?
   a. 1   c. 3
   b. 2   d. 4

   ANS: A   PTS: 1   REF: 3

4. Which item in the accompanying figure is an input device?
   a. 1   c. 3
   b. 2   d. 4

   ANS: B   PTS: 1   REF: 3

5. Which item in the accompanying figure is a processing device?
   a. 1   c. 3
   b. 2   d. 5

   ANS: D   PTS: 1   REF: 3

6. In which order do most programs follow these general steps?
   a. process data, accept input data, create output data
   b. create output data, accept input data, process data
   c. accept input data, process data, create output data
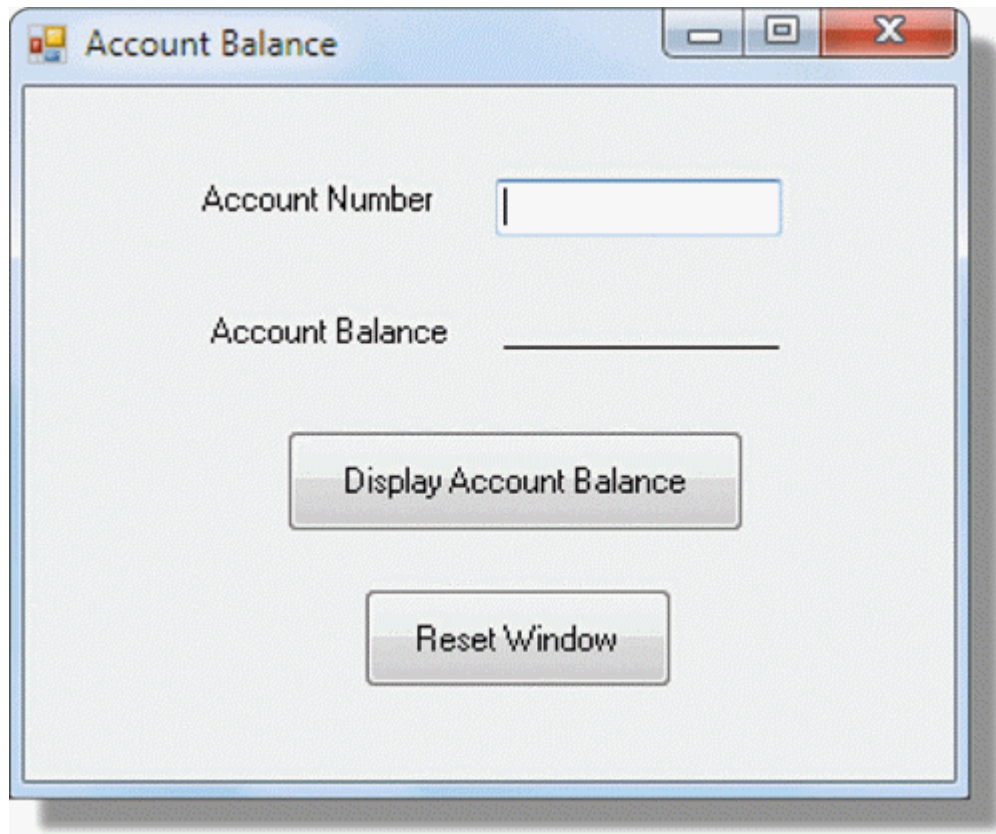   d. accept input data, create output data, process data

ANS: C PTS: 1 REF: 4

7. Data is said to be _____ if it remains available after the computer is powered off.
   a. persistent
   b. volatile
   c. fragmented
   d. temporary

ANS: A PTS: 1 REF: 4

8. Most Visual Basic 2010 programs are _____ programs because they communicate with the user through a graphical user interface (GUI).
   a. GUI-based
   b. indexed
   c. event-driven
   d. persistent

ANS: C PTS: 1 REF: 5

9. As shown in the accompanying figure, a(n) _____ consists of a window containing a variety of objects, that can be displayed on various devices.
   a. ROM
   b. GUI
   c. CPU
   d. ERD

ANS: B PTS: 1 REF: 5

10. Clicking a button like the one labeled Reset Window in the accompanying figure when a Visual Basic program is running triggers a(n) _____.
    a. index
    b. radical
    c. baseline
    d. event

ANS: D PTS: 1 REF: 6

11. Users employ GUI objects to ____.
    a. select options   c. cause events to occur
    b. enter data   d. all of the above

    ANS: D   PTS: 1   REF: 6

12. Addition and subtraction are considered to be ____ operations performed by a computer.
    a. input   c. arithmetic
    b. comparing   d. output

    ANS: C   PTS: 1   REF: 10

13. It is the ability of a computer to perform ____ operations that separates it from other types of
    calculating devices.
    a. arithmetic   c. logical
    b. input   d. output

    ANS: C   PTS: 1   REF: 11

14. A computer uses ____ operations to compare two values to see if they are equal to each other.
    a. arithmetic   c. grouping
    b. logical   d. sorting

    ANS: B   PTS: 1   REF: 12

15. A computer is able to make decisions based on the results of ____ operations.
    a. arithmetic   c. logical
    b. grouping   d. sorting

    ANS: C   PTS: 1   REF: 16

16. A ____ is a collection of data organized in a manner that allows access, retrieval, and use of that data.
    a. file   c. program
    b. folder   d. database

    ANS: D   PTS: 1   REF: 16

17. The ____ of a programming language is the set of rules that describe how the programming language
    elements can be used.
    a. logic   c. syntax
    b. semantics   d. GUI

    ANS: C   PTS: 1   REF: 16

18. A(n) ____ is a set of services and tools that enable a developer to code, test, and implement a computer
    program or series of programs.
    a. integrated development environment (IDE)
    b. graphical user interface (GUI)
    c. development studio
    d. Microsoft Intermediate Language (MSIL)

    ANS: A   PTS: 1   REF: 17

19. In the Visual Studio IDE, the ____ identifies the window or application open in the window.
    a. title bar   c. index bar
    b. menu bar   d. property

ANS: A   PTS: 1   REF: 17

20. The _____ contains a list of commands that allow you to create, edit, save, print, test, and run a Visual
Basic program.
a. menu bar   c. Toolbox
b. toolbar   d. Properties window

ANS: A   PTS: 1   REF: 18

21. The _____ contains the .NET components that you can use to develop the graphical user interface for a
program.
a. menu bar   c. Toolbox
b. toolbar   d. Properties window

ANS: C   PTS: 1   REF: 18

22. The _____ of Visual Studio 2010 contains buttons for commands that are frequently used, such as Open
Project, Save, Cut, Copy, Paste, and Undo.
a. menu bar   c. Toolbox
b. Standard toolbar   d. Properties window

ANS: B   PTS: 1   REF: 18

23. Each control has _____.
a. indices   c. IDEs
b. properties   d. tools

ANS: B   PTS: 1   REF: 19

24. A button or a text box are examples of objects, also called _____, that are part of the graphical user
interface.
a. indices   c. libraries
b. classes   d. controls

ANS: D   PTS: 1   REF: 19

25. A _____ is an item that is a visible part of a graphical user interface.
a. property   c. class
b. control   d. library

ANS: B   PTS: 1   REF: 19

26. _____ are the characteristics of objects in Visual Basic.
a. Methods   c. Identifiers
b. Function   d. Properties

ANS: D   PTS: 1   REF: 19

27. _____ is a language that can be used in Visual Studio.
a. Fortran   c. Lisp
b. Visual F#   d. COBOL

ANS: B   PTS: 1   REF: 19

28. The characteristics of GUI controls such as buttons and text boxes can be set using the _____ window
in the Visual Studio IDE.

a. Characteristics   c. Properties
b. Attributes   d. Values

ANS: C   PTS: 1   REF: 19

29. The most widely used programming language in the world is ____.
a. SQL   c. Java
b. XML   d. Visual Basic

ANS: D   PTS: 1   REF: 19

30. The Visual Studio programming language, ____, is a synthesis of C++ and Visual Basic.
a. Visual J#   c. Visual C++
b. Visual C#   d. Java

ANS: B   PTS: 1   REF: 20

31. The ____ provides tools and processes developers can use to produce and run programs.
a. SQL Server Set   c. Java Toolkit
b. .NET Framework   d. both A and B

ANS: B   PTS: 1   REF: 20

32. All of the following are major features of the .NET Framework 4.0 EXCEPT ____.
a. RAM   c. the Common Language Runtime
b. ADO.NET 4.0   d. ASP.NET 4.0

ANS: A   PTS: 1   REF: 20

33. A class ____ is a collection of classes that can be made available for developers to use
a. glossary   c. index
b. library   d. roster

ANS: B   PTS: 1   REF: 21

34. The process of ____ is used to create an object from a class.
a. initialization   c. objectification
b. instantiation   d. classification

ANS: B   PTS: 1   REF: 21

35. Each control that you use when developing the graphical user interface is created from a(n) ____ in the .NET 4.0 Framework.
a. baseline   c. index
b. roster   d. class

ANS: D   PTS: 1   REF: 22

36. A set of prewritten classes called ____ allows you to access data stored in a database.
a. ADO.NET 4.0   c. RAD
b. ASP.NET 4.0   d. CLR

ANS: A   PTS: 1   REF: 22

37. The process of using prebuilt classes to make application development faster, easier, and more reliable is called ____.
a. RAD   c. ARD

b. CAD   d. CLR

ANS: A   PTS: 1   REF: 22

38. The ____ reads the MSIL code and causes the program instructions to be executed
     a. CAD   c. CLR
     b. RAD   d. ARD

ANS: C   PTS: 1   REF: 23

39. Translating programming language statements into machine-executable instructions is accomplished
     by a process called program ____.
     a. instantiation   c. factoring
     b. compilation   d. indexing

ANS: B   PTS: 1   REF: 23

40. A Web site application runs on a Web server and produces ____ code that is downloaded to a client
     computer's browser.
     a. XML   c. HTML
     b. DHTML   d. HTTP

ANS: C   PTS: 1   REF: 25

TRUE/FALSE

1. Computer hardware will perform its tasks automatically, regardless of whether a software program is
    running or not.

    ANS: F   PTS: 1   REF: 3

2. Many computer programs perform the following general steps: first accept input, then write output,
    and finally process the data, in that order.

    ANS: F   PTS: 1   REF: 4

3. Both program instructions and the data to be processed must be stored in RAM.

    ANS: T   PTS: 1   REF: 4

4. In order for the computer to execute a program, or carry out the instructions in the program, only the
    data must be placed in the computer's random access memory (RAM).

    ANS: F   PTS: 1   REF: 4

5. In order for the computer to execute a program, both the program and the data must be placed in the
    computer's random access memory (RAM).

    ANS: T   PTS: 1   REF: 4

6. Computer programs can be written in standard English.

    ANS: F   PTS: 1   REF: 5

7. A graphical user interface (GUI) is a special device for communicating with a user.

   ANS: F   PTS: 1   REF: 5

8. A programming language is a set of words and symbols that can be interpreted by special computer software to create instructions that can be executed by a computer.

   ANS: T   PTS: 1   REF: 5

9. Clicking a button on a program screen causes an event to occur.

   ANS: T   PTS: 1   REF: 6

10. A computer program can perform addition, subtraction, multiplication, and division operations on numeric data.

   ANS: T   PTS: 1   REF: 10

11. Computers can compare numbers, letters of the alphabet, and special characters.

   ANS: T   PTS: 1   REF: 11

12. A logical operation can be used to determine if two values are equal, if one value is greater than the other, or if one value is less than the other.

   ANS: T   PTS: 1   REF: 12

13. If you write a computer program, and want to execute the same program many times without rewriting it each time, you must save the program on disk.

   ANS: T   PTS: 1   REF: 16

14. A program can write data, but it cannot save data on disk.

   ANS: F   PTS: 1   REF: 16

15. Visual Basic 2010 is a programming language.

   ANS: T   PTS: 1   REF: 16

16. Buttons for the .NET components used to develop the graphical user interface are found on the Standard toolbar.

   ANS: F   PTS: 1   REF: 18

17. Visual Studio can be used to write programs only in Visual Basic language.

   ANS: F   PTS: 1   REF: 19

18. An object acts as a general template and a class is a specific item generated based on the object template.

   ANS: F   PTS: 1   REF: 21

19. The .NET Framework 4.0 contains thousands of classes and many class libraries that can be used by Visual Basic developers.

    ANS: T   PTS: 1   REF: 22

20. ADO.NET 4.0 allows a program to examine data from a database, but does not permit the program to update data in a database.

    ANS: F   PTS: 1   REF: 22

21. ADO.NET 4.0 is not part of the .NET Framework 4.0.

    ANS: F   PTS: 1   REF: 23

22. Visual Studio 2010 incorporates a new Web designer interface into ASP.NET 4.0 that uses the design engine of a popular Web page designing program named Adobe Dreamweaver.

    ANS: F   PTS: 1   REF: 23

23. ADO.NET 4.0 is a programming framework used to build Web applications on a Web server.

    ANS: F   PTS: 1   REF: 23

24. Almost all of the objects available in the .NET framework, such as buttons, text boxes, and picture boxes, are available in ASP.NET 4.0.

    ANS: T   PTS: 1   REF: 23

25. The use of MSIL and CLR offer multiple benefits that provide speed and flexibility for both the development and execution environments of a program.

    ANS: T   PTS: 1   REF: 24

MODIFIED TRUE/FALSE

1. The set of instructions that directs a computer to perform tasks is called computer hardware. _____

   ANS: F, software

   PTS: 1   REF: 2

2. It is the ability of a computer to perform arithmetic operations that separates it from other types of calculating devices. _____

   ANS: F, logical

   PTS: 1   REF: 11

3. The programming rules of a language are called its semantics. _____

   ANS: F, syntax

PTS: 1   REF: 17

4. <u>C++</u> is a language that is derived from the programming language C. _____

   ANS: T   PTS: 1   REF: 19

5. The process of creating an object from a class template is called <u>generation</u>.
   _____

   ANS: F, instantiation

   PTS: 1   REF: 21

COMPLETION

1. Program instructions and data must be placed in the computer's _____ to allow the
   computer to carry out the program instructions.

   ANS:
   random access memory
   RAM (random access memory)
   random access memory (RAM)
   RAM

   PTS: 1   REF: 4

2. Stored data is said to be _____ because it remains available even after the computer
   is powered off.

   ANS: persistent

   PTS: 1   REF: 4

3. Operations, such as addition and subtraction, are called _____ operations.

   ANS: arithmetic

   PTS: 1   REF: 10

4. Operations, such as comparing two numbers to determine if they are equal, are called
   _____ operations.

   ANS: logical

   PTS: 1   REF: 12

5. A(n) _____ is a collection of organized data that can be accessed, retrieved, and
   used by a program.

   ANS: database

   PTS: 1   REF: 16

6. The rules of a programming language are called the _____ of the language.

   ANS: syntax

   PTS: 1   REF: 17

7. Visual Studio 2010 is an example of a set of services and tools called a(n) _____
   which allows a developer to code, test, and implement programs.

   ANS:
   integrated development environment
   integrated development environment (IDE)
   IDE

   PTS: 1   REF: 17

8. The _____ in Visual Studio 2010 contains the .NET components that can be used in
   developing the graphical user interface of a program.

   ANS: Toolbox

   PTS: 1   REF: 18

9. The _____ programming language is a synthesis of Visual Basic and C++.

   ANS: Visual C#

   PTS: 1   REF: 20

10. When an object has been created from a class, we say that a(n) _____ of the class has been
    created.

    ANS: instance

    PTS: 1   REF: 21

11. The process of creating an object from a class is called _____.

    ANS: instantiation

    PTS: 1   REF: 21

12. An object is instantiated from a(n) _____.

    ANS: class

    PTS: 1   REF: 21

13. A class acts as a general template from which a(n) _____ can be created.

    ANS: object

    PTS: 1   REF: 21

14. The .NET Framework 4.0 _____ contains thousands of classes.

    ANS: class library

    PTS: 1   REF: 22

15. _____ is the set of prewritten classes in the .NET Framework 4.0 used in Visual Studio to work with databases.

    ANS: ADO.NET 4.0

    PTS: 1   REF: 22

16. _____ is the set of prewritten classes in the .NET Framework 4.0 that is used in Visual Studio 2010 to produce Web applications.

    ANS: ASP.NET 4.0

    PTS: 1   REF: 23

17. When a program written in a Visual Studio 2010 programming language is compiled, the code is translated into an intermediate language called the _____.

    ANS:
    Microsoft Intermediate Language
    Microsoft Intermediate Language (MSIL)
    MSIL
    MSIL (Microsoft Intermediate Language)

    PTS: 1   REF: 23

18. The _____ reads the MSIL code and causes the program instructions to be executed.

    ANS:
    Common Language Runtime (CLR)
    Common Language Runtime
    CLR (Common Language Runtime)
    CLR

    PTS: 1   REF: 23

19. An application that runs on a Pocket PC or smartphone is called a(n) _____ application.

    ANS: mobile

    PTS: 1   REF: 25

20. An application that runs on a computer device using the Windows graphical user interface is called a(n) _____ application.

    ANS: Windows

    PTS: 1   REF: 25

MATCHING

Identify the letter of the choice that best matches the phrase or definition.

a. hardware
b. event-driven
c. class library
d. logical
e. RAM

f. ADO.NET 4.0
g. syntax
h. persistent
i. .NET Framework 4.0
j. Visual Basic

1. Where data must be placed in order to be processed
2. The physical equipment associated with a computer
3. Kind of data that remains available even after the computer is powered off
4. The kind of computer program that communicates interactively with the user through a graphical user interface
5. The kind of operations used to compare two values
6. The programming rules of a language
7. The most widely used programming language in the world
8. Available for all developers who need to use it
9. The use of these classes allows a program to be developed rapidly
10. Provides the tools for a program to examine data that was retrieved from a database

1.	ANS: E	PTS: 1	REF: 4
2.	ANS: A	PTS: 1	REF: 3
3.	ANS: H	PTS: 1	REF: 4
4.	ANS: B	PTS: 1	REF: 5
5.	ANS: D	PTS: 1	REF: 12
6.	ANS: G	PTS: 1	REF: 17
7.	ANS: J	PTS: 1	REF: 19
8.	ANS: C	PTS: 1	REF: 21
9.	ANS: I	PTS: 1	REF: 22
10.	ANS: F	PTS: 1	REF: 22

ESSAY

1. Define data, explain its three forms, and the general steps a computer performs related to data.

ANS:
Data includes words, numbers, videos, graphics, and sound that programs manipulate, display, and otherwise process. The basic function of many programs is to accept some form of data (sometimes called input data), manipulate the data in some manner (sometimes called processing), and create some form of data usable by people or other computers (sometimes called output data, or information). In short, many computer programs perform the following general steps: accept input data, process the data, and create output data. The data that acts as input to a program, the processing that occurs, and the output that is created varies with the requirements of the program.

PTS: 1   REF: 3-4   TOP: Critical Thinking

2. Define syntax and explain its significance.

ANS:

Each program statement causes the computer to perform one or more operations. When written, these instructions must conform to the rules of the Visual Basic 2010 language. Coding a program is a precise skill. The developer must follow the syntax, or programming rules, of the programming language precisely. Even a single coding error can cause a program to execute improperly. Therefore, the developer must pay strict attention to coding an error-free program.

PTS: 1   REF: 16-17   TOP: Critical Thinking

3. Discuss at least four of the elements found in the Visual Studio 2010 window.

ANS:
The title bar identifies the window and the application open in the window.

The menu bar displays the Visual Studio 2010 menu names, each representing a list of commands that allow you to create, edit, save, print, test, and run a Visual Basic program, as well as perform other functions that are critical to the development of Visual Basic programs.

The Standard toolbar contains buttons that execute frequently used commands such as Open Project, Save, Cut, Copy, Paste, and Undo.

The Toolbox contains .NET components that you can use to develop the graphical user interface for the program.

The main work area is used to contain the item on which you are working.

The Solution Explorer window displays the elements of the Visual Basic solution, which is the name given to the Visual Basic program and other items that are generated by Visual Studio so the program will execute properly.

An item that is a visible part of a graphical user interface, is called an object, or control. Each object in a Visual Basic program has a set of characteristics called the properties of the object. These properties can be set in the Properties window within Visual Studio.

PTS: 1   REF: 17-19   TOP: Critical Thinking

CASE

Critical Thinking Questions
Case 1-1

As you prepare to bring one of the interns in your software development company up to speed on the project on which you are working, you decide to create some illustrations of your programming to make certain key concepts clear to the intern.

1. Which of the following is an example of an event that a user might perform in the application you are creating?

a. powering on the computer	c. clicking a button
b. saving data to RAM	d. all of the above

ANS:
c

PTS: 1   REF: 6

2. All of the following are examples of actions within event-driven programs EXCEPT ____.

a. An account balance is shown when a button is clicked.	c. The computer reboots spontaneously as the result of a head crash.
b. A message appears on the screen in response to text entered by the user.	d. A text box is reset when a Reset button is clicked.

ANS:
c

PTS: 1   REF: 9

Critical Thinking Questions
Case 1-2

Visual Studio is new to you and you are trying to determine which of its languages is the best match for a couple of the projects on which you and your team are about to embark.

3. You are looking for a program that will be the most user-friendly for two of the junior members of your team, both of whom are new to programming. Which of the following is the best match?

a. Visual Basic	c. Visual C#
b. C++	d. All of the above

ANS:
a

PTS: 1   REF: 19

4. Steve and Shana on your team are looking for a language that will allow them to create an application that requires a high degree of control; they are not intimidated by complexity, as they have been programming for several years. Which of the following is the best match for them?

a. Visual Basic	c. C++
b. Visual C#	d. Visual F#

ANS:
c

PTS: 1   REF: 20