Starting Out with Programming Logic and Design 6th edition Gaddis Solutions Manual

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Answers to Review Questions

Chapter 1

Multiple Choice

1. B
2. A
3. D
4. B
5. C
6. A
7. C
8. B
9. A
10. A
11. D
12. B
13. C
14. B
15. C
16. A
17. B
18. D
19. B
20. B
21. C
22. A
23. D
24. C
25. B

True or False

1. False
2. True
3. True
4. False
5. True
6. False

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7. True
8. False
9. False
10. False

Short Answer

1. Because without it, the computer could not run software.
2. A bit that is turned on represents 1, and a bit that is turned off represents 0.
3. A digital device
4. Keywords
5. Mnemonics
6. A compiler is a program that translates a high-level language program into a separate machine language program. The machine language program can then be executed any time it is needed. An interpreter is a program that both translates and executes the instructions in a high-level language program. As the interpreter reads each individual instruction in the program, it converts it to a machine language instruction and then immediately executes it. Because interpreters combine translation and execution, they typically do not create separate machine language programs.
7. Operating system

Exercises

1.

Decimal	Binary
11	1011
65	1000001
100	1100100
255	1111111

2.

Binary	Decimal
1101	13
1000	8
101011	43

3. Here is an example: The ASCII codes for the name Marty are:

M	=	77
a	=	97
r	=	114
t	=	226
y	=	121

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4. The BASIC programming language was created in 1964 by John George Kemeny and Thomas Eugene Kurtz to provide computer access to non-science students. The C++ programming language was created by Bjarn Stroustrup in 1979 as an enhancement to the C programming language. The Java programming language was created by James Gosling in 1995 as a platform independent programming language. Python was created by Van Rossum in 1989 as a successor to the ABC programming language.

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Answers to Review Questions

Chapter 2

Multiple Choice

1. C
2. B
3. D
4. B
5. A
6. C
7. C
8. A
9. B
10. D
11. B
12. A
13. C
14. A
15. D
16. B
17. B
18. C
19. D
20. A

True or False

1. False
2. True
3. False
4. True
5. False
6. True
7. True
8. True
9. False
10. False

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Short Answer

1. Interview the customer
2. An informal language that has no syntax rules, and is not meant to be compiled or executed. Instead programmers use pseudocode to create models or “mock-ups” of programs.
3. (1) Input is received. (2) Some process is performed. (3) Output is produced.
4. The term user-friendly is commonly used in the software business to describe programs that are easy to use.
5. The variable’s name and data type.
6. It depends on the language being used. Each language has its own way of handling uninitialized variables. Some languages assign a default value such as 0 to uninitialized variables. In many languages, however, uninitialized variables hold unpredictable values. This is because those languages set aside a place in memory for the variable, but do not alter the contents of that place in memory. As a result, an uninitialized variable holds the value that happens to be stored in its memory location. Programmers typically refer to unpredictable values such this as "garbage."

Algorithm Workbench

1. ```
   Display "Enter your height."
   Input height
   ```

2. ```
   Display "Enter your favorite color."
   Input color
   ```

3. a) `Set b = a + 2`
   b) `Set a = b * 4`
   c) `Set b = a / 3.14`
   d) `Set a = b - 8`

4. a) 12
   b) 4
   c) 2
   d) 6

5. ```
   Declare Real cost
   ```

6. ```
   Declare Integer total = 0
   ```

7. ```
   Set count = 27
   ```

8. ```
   Set total = 10 + 14
   ```

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9. `Set due = downPayment – total`

10. `Set totalFee = subtotal * 0.15`

11. 11

12. 5

Debugging Exercises

1. The variable name is enclosed in quotes. This is an error because the variable's name will be displayed instead of the variable's value.
2. The first character of the variable name begins with a number. This is an error because most programming languages do not allow variable names to begin with numbers.
3. The expression is missing parentheses. This is an error because, as the order of operations dictates, the division will occur before the addition and the result will be incorrect.
4. The variable is being used before it has been declared. This is an error because most programming languages do not allow variables to be used before they are declared.
5. The variables are being used in a calculation before they have been initialized. This is an error because uninitialized variables often contain unknown values, which will cause the result to be incorrect.
6. The assignment statement is not in the correct format. This is an error because all programming languages require that you write the name of the variable that is receiving the value on the left side of the = operator.
7. A named constant cannot be assigned a value with a `Set` statement. This is an error because the program attempts to change the value of a named constant.

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