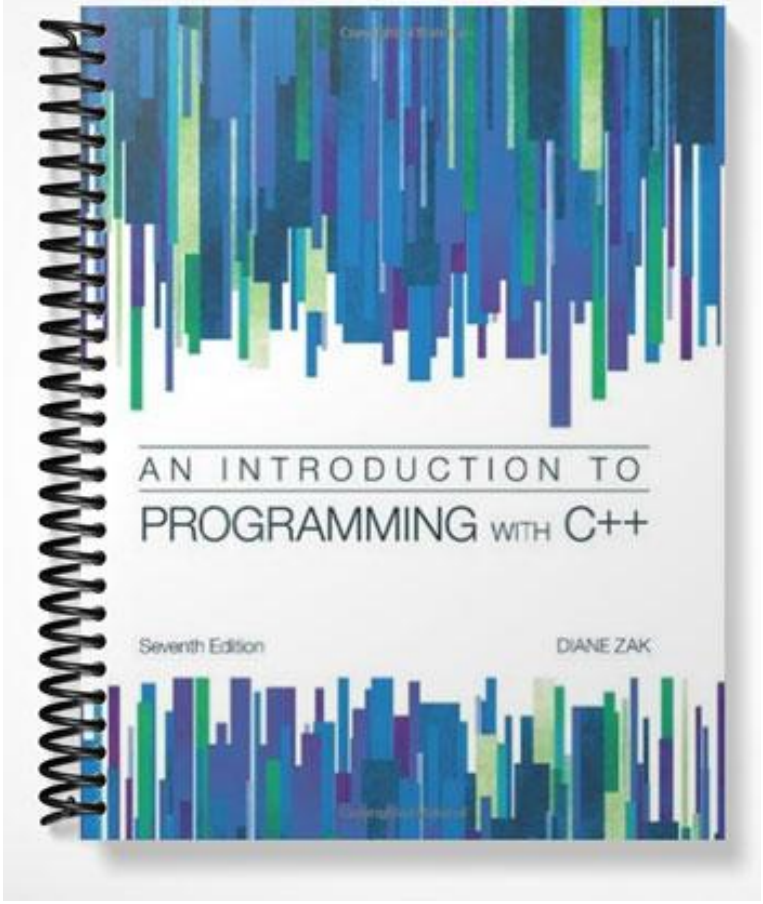
TEST BANK


AN INTRODUCTION TO
PROGRAMMING WITH C++
Seventh Edition
DIANE ZAK

Chapter 2: Beginning the Problem-Solving Process

TRUE/FALSE

1. The first step in solving a familiar problem is to analyze the problem.

   ANS: T PTS: 1 REF: 23

2. One very important component of any problem is the goal of solving the problem.

   ANS: T PTS: 1 REF: 23

3. The term desk-checking refers to the fact that the programmer reviews the algorithm while seated at his or her desk rather than in front of the computer.

   ANS: T PTS: 1 REF: 31

4. After completing the analysis and planning steps, the programmer then moves on to the third step in the problem-solving process, which is to desk-check the program.

   ANS: F PTS: 1 REF: 31

5. The term hand-tracing refers to the fact that the programmer uses a pencil and paper to follow each of the steps in the algorithm by hand.

   ANS: T PTS: 1 REF: 31

6. Desk-checking is also called pencil-tracing.

   ANS: F PTS: 1 REF: 31

7. Programmers desk-check an algorithm to verify that it will work as intended.

   ANS: T PTS: 1 REF: 31|43

8. IPO stands for Information, Processing, and Output.

   ANS: F PTS: 1 REF: 26

9. When creating a computer solution to a problem, the first three steps of the problem-solving process can usually be skipped.

   ANS: F PTS: 1 REF: 25

10. After creating the program, the programmer desk-checks the program; this is the sixth step in the problem-solving process for creating a computer program.

    ANS: F PTS: 1 REF: 31

11. When analyzing a problem, you always search first for the input, and then for the output.

    ANS: F PTS: 1 REF: 25

12. When analyzing a problem, the input is typically stated as nouns and adjectives in the problem specification.

    ANS: T PTS: 1 REF: 25

13. The analysis step is the easiest of the problem-solving steps.

    ANS: F PTS: 1 REF: 26

14. A problem specification that contains too much information can be confusing to analyze.

    ANS: T PTS: 1 REF: 26

15. Most algorithms begin with an instruction that enters the input items into the computer.

    ANS: T PTS: 1 REF: 27

16. Pseudocode is standardized among programmers.

    ANS: F PTS: 1 REF: 28

17. Many programmers prefer pseudocode to flowcharts, because a picture is sometimes worth a thousand words.

    ANS: F PTS: 1 REF: 29

18. When planning an algorithm, you need to create both a flowchart and pseudocode.

    ANS: F PTS: 1 REF: 29

19. Although it resembles programming language instructions, pseudocode cannot be understood by a computer.

    ANS: T PTS: 1 REF: 28

20. You desk-check an algorithm to verify that it is not missing any steps, and that the existing steps are correct and in the proper order.

    ANS: T PTS: 1 REF: 31

21. Before you begin the desk-check, you first choose a set of sample data for the input values, which you then use to manually compute the expected output values.

    ANS: T PTS: 1 REF: 31

22. You can desk-check an algorithm using its pseudocode but not its flowchart.

    ANS: F PTS: 1 REF: 32

23. You should test an algorithm with invalid data, because users sometimes make mistakes when entering data.

    ANS: T PTS: 1 REF: 34

24. A processing item represents an intermediate value that the algorithm uses when processing the input into the output.

ANS: T PTS: 1 REF: 29-30

25. A desk-check table should contain one column for each input item listed in the IPO chart, as well as one column for each output item and one column for each processing item.

ANS: T PTS: 1 REF: 32

MULTIPLE CHOICE

1. After implementing an algorithm, you must ____ it and, if necessary, modify it.
   a. design
   b. evaluate
   c. benchmark
   d. execute it on a computer

   ANS: B PTS: 1 REF: 24

2. A computer program is a ____ implemented with a computer.
   a. diagram
   b. problem
   c. pseudocode
   d. solution

   ANS: D PTS: 1 REF: 24-25

3. When reading a problem specification, it helps to use a pencil to ____ the information that you feel is unimportant to the solution.
   a. erase
   b. underline
   c. highlight
   d. lightly cross out

   ANS: D PTS: 1 REF: 26

4. The ____ step to creating a computer solution is to analyze the problem.
   a. first
   b. second
   c. third
   d. fourth

   ANS: A PTS: 1 REF: 25

5. The ____ step to creating a computer solution is to plan the algorithm.
   a. first
   b. second
   c. third
   d. fourth

   ANS: B PTS: 1 REF: 25

6. The ____ step to creating a computer solution is to desk-check the program.
   a. third
   b. fourth
   c. fifth
   d. sixth

   ANS: C PTS: 1 REF: 25

7. The ____ step to creating a computer solution is to code the algorithm into a program.
   a. second
   b. third
   c. fourth
   d. fifth

   ANS: C PTS: 1 REF: 25

8. The processing portion of an IPO chart might include a ____.
   a. flowchart
   b. statement about the input data
   c. statement about the output data
   d. notation to the user of the program

   ANS: A PTS: 1 REF: 27-28

9. IPO stands for ____, Processing, and Output.
   a. Information
   b. Input
   c. Implementation
   d. Iteration

   ANS: B PTS: 1 REF: 26

10. The term pseudocode means ____.
    a. machine code
    b. confusing code
    c. false code
    d. simple code

    ANS: C PTS: 1 REF: 28

11. Another term for desk-checking is ____.
    a. hand-tracing
    b. outlining
    c. glancing over
    d. coding

    ANS: A PTS: 1 REF: 31

12. The purpose of analyzing a problem is to determine the goal of solving the problem and the items that are needed to achieve that goal. Programmers refer to the goal as the ____.
    a. output
    b. input
    c. data
    d. start symbol

    ANS: A PTS: 1 REF: 25

13. The purpose of analyzing a problem is to determine the goal of solving the problem and the items that are needed to achieve that goal. Programmers refer to the items needed to achieve the goal as the ____.
    a. output
    b. input
    c. data
    d. start symbol

    ANS: B PTS: 1 REF: 25

14. Some programmers use a(n) ____ to organize and summarize the results of a problem analysis.
    a. flowchart
    b. IPO chart
    c. diagram
    d. graph

    ANS: B PTS: 1 REF: 25

15. A(n) ____ represents an intermediate value that the algorithm uses when processing the input into the output.
    a. input value
    b. output value
    c. IPO
    d. processing item

    ANS: D PTS: 1 REF: 29-30

16. ____, composed of short English statements, is a tool programmers use to help them plan an algorithm.
    a. Pseudocode
    b. UML
    c. An IPO
    d. A flowchart

    ANS: A PTS: 1 REF: 28

17. ____uses standardized symbols to show the steps that must be followed to accomplish the program's goal.
    a. Pseudocode
    b. UML
    c. An IPO chart
    d. A flowchart

    ANS: D PTS: 1 REF: 28

18. In a flowchart the symbols are connected with lines, called ____.
    a. flows
    b. connectors
    c. flowlines
    d. arrows

    ANS: C PTS: 1 REF: 29

19. In a flowchart, the oval symbol is called the ____ symbol.
    a. input/output
    b. process
    c. selection
    d. start/stop

    ANS: D PTS: 1 REF: 29

20. In a flowchart, the parallelogram symbol is called the ____ symbol.
    a. input/output
    b. process
    c. selection
    d. start/stop

    ANS: A PTS: 1 REF: 29

21. In a flowchart, the rectangle symbol is called the ____ symbol.
    a. input/output
    b. process
    c. selection
    d. start/stop

    ANS: B PTS: 1 REF: 29

22. You can use a(n) ____ to help you desk-check an algorithm.
    a. desk-check table
    b. IPO chart
    c. flowchart
    d. pseudocode

    ANS: A PTS: 1 REF: 31-32

23. ____ data is data that an algorithm is not expecting the user to enter.
    a. Input
    b. Output
    c. Invalid
    d. Valid

    ANS: C PTS: 1 REF: 34

24. ____ data is data that an algorithm is expecting the user to enter.
    a. Input
    b. Output
    c. Invalid
    d. Valid

    ANS: D PTS: 1 REF: 34

25. You ____ an algorithm to verify that it is not missing any steps, and that the existing steps are correct and in the proper order.
    a. test
    b. desk-check
    c. implement
    d. evaluate

    ANS: B PTS: 1 REF: 31